## NI 43-101 Technical Report Resource Update Mt. Todd Gold Project Northern Territory, Australia

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Effective Date: September 4, 2012

Issue Date: October 4, 2012

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- b) This certificate applies to the Technical Report titled "Technical Report Resource Update Mt. Todd Gold Project Northern Territory, Australia" (Technical Report), effective September 4, 2012, issued October 4, 2012.
- c) I graduated with a degree in Engineering (BS with honors) in 1971 and a MBA degree in 1973 from the Michigan State University, East Lansing. In addition, I graduated from Brown University, Providence, Rhode Island with a MS degree in Geology in 1977, and The Colorado School of Mines, Golden, Colorado, with a graduate degree in Mineral Economics (Ph.D.) in 1980. I have worked as a resource estimator and geostatistician for a total of thirty-one years since my graduation from university; as an employee of a leading geostatistical consulting company (Geostat Systems, Inc. USA), with large engineering companies such as Dames and Moore, URS, and Tetra Tech and as a consultant for more than 30 years. I am a Registered Member (#411340) of the Society for Mining, Metallurgy, and Exploration, Inc. (SME). I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- d) I have visited and inspected the subject property from September 12th, 2011 to September 14th, 2011.
- e) I am responsible for SECTIONS 1-12, 14, 18-20, portions of 21, and 23-27 of this Technical Report.
- f) I satisfy all the requirements of independence according to NI 43-101.
- g) I have had prior involvement with Vista Gold Corp. on the property that is the subject of this Technical Report. My involvement has consisted of acting as an expert who was relied upon for previous Technical, Preliminary Economic Assessment, and Prefeasibility Reports.



- h) I have read NI 43-101, Form 43-101F1, and the Companion Policy to NI 43-101 (43-101 CP) and the Technical Report has been prepared in compliance with NI 43-101, Form 43-101F1, and 43-101 CP.
- i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- j) I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated this 4<sup>th</sup> day of October 2012

"Rex Clair Bryan, Ph.D." - Signed

Signature of Qualified Person

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11475 W. I-70 Frontage Road North

Wheat Ridge, Colorado 80033

- b) This certificate applies to the Technical Report titled "Technical Report Resource Update Mt. Todd Gold Project Northern Territory, Australia" (Technical Report), effective September 4, 2012, issued October 4, 2012.
- c) I graduated with an M.S. in Metallurgical Engineering and a Ph.D. in Mineral Economics from the Colorado School of Mines in 1974 and 1978, respectively. I have worked as a metallurgist/mineral economist for a total of 35 years and have been involved with the preparation of numerous reports, feasibility studies, and NI 43-101 documents. I am a Member of the Society for Mining, Metallurgy, and Exploration, Inc. (SME) and the Canadian Institute of Mining (CIM). I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- d) I have not visited or inspected the subject property.
- e) I am responsible for SECTION 13, 17 and portions of 21 of this Technical Report.
- f) I satisfy all the requirements of independence according to NI 43-101.
- g) I have had prior involvement with Vista Gold Corp. on the property that is the subject of this Technical Report. My involvement has consisted of acting as the Qualified Person for previous Technical, Preliminary Economic Assessment, and Prefeasibility Reports.
- h) I have read NI 43-101, Form 43-101F1, and the Companion Policy to NI 43-101 (43-101 CP) and the Technical Report has been prepared in compliance with NI 43-101, Form 43-101F1, and 43-101 CP.
- i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.



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j) I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated this 4<sup>th</sup> day of October 2012

"Deepak Malhotra, Ph.D." - Signed

Signature of Qualified Person

Deepak Malhotra, Ph.D.

Print Name of Qualified Person



October 2012

## **CERTIFICATE OF AUTHOR**

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- I, Thomas Dyer, P. E., do hereby certify that:
- a) I am currently employed as Senior Engineer by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502.
- b) This certificate applies to the Technical Report titled "NI 43-101 Technical Report Resource Update Mt. Todd Gold Project Northern Territory, Australia" (Technical Report), effective September 4, 2012, issued October 4, 2012.
- c) I graduated with a Bachelor of Science degree in Mine Engineering from South Dakota School of Mines & Technology in 1996. I have worked as a Mining Engineer for 16 years since graduation. I am registered as a Professional Engineer Mining in the State of Nevada (# 15729). I am also a Registered Member of SME (# 4029995RM) in good standing.

I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

- d) I visited the subject property during March, 2011.
- e) I am responsible for the preparation of sections 15, 16, and portions of section 21 of this Technical Report as they relate to reserves, mine planning, and mining operating and capital costs.
- f) I satisfy the requirements of independence according to Section 1.5 of NI 43-101.
- g) I have had previous involvement with Vista Gold Corp. on the property that is the subject of this Technical Report. I previously completed a mining study and reserve statement which was included into the technical report entitled: "Preliminary Feasibility Study NI 43-101 Technical Report Mt Todd Gold Project Northern Territory, Australia" (October 1, 2010).
- h) I have read National Instrument 43-101, Form 43-101F1, and 43-101CP, and the Technical Report has been prepared in compliance with that instrument, form, and companion policy.
- i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- j) I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.



Dated this 4<sup>th</sup> day of October 2012.

"Thomas Dyer"

Thomas Dyer, P.E.

Print Name of Qualified Person



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- b) This certificate applies to the Technical Report titled "NI 43-101 Technical Report Resource Update Mt. Todd Gold Project Northern Territory, Australia" (Technical Report), effective September 4, 2012, issued October 4, 2012.
- c) I graduated from the Colorado School of Mines, Golden, Colorado with a bachelor's degree in metallurgical engineering in 1978, a master's degree in mine engineering in 1986, a master's degree in environmental engineering in 1993, and a doctorate in mining engineering specializing in process engineering optimization in 2007. I have worked over 10 years with operators in mine and mineral processing operations, 11 years with engineering firms in project valuation, design, engineering, construction and commissioning, and 11 years as an independent minerals industry consultant. I am a licensed professional engineer in the State of Colorado and my license number is 24448. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- d) I have not visited or inspected the subject property.
- e) I am responsible for SECTIONS 21 and 22 of this Technical Report.
- f) I satisfy all the requirements of independence according to Section 1.5 of the NI 43-101 Companion Policy (43-101CP)
- g) I have had prior involvement with Vista Gold Corp. on the property that is the subject of this Technical Report. My involvement has consisted of contributing to the development of the economic evaluation for the January 2011 Prefeasibility Report for Tetra Tech.
- h) I have read NI 43-101, Form 43-101F1, and 43-101CP the Technical Report has been prepared in compliance with NI 43-101, Form 43-101F1, and 43-101CP.
- i) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific



Signature Page

and technical information that is required to be disclosed to make the Technical Report not misleading.

j) I consent to the filing of the Technical Report with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report.

Dated this 4<sup>th</sup> day of October 2012

"Richard Jolk, PE, Ph.D." -Signed

Signature of Qualified Person

Richard Jolk, PE, Ph.D.

Print Name of Qualified Person



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## **ILLUSTRATIONS**

All illustrations figures and tables have been included within the report text.



## 1.0 SUMMARY

Vista Gold Corp. ("Vista") and its subsidiary, Vista Gold Australia Pty Ltd ("Vista Australia") entered into an agreement **to** acquire an interest in the Mt. Todd gold project located in Northern Territory (NT), Australia (the "Project") on March 1, 2006. The acquisition was completed on June 16, 2006 when the mineral leases comprising the Project were transferred to Vista Australia and funds held in escrow were released. Vista Australia is the operator of the Mt. Todd property.

The Mt. Todd property contains a number of known occurrences of gold, which have been explored and/or exploited to various degrees. The largest and best-known deposits are the Batman and Quigleys Deposits. Both of these have had historic mining by prior operators, with Batman having the most production and exploration completed. Vista has reported mineral resource estimates in accordance with National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves ("CIM Standards") for the Batman and Quigley Deposits and a mineral reserve estimate in accordance with NI 43-101 and CIM Standards for only the Batman Deposit. The primary purpose of this technical report is to provide an updated mineral resource estimate for the Batman Deposit, which update is based on additional drilling completed in 2011 and 2012.

Prior to the completion of this technical report, Tetra Tech MM, Inc. ("Tetra Tech" or "Tt") was commissioned by Vista in September 2009 to prepare a Preliminary Feasibility Study (PFS) in accordance with NI 43-101 at an ore processing rate of 6.77 million tonnes per year (Mtpy) for the Project. The PFS study at 6.77 Mtpy was issued October 1, 2010. Subsequently, Vista commissioned a second PFS at an ore processing rate of 10.65 Mtpy, which was issued January 28, 2011.

Prior to these two PFS studies, an initial NI 43-101 technical report was completed on June 26, 2006; a Preliminary Economic Assessment technical report was completed on December 29, 2006; and an update to the resource report was completed in May 2008 and February 2009 based on additional exploration drilling completed by Vista during 2007 and 2008.

## 1.1 Location, Property Description, and Ownership

The Mt. Todd Project is located 56 kilometers (km) by road northwest of Katherine, and approximately 250 km southeast of Darwin in NT, Australia (FIGURE 1-1). Access to the property is via high quality, two-lane paved roads from the Stuart Highway, the main arterial within the territory.

## 1.2 History

The Mt. Todd Gold Project has a long, well-documented history as presented in TABLE 1-1. In addition, it has a well-preserved and meticulously maintained database and supporting file system. The care taken with respect to and the quality of, data speak well to the trust and integrity of the resultant studies that have been completed since the deposit was discovered.

While the property previously operated and closed due to bankruptcy, prior to Vista's involvement, in the qualified person's opinion the failure of the project by its prior operators was not a result of a failure of the deposit and/or the resource estimate. The failure of the project was primarily a result of improper crushing and grinding, accompanied by poor recovery which resulted in higher than expected operating costs, and low gold prices. If proper bulk sampling and testing had been completed, it is believed that a different process plant would have been built, which would have been more appropriate for the deposit conditions.



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The Batman resource estimate completed by its prior operator reconciled very well on a "global" basis, but had difficulties on a local basis. In the qualified person's opinion, this was primarily due to improper modeling techniques that "over-smoothed" the grades and poor sampling techniques of the blast holes. The improper modeling of the resource was rectified in Vista's original Technical Report (dated June 26, 2006) when the entire deposit was remodeled. Vista has continued to use modeling procedures that ensure the continued integrity of the resource estimates. Prior to closure in 2000, it appears that all of the sampling problems, as specified by the various consultants and reports, had been addressed and corrected.



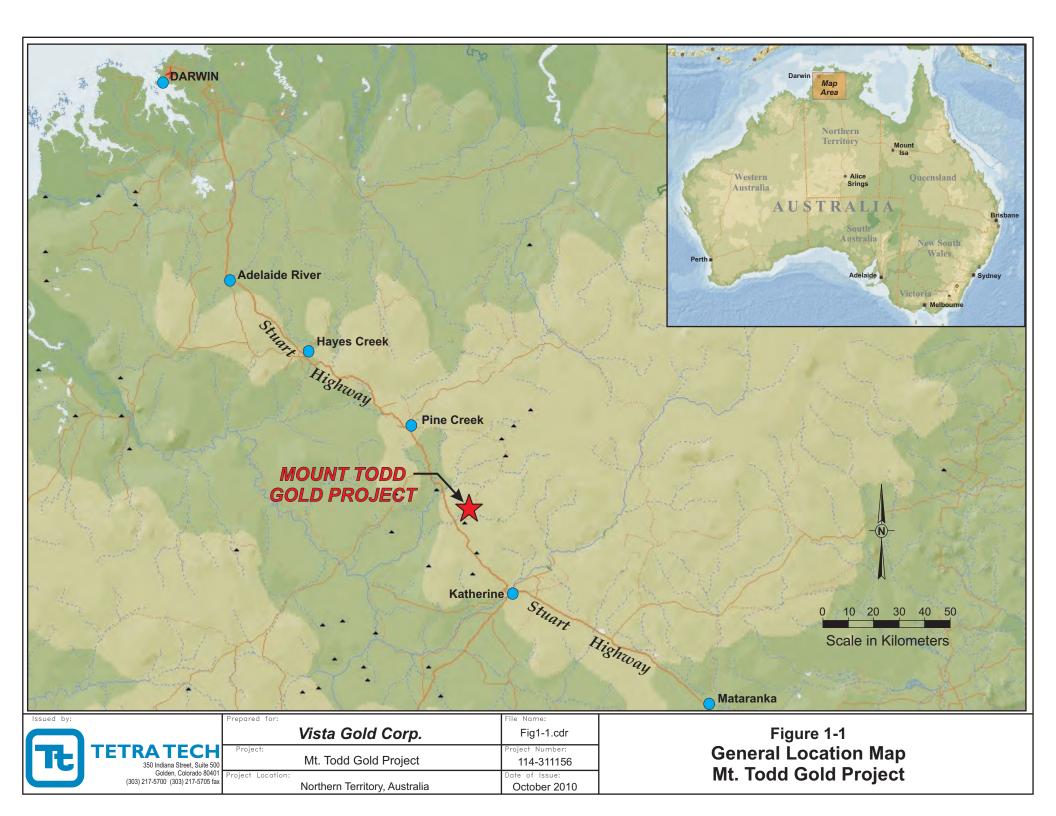


TABLE 1-1: Property History				
VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2012				
<u>1986</u>				
October 1986 –	1 7 0 0 7			
January 1987:	Acquisition by Zapopan N.L. (Zapopan)			
1987				
February:	Joint Venture finalized between Zapopan and Billiton. Geological Reconnaissance, Regional			
June-July:	BCL, stream sediment sampling			
October:	Follow-up BCL stream sediment sampling, rock chip sampling and geological mapping (Geonorth)			
<u>1988</u>				
Feb-March:	Data reassessment (Truelove)			
March-April:	Gridding, BCL grid soil sampling, grid based rock chip sampling and geological mapping (Truelove)			
Мау:	Percussion drilling Batman (Truelove) - (BP1-17, 1475m percussion)			
May-June:	Follow-up BCL soil and rock chip sampling (Ruxton, Mackay)			
July:	Percussion drilling Robin (Truelove, Mackay) - RP1-14, (1584m percussion)			
July-Dec:	Batman diamond, percussion and RC drilling (Kenny, Wegmann, Fuccenecco) - BP18-70, (6263m percussion); BD1-71, (8562m Diamond); BP71-100, (3065m R.C.)			
<u>1989</u>				
Feb-June:	Batman diamond and RC drilling:BD72-85 (5060m diamond); BP101-208, (8072m RC). Penguin, Regatta, Golf, Tollis Reef Exploration Drilling: PP1-8, PD1, RGP132, GP1-8, BP108, TP1-7 (202m diamond, 3090m RC); TR1-159 (501m RAB).			
June:	Mining lease application (MLA's 1070, 1071) lodged.			
July-Dec:	Resource estimates; mining-related studies; Batman EM-drilling: BD12, BD8690 (1375m diamond); RC pre-collars and H/W drilling, BP209-220 (1320m RC); Exploration EM and exploration drilling: Tollis, Quigleys, TP9, TD1, QP1-3, QD1-4 (1141 diamond, 278m RC); Negative Exploration Tailings Dam: E1-16 (318m RC); DR1-144 (701. RAB) (Kenny, Wegmann, Fuccenecco, Gibbs).			
1990				
Jan-March:	Pre-feasibility related studies; Batman Inclined Infill RC drilling: BP222-239 (2370m RC); Tollis RC drilling, TP10-25 (1080m RC).			
	(Kenny, Wegmann, Fuccenecco, Gibbs)			
<u> 1993 - 1997</u>				
Pegasus Gold Australia Pty Ltd.	Pegasus Gold Australia Pty Ltd (Pegasus) reported investing more than \$200 million in the development of the Mt. Todd mine and operated it from 1993 to 1997, when the project closed as a result of technical difficulties and low gold prices. Ferrier Hodgson (the Deed Administrators) were appointed in 1997 and sold the mine in March 1999 to a joint venture comprised of			

	Multiplex Resources Pty Ltd and General Gold Resources Ltd.		
<u> 1999 - 2000</u>			
March - June	Operated by a joint venture comprised of Multiplex Resources Pty Ltd and General Gold Resources Ltd. Operations ceased in July 2000, Pegasus, through the Deed Administrators, regained possession of various parts of the mine assets in order to recoup the balance of purchase price owed it. Most of the equipment was sold in June 2001 and removed from the mine. The tailings facility and raw water facilities still remain at the site.		
2000 – 2006	The Deed Administrators, Pegasus; the government of the NT; and the Jawoyn Association Aboriginal Corporation (JAAC) held the property.		
<u>2006</u>			
March	Vista Australia acquires mineral lease rights from the Deed Administrators.		

## 1.3 Ownership

Vista Australia is the holder of three mineral licenses (ML)MLN 1070, MLN 1071, and MLN 1127 comprising approximately 5,389 hectares. In addition, Vista Australia controls exploration licenses (EL) EL 25668, EL 25669, EL 25576, EL 25670 and EL 28321 comprising approximately 134,838 hectares. FIGURE 1-2 illustrates the general location of the tenements and the relative position of the Batman Deposit.

The agreement with the NT is for an initial term of five years commencing January 1, 2006, with an extension of five years at Vista's option and three additional years possible at the option of the NT. During the first five-year term, Vista must undertake a comprehensive technical and environmental review of the project to evaluate current site environmental conditions to develop a program to stabilize the environmental conditions and minimize offsite contamination. Vista must also review the water management plan and make recommendations and produce a technical report for the re-starting of the operations. During the term of the agreement, Vista must 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 of the entire Mt. Todd Project site.

As part of the agreement, the NT has acknowledged its commitment to rehabilitate the site and that Vista has no obligations for pre-existing conditions until it submits and receives approval of a Mine Management Plan for resumption of mining operations. Vista provided notice to the NT Government in June 2010 that it wished to extend the agreement. In November, the NT Government acknowledged that Vista had fulfilled its obligations for the initial term, and the agreement has been extended for five years until December 31, 2015.

## 1.4 Geology and Mineralization

The Mt. Todd Project is situated within the southeastern portion of the Early Proterozoic Pine Creek Geosyncline. Meta-sediments, granitoids, basic intrusives, acid and intermediate volcanic rocks occur within this geological province.

The geology of the Batman Deposit consists of a sequence of hornfeld interbedded greywackes, and shales with minor thin beds of felsic tuff. Bedding is striking consistently at 325°, dipping at 40° to 60° to the southwest. Minor lamprophyre dykes trending north-south pinch and swell, crosscutting the bedding.

The deposits are similar to other gold deposits of the Pine Creek Geosyncline (PCG) and are classified as orogenic gold deposits in the subdivision of thermal aureole gold style. The



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Batman Deposit shares some characteristics with intrusion-related gold systems, especially in terms of the association of gold with bismuth and reduced ore mineralogies. This makes the deposit unique in the PCG. The mineralization within the Batman Deposit is directly related to the intensity of the north-south trending quartz sulfide veining. The lithological units impact on the orientation and intensity of mineralization.

Sulfide minerals associated with the gold mineralization are pyrite, pyrrhotite, and lesser amounts of chalcopyrite, bismuthinite, and arsenopyrite. Galena and sphalerite are also present but appear to be post-gold mineralization and are related to calcite veining, bedding, and the east-west trending faults and joints.

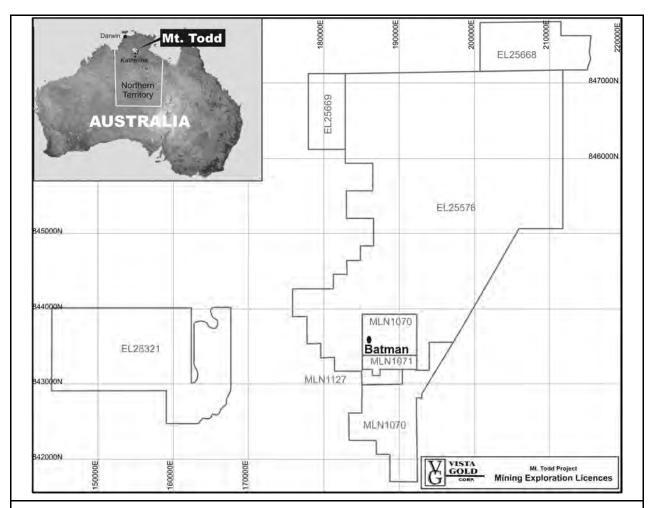


FIGURE 1-2: Concessions Map Mt. Todd Gold Project
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#### 1.5 Estimated Resources

This technical report updates the mineral resource estimate for Vista Gold's Mt. Todd Batman Deposit. The updated mineral resource estimate was completed on September 4, 2012 by Tetra Tech, in accordance with NI 43-101 and CIM Standards. Previous technical reports contain extensive geologic and technical information related to the deposit for which the estimate is prepared. The last technical report was filed on SEDAR on April 11, 2012, and is entitled "Amended and Restated - NI 43-101 Technical Report - Resource Update - Mt. Todd Gold Project – Northern Territory, Australia" and was issued on April 11, 2012 with an effective date of September 6, 2011. The updated resource estimate included in this technical report incorporates the results of 12,820 new assay intervals from 18 drill holes (all core holes) totaling 13,036 meters drilled by Vista in 2011 and 2012 with sample preparation and assaying completed by North Australia Laboratories.

At the present time, resources have only been estimated for the Batman and Quigleys Deposits. For the purposes of this report, only the resource estimate of the Batman Deposit have been updated. Other deposits are known to be located and, in some cases, possess limited drillhole and other geologic information, but have not been investigated by Vista. Tetra Tech has created three-dimensional computerized geologic and grade models of the Batman and Quigleys deposits. While the global model area also contains the Golf-Tollis and several other smaller deposits, no resources have been estimated for these deposits.

Tetra Tech used the geologic model that has evolved over the last few years, as adjusted by each exploration program, to guide the statistical and geostatistical analysis of the gold assay data. This model is a combination of lithologic and alteration data. The rock model was assigned a tonnage factor based on the oxidation state (i.e., oxidized, transition, primary). The tonnage factors are based on a number of tests from the core and, in Tetra Tech's opinion, are representative of the various rock units and are acceptable for estimation of the in-place geologic resources.

The estimate was prepared using MicroMine®, GEMCOM® and MicroModel® software and used whole block kriging to estimate block values. The estimations procedures used in this estimate are the same estimation procedures as the previous Tetra Tech resource models, adjusted according to each successive drilling program. The estimation is completed as a "multi-pass-pass" process. That is, the first passes are for the estimating resources within the main core complex using only data from this zone. The additional passes are for the material outside of the main core complex using only assays from outside the core complex. The estimated gold resources were classified into measured, indicated, and inferred categories. The classification was accomplished by a combination of search distance, kriging variance, number of points used in the estimate, and number of sectors used. TABLE 1-2 details the results of the classification.

This updated resource estimate represents an increase of over one million ounces in the Measured and Indicated mineral resource categories since the previous resource update in September, 2011 and an increase of over 1.8 million ounces of Measured and Indicated resources since the completion of the January 2011 PFS.



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# TABLE 1-2: Resource Classification Criteria VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2011

October 2011							
Category	Search Range & Kriging Variance	No. of Sectors/ Max Pts per DH	Search Anisotropy	Min Points	Composite Codes	Block Codes	CORE
Indicated	Core Complex: 150 m & KV < 0.34 Pass	4/2	(1.0:0.7:0.4) [110:80:0]	2	1000	1000	PLEX
Measured	Core Complex: 60 m & KV < 0.30 Pass 2 (overwrite Pass 1)	4/3	(1.0:0.7:0.4) [110:80:0]	4	1000	1000	CORE COMPLEX
Inferred	Core Complex KV >= 0.34 Classification Step	NA	NA	NA	1000	1000	SORE
Inferred	Outside Core Complex: 150 m & KV <= 0.45 Pass 3	4/3	(1.0:0.7:0.4) [110:80:0]	3	500/3500	500/ 3500	
Inferred	Outside Core Complex: 50 m & KV < = 0.45 Pass 4 (overwrite Pass 3)	4/3	(1.0:0.7:0.4) [110:80:0]	8	500/3500	500/ 3500	IPLEX
Inferred	Primary Satellite Deposit: 150 m & KV < 0.45 Pass 5	4/3	(1.0:0.7:0.4) [110:80:0]	3	600	600	COM
Indicated	Primary Satellite Deposit: 50 m & KV < 0.34 Pass 6 (overwrite Pass 5)	4/3	(1.0:0.7:0.4) [110:80:0]	8	600	600	OUTSIDE CORE COMPLEX
Inferred	Secondary Satellite Deposit: 150 m & KV < 0.45 Pass 7	4/3	(1.0:0.7:0.4) [110:80:0]	3	700	700	OUTSID
Indicated	Secondary Satellite Deposit: 50 m & KV < 0.34 Pass 8 (overwrite Pass 7)	4/3	(1.0:0.7:0.4) [110:80:0]	8	700	700	
		INDEX	(				
Zone Codes	Zone Codes Zone Names Search Anisotropy (Ellipsoid)						
3500	3500 Footwall  Search Ranges (a:b:c) Proportion of Maximum Range for: a. Primary Axis Length: b. Secondary Axis Length: c. Tertiary Axis Length						/ Δyis I enath
1000	1000 Core Complex					y ANIS Lerigin	
700	700 Secondary Satellite (n HW farthest from Core)						
600	Primary Satellite (in HW Nearest to Core)	e) Orientation of Ellipse [1:2:3] 1. Azimuth of Primary Axis : 2. Dip of Primary Axis: 3. Rotation (Tilt) around Primary Axis					
500	500 Hanging Wall Area						

TABLE 1-3 details the estimated in-place resources by classification and by cutoff grade for the Batman Deposit and has been updated for this technical report. TABLE 1-4 details the in-place resources by classification and by cutoff grade for the Quigleys Deposit which has not been updated for this technical report.

All of the resources quoted are contained on Vista's mineral leases. The cutoff grade selected for the resource reporting is 0.4 grams of gold per tonne (g Au/t) and is bolded in the table. This cutoff grade was determined using the three-year average gold price of \$950 in September 2010, details can be found in the previously prefeasibility study by Tetra Tech from January 2011.

TABLE 1-3: Batman Deposit Classified Gold Resource Estimate  VISTA GOLD CORP. – MT TODD GOLD PROJECT				
	C	October 2012		
Cutoff Grade Tonnes Average Grade Total Au Ounce g Au/t (x1000) g Au/t (x1000)				
	N	IEASURED <sup>(2)</sup>		
2.00	2,440	2.40	188	
1.75	4,542	2.15	314	
1.50	8,020	1.92	495	
1.25	12,944	1.71	712	
1.00	21,090	1.48	1,004	
0.90	25,932	1.38	1,152	
0.80	32,429	1.27	1,328	
0.70	40,542	1.17	1,524	
0.60	51,009	1.06	1,742	
0.50	62,562	0.97	1,946	
0.40	75,101	0.88	2,127	

Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
		INDICATED <sup>(2)</sup>	
2.00	5,220	2.54	427
1.75	8,738	2.27	637
1.50	14,567	2.01	941
1.25	24,253	1.75	1,366
1.00	41,531	1.48	1,983
0.90	52,107	1.38	2,305
0.80	66,171	1.26	2,689
0.70	84,780	1.15	3,136
0.60	110,995	1.03	3,681
0.50	145,784	0.92	4,295
0.40	186,299	0.81	4,879

Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
	MEASUR	RED+INDICATED(1), (2)	
2.00	7,660	2.5	615
1.75	13,280	2.23	952
1.50	22,587	1.98	1,436
1.25	37,197	1.74	2,077
1.00	62,621	1.48	2,987
0.90	78,038	1.38	3,457
0.80	98,602	1.27	4,017
0.70	125,325	1.16	4,660
0.60	162,011	1.04	5,423
0.50	208,353	0.93	6,241
0.40	261,400	0.83	7,007

## NOTES:

- (1) The sum of measured and indicated resources as reported under NI 43-101 is equivalent to mineralized material under SEC Industry Guide 7.
- (2) Tonnage, grades and totals may not total due to rounding



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INFERRED RESOURCES (2)			
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
2.00	2,462	3.0707	243
1.75	3,335	2.7581	296
1.50	4,610	2.4421	362
1.25	7,070	2.0682	470
1.00	11,929	1.6748	642
0.90	16,207	1.4844	774
0.80	22,047	1.3149	932
0.70	29,030	1.1783	1,100
0.60	40,586	1.026	1,339
0.50	60,049	0.8705	1,681
0.40	88,774	0.7332	2,093

#### NOTES:

- (1) Tables above (Measured, Indicated, Measured + Indicated, Inferred) show the resources present and are not contained within a pit (i.e. all possible resources).
- (2) Tonnage, grades and totals may not total due to rounding

TABLE 1-4: Quigleys Deposit Classified Gold Resource Estimate
VISTA GOLD CORP. – MT TODD GOLD PROJECT
September 2010

I		T T T T T T T T T T T T T T T T T T T	T
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
		MEASURED	
2.00	30	2.27	2
1.75	50	2.11	3
1.50	87	1.90	5
1.25	136	1.71	7
1.00	222	1.48	11
0.90	263	1.39	12
0.80	305	1.32	13
0.70	355	1.24	14
0.60	428	1.14	16
0.50	511	1.04	17
0.40	571	0.98	18
		INDICATED	
2.00	158	2.38	12
1.75	273	2.17	19
1.50	450	1.95	28
1.25	897	1.66	48
1.00	1,634	1.41	74
0.90	2,057	1.32	87
0.80	2,618	1.22	102
0.70	3,374	1.11	121
0.60	4,363	1.01	141
0.50	5,565	0.91	162
0.40	6868	0.820	181



Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)		
	MEASURED + INDICATED (1), (2)				
2.00	188	2.36	14		
1.75	323	2.16	22		
1.50	537	1.94	34		
1.25	1,033	1.66	55		
1.00	1,856	1.42	85		
0.90	2,320	1.33	99		
0.80	2,923	1.23	115		
0.70	3,729	1.12	135		
0.60	4,791	1.018	157		
0.50	6,076	0.919	179		
0.40	7,439	0.833	199		

## NOTE S

- (1) The sum of measured and indicated resources as reported under NI 43-101 is equivalent to mineralized material under SEC Industry Guide 7.
- (2) Tonnage, grades and totals may not total due to rounding

INFERRED RESOURCES(2)			
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
2.00	335	2.35	25
1.75	559	2.16	39
1.50	975	1.93	60
1.25	1,854	1.66	99
1.00	3,193	1.43	147
0.90	3,950	1.34	170
0.80	4,795	1.25	193
0.70	5,871	1.16	219
0.60	7,473	1.05	252
0.50	9,416	0.95	287
0.40	11,767	0.85	320

#### Notes:

- (1) Tables above (Measured, Indicated, Measured + Indicated, Inferred) show the resources present and are not contained within a pit (i.e. all possible resources).
- (2) Tonnage, grades and totals may not total due to rounding.



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#### **Exploration Potential**

The following discussion details by deposit some of the more important areas that have been identified by Tetra Tech that are likely to result in increases in either the confidence of the resource estimate and/or the amount of the resource estimate for the individual deposits located on the Mt. Todd mineral leases.

#### Batman Deposit

One of the results of the statistical and geostatistical analysis of the blasthole gold data and resulting creation of independent gold, copper, silver, lead, zinc, iron, and sulfur grade models was the identification of areas within the existing defined deposit that continue to be "under drilled" with regard to classification of the estimated resources. In general, as the depth of the main mineralized host and structure increases, the density of drilling decreases. Although the 2008 exploration program did improve the deep drilling, the 2010-2012 drilling program achieved results with high grade intercepts encountered at depth in a newly modeled redefined footwall core zone boundary based on new drilling. Continued definition of the high grade "bump out" or possible inflection of the core complex is advisable.

In the qualified person's opinion, there are some areas that currently contain no estimated resources, but in all likelihood, based on the geology and surrounding drillhole data, are mineralized and would contain resources, if additional drilling were to be completed. In addition to these areas, the Batman deposit continues to be open in both the north and south directions. The last fence on the north and south sides of the deposit are mineralized and suggest that more "step-out" drilling is still needed.

Another feature that came to light from the 2007 to 2011 exploration-drilling programs is the existence of new "parallel and/or sub-parallel" structures and mineralization to the east of the main core complex at the Batman deposit. Both of these parallel and/or sub-parallel structures warrant additional exploration drilling to better define these zones. Drilling conducted following the September 2011 resource estimate has further defined the parallel structures, showing increased definition at depth.

#### Quigleys and Golf-Tollis Deposits

The Quigleys and Golf-Tollis deposits appear to be more structurally controlled than the Batman deposit with the mineralization occurring in narrower bands. Because of this, additional work will need to be undertaken in order to develop a more accurate geologic model and mineralization controls. Tetra Tech proposes that the following items be considered when preparing the work plan:

- Surface mapping and subsequent re-interpretation of the footwall contact relationship to the shear zone mineralization is recommended. Any additional structural complexity that results should, where appropriate, be used to refine the mineralized envelope upon which modeling updates are based;
- Optimization of the resource provides a focus to define areas requiring further investigation or infill drilling. Due to the high degree of variability in the deposit, infill drilling is best targeted at key areas of geological complexity;
- A model should be developed for the area outside the shear zone. This will require separation of areas of mineralization from unmineralized areas using a suitable constraining envelope; and



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 The cause of an apparent bias between some of the old and new reverse circulation (RC) drilling should be confirmed to validate the inclusion of all samples in the resource calculation.



The following summaries for SECTIONS 1.6-1.14 are taken in their entirety from the summary section of the Pre-Feasibility Study by Tetra Tech issued January 28, 2011. The following summary sections pre date the resource quoted in this technical report and are provided for context only.

The updated resource model is an expansion of previous resources, and as such the previously reported Proven and Probable reserves are a subset of the updated resource. Though some costs may have increased since the reporting of Reserves, the gold price has risen to a current 3-year average of over \$1400 per ounce Au (a 40% increase over the gold price used to establish reserves). This, MDA believes that the Mt. Todd Proven and Probable Reserves remain current.

#### 1.6 Reserve Case Mine Plan and Mineral Reserves

Potentially mineable pit shapes were evaluated using a Lerchs-Grossman (LG) analysis performed with the GEMCOM® Whittle® pit optimization software and the Mt. Todd mineral resource model. The optimization is an iterative process with initial parameters coming from the Mt. Todd October 1<sup>st</sup>, 2010 PFS. The final parameters incorporate mining costs developed during this study. The optimization runs used only Measured and Indicated material for processing. All Inferred material was considered as waste. Mineral resources that are not mineral reserves have no demonstrated economic viability. The parameters assumed for the LG analyses are summarized in TABLE 1-5.



TABLE 1-5: Reserve Case Parameters for Lerchs-Grossman Analyses			
VISTA GOLD CORP. – MT TODD GOLD PROJECT January 2011			
Overall Pit Slopes 33° from pit centered azimuth ranging 10° – 15			
	55° from pit centered azimuth ranging 150° - 10°		
Gold Price	US\$1000 per toz Au		
Gold Recovery	82 percent		
Mining Cost	US\$1.40 per tonne mined		
Processing Cost	US\$7.60 per tonne processed		
Tailings Construction	\$1.00 per tonne processed		
Tailings Reclamation	\$1.14 per tonne processed		
Waste Dump Rehabilitation	\$0.12 per tonne waste		
General and Administrative Cost	US\$0.60 per tonne processed		

The Reserve Case LG shell is defined by the economic factors listed in TABLE 1-5. Varying gold prices were used to evaluate the sensitivity of the deposit to the price of gold as well as to develop a strategy for optimizing project cash flow. To achieve cash flow optimization, mining phases or push backs were developed using the guidance of Whittle pit shells at lower gold prices.

Using the Reserve Case, the ultimate pit was designed as an open-pit mine using large haul trucks, hydraulic shovels, and front-end loading equipment. Primary production is achieved using 21 cubic meter hydraulic shovels along with 180 tonne haul trucks. This equipment is used primarily for the movement of waste material.

Secondary production is achieved using a CAT 992 loader and smaller CAT 785C trucks. The 992 loader is assumed to have a 12 cubic meter bucket, and the CAT 785C trucks have a rated payload of 140 tonnes. The loader and smaller trucks are used primarily to move ore from the pit to the crusher and for reclaiming ore from stockpiles. Waste production from the 992 loader and 785C trucks is anticipated as well.

After the ultimate pit was designed, pits or phases within the ultimate pit were designed to enhance the project by providing higher-value material to the process plant earlier in the mine life. The design includes smoothed pit walls, haulage ramps, benches, and pit access. Phase 1 and phase 2 pit designs remain unchanged from the previous PFS work. Phase 3 was designed to the ultimate pit limit on the south, while phase 4 (the final pit phase) is used to achieve the ultimate pit in the north.

149,874

0.85

Proven +

**Probable** 

1.81

**TABLE 1-6: Classification of Mineral Reserve Estimate** VISTA GOLD CORP. - MT TODD GOLD PROJECT January 2011 Average Ore Contained Waste Total Gold Stripping **Tonnes** Class **Tonnes** Gold **Tonnes** Grade Ratio (W:O) (x 1000) (oz x 1000) (x 1000) (x 1000) (g Au/t) Proven 48,961 1,431 0.91 **Probable** 100,913 0.83 2,681

Note: Reserves are reported using a 0.40 g Au/t cutoff grade. Mineral reserves are the economic portion of the measured and indicated mineral resources. Mineral reserves are not in addition to mineral resources.

271,480

421,354

4,112

The waste stripping ratio (Waste: Mineral Reserves) has been estimated to be approximately 1.81.

The Reserve Case production schedule for this PFS assumes a 10.65 Mtpy ore production rate, resulting in a 14-year operating life, as shown in TABLE 1-7.

	TABLE 1-7:		Mine Production Sch		
VISTA GOLD CORP. – MT TODD GOLD PROJECT					
January 2011					
Year	"Ore" Tonnes (x 1000)	Avg. Grade (g Au/t)	Waste Tonnes (x 1000)	Stripping Ratio (W:O)	
PP1	1,084	0.68	6,287	5.80	
1	12,210	0.86	22,965	1.88	
2	13,584	0.90	25,048	1.84	
3	11,997	0.90	24,400	2.03	
4	10,650	0.95	25,578	2.40	
5	6,200	0.71	27,824	4.49	
6	8,175	0.67	25,041	3.06	
7	13,198	0.79	24,662	1.87	
8	11,158	0.76	24,710	2.21	
9	8,990	0.66	22,655	2.52	
10	13,626	0.78	20,386	1.50	
11	12,102	0.86	14,158	1.17	
12	13,379	0.93	5,940	0.44	
13	11,310	1.09	1,805	0.16	
14	2,213	1.40	22	0.01	
Total (1)	149,875	0.85	271,480	1.81	

Note: Totals may not add up due to rounding



## 1.7 Limestone Quarry and Lime Production

Limestone is currently commercially produced near Katherine by quarrying the Katherine limestone beds. The Mt. Todd operation plans to ensure a supply of economic lime is available for use in the processing and water treatment areas of the operation. A limestone quarrying operation will be developed by mining a nearby outcropping of Katherine Limestone; a lime kiln plant will be established at the quarry to convert the limestone into lime.

## 1.8 Power Supply

The Power Engineers report, "Mt. Todd Power Station, Phase 3 Pre-Feasibility Study," dated September 30, 2010, provides a detailed discussion of the generation equipment options available for onsite electrical supply to meet the power requirements of the re-commissioned Mt. Todd mine operations in NT, Australia to be operated by Vista. The site electrical power demands are a fixed constant operating load estimated at 46 megawatts (MW) with a minimum of startup/shutdown cycles. This load falls between gas turbine size categories so surplus generating capacity is expected if the load is met with a single turbine.

The cost analysis for this study is based on a 14-year operating plant life without annual pricing index. Fuel costs are based on a rate of \$5.75 (AUS) per gigajoule. Calculated 13-year project life costs (includes all capital and operating costs) are estimated to be \$0.0710 to 0.0950 (AUS) per kilowatt-hour for the 46 MW site demand compared to the commercially purchased electricity rate of \$0.1636 per kilowatt-hour (kWh) (adjusted for demand) for the same time period.

Five options were considered for generation of power at Mt Todd. A Rolls Royce Trent 60 WLE was selected for use in this study. This unit will generate power at a direct operating cost estimated to average \$0.0629 (AUD) per kWh over the life of the project.

## 1.9 Processing and Process Flowsheet

The Mt. Todd gold recovery process evolved both historically and through studies commissioned by Vista from Resource Development, Inc. ("RDi"). The evolved process uses proven technologies to recover 82 percent of the contained gold by carbon in leach (CIL) leaching. For purposes of the PFS, an ore feed grade of 1.08 g Au/t has been assumed and an Ausenco Services Pty Ltd ("Ausenco") adjusted plant feed rate of 1,427 tonnes per hour (t/h) (nominally 30,000 tonnes per day (tpd) or 10.65 Mtpy) was assumed. Note that Ausenco frequently describes their work as the "11Mtpy Engineering and Cost Study."

Testwork completed by RDi on samples provided by Vista supports a process using conventional coarse crushing followed by high pressure grinding rolls HPGR crushing and ball mill grinding to produce a leach feed at  $P_{80}$  150 micrometer ( $\mu$ m) (100 mesh Tyler). The resulting pulp is then pre-aerated and subjected to CIL leaching followed by adsorption, desorption, and recovery (ADR) leading to gold doré. The CIL tailings are detoxified and sent to an impoundment, from which plant process water is recycled. The process is robust.

## 1.10 Tailings Disposal

A tailings disposal tradeoff study was completed in early 2010 in order to explore several options for tailings disposal, such as a dry stack facility, new tailings storage facility (TSF) designs for both thickened and conventional tailings, and several raises to the existing TSF. The 60 million tonne capacity raise to the existing TSF design (TSF1) was originally selected based on economic tradeoff studies and the relatively low cost per tonne of tailings stored. Since the total required tailings storage for the project is approximately 150 million tonnes, a



new TSF (TSF2) has been designed to provide an additional 100 million tonnes of tailings storage. This provides extra storage as a contingency.

The design for the raises to TSF1 was adapted from the MWH design completed in 2006, with some modifications to accommodate the projected capacity of the facility. The facility will be constructed in six separate stages, using centerline construction techniques for the first raise and upstream construction techniques for subsequent raises. The embankments will be constructed with 2.5:1 (horizontal [H] to vertical [V]) downstream slopes and 2:1 (H:V) upstream slopes. Three saddle dams will be constructed to contain the tailings on the west side of the facility. It was assumed that all of the existing toe drains, under-drains, and decant towers installed at the existing facility will be fully operational when tailings deposition begins and that minimal construction will be required to raise or extend the drains and towers to the required elevation at each stage.

TSF2 will be completed in four construction stages using upstream raise construction methods. The embankments will be constructed with 3:1 (H:V) upstream and downstream inter-bench slopes and five-meter wide benches at the downstream crest of each stage, yielding an overall slope of 3.2:1 (H:V). The crest will be 30 m wide and will slope at 0.5 percent from the high point in the southeast corner to the tie-in with existing ground near Mt. Todd. The facility will be fully lined and will include a system of toe drains, under-drains, and over-drains, as well as a new water reclaim system. A small surface water diversion will be constructed at the southwest corner of the proposed facility to direct Horseshoe Creek away from the new TSF footprint.

#### 1.11 Environmental Conditions

The primary environmental issue at the Mt. Todd site is water management resulting from the project shutdown without implementation of closure or reclamation activities. All of the water retention ponds (excluding the raw water pond) and the pit contain acidic (~pH 3-4.5) water with elevated concentrations of regulated constituents.

#### 1.11.1 Permitting

In 2007, Vista became the operator of the Mt. Todd site and accepted the obligation to operate, care for and maintain the assets of the NT Government on the site. As part of the agreement, the NT Government acknowledged its commitment to rehabilitate the site and that Vista has no obligations for pre-existing conditions until it submits and receives approval of a Notice of Intent (NOI) for resumption of mining operations. A decision on the appropriate permitting route will be initiated by submission of an NOI to the Department of Regional Development, Primary Industry, Fisheries and Resources (DRDIPFR), now the Department of Resources (DOR).

A referral and assessment process will determine how the Environment Protection and Biodiversity Conservation Act (EPBC Act) will be applied. The EPBC Act addresses the protection of matters of national environmental significance which include flora, fauna, ecological communities and heritage places. If significant impacts are likely to occur, the project will require formal assessment either through preparation of a Public Environmental Report (PER) or an Environmental Impact Statement (EIS).



#### 1.11.2 Water Management

Current and historic evidence indicates that Mt. Todd waste rock, ore, and tailings contain sulfides capable of generating acid and metal laden leachates (ARD/ML). ARD/ML currently occurs or is found in the waste rock dump and associated pond (RP1), the lean ore stockpile and associated pond (RP2), exposed pit walls and associated pit lake (RP3), the heap leach pad (HLP) and associated pond and moat, the plant runoff pond (RP5), and within the tailings storage facility (RP7).

The Edith River and tributaries are protected beneficial use under the Water Act 2000 for aquatic ecosystem protection. As a result, discharges from the site are regulated under the Mt. Todd Project Waste Discharge License (WDL 135) which allows controlled discharges from RP1 to the Edith River during high flow events. The impacted water is sufficiently diluted during high flow events to ensure downstream compliance with established copper criteria which in turn dilutes other regulated constituents to acceptable levels. Improvements to the water management system have reduced uncontrolled discharges during the wet seasons.

In August 2009, Vista commissioned a water treatment plant (WTP) to treat ARD/ML water at a capacity of 193 cubic meters per hour (m³/hr). Pilot studies showed that lime treatment removed 98 percent of the cadmium, 98.8 percent of aluminum, and greater than 99 percent of the copper and zinc in acidic water from the waste rock dump pond (RP1). The treated solution including the reaction by-products (gypsum and metal hydroxide compounds) flows by gravity to the tailings storage facility (RP7). Testing is underway to define the operational conditions required to meet standards to discharge treated water after clarification either on a continuous basis or during the wet season. Based on recent measurements (flow meter installed in the Existing WTP influent pipe in December 2010), ARD/ML is treated at a rate of approximately 360 m³/hr (HydroGeoLogica, Inc. and Tetra Tech, 2010).

#### 1.11.3 Baseline Studies

Site characterization studies were conducted at the Mt. Todd site in support of the 1992 Draft EIS (Zapopan, 1992). Vista is conducting additional baseline studies as required by the site waste discharge license and to support design, permitting, operations, and closure. Baseline studies currently being conducted or to be implemented include:

- Surface water and groundwater characterization;
- Soils;
- Geochemical characterization;
- Biological resources (aquatic and benthic, vegetation and wildlife);
- Cultural and archaeology; and
- Socio-economics.

These environmental baseline studies can be completed within one year or less.

#### 1.11.4 Reclamation and Closure

The major and immediate environmental challenges for Mt. Todd are the management of ARD/ML currently contained in several water storage facilities and the management of precipitation and surface water runoff reporting to mine-related surface disturbance. ARD/ML is currently managed through a combination of practices including evaporation, active water treatment, pumping excess water to the Batman Pit, and controlled and uncontrolled discharges to creeks in the vicinity of Mt. Todd and the Edith River during major flow events. Recent upgrades to the pumping system have reduced the frequency of uncontrolled effluent releases from the ponds to the Edith River and its tributaries.



Throughout the mine-life, Vista should anticipate, plan, design for, and implement effective plans for:

- Year-round collection, containment, and treatment of all ARD/ML prior to effluent release;
- Identification of potentially acid-generating (PAG) and non-PAG materials, as well as materials that have the potential to leach constituents in concentrations above applicable water quality-based effluent standards (metalliferous);
- Selective handling of PAG and non-PAG material and potentially direct treatment of PAG materials throughout the mine-life to prevent or reduce the generation of ARD/ML;
- Separation of nonimpacted surface and ground water from PAG and metalliferous materials, and ARD/ML;
- Short- and long-term hydrologic isolation of PAG and metaliferous materials from ground and surface water:
- Facility and site-wide closure; and
- Control of storm-water to prevent excessive erosion and sedimentation.

Specific recommendations related to these and other closure and water treatment needs are provided in Section 21-Recommendations.

The major facilities that currently exist at Mt. Todd, which are included as part of the 10.65 Mtpy mine plan, are as follows:

- Batman Pit;
- Batman Pit Lake (RP3);
- Waste Rock Dump (WRD);
- WRD Pond (RP1) and pumping system;
- TSF:
- TSF Pond (RP7);
- Process Plant and Operations Area;
- Process Plant Runoff Pond (RP5) and pumping system;
- HLP;
- HLP Pond and pumping system;
- Low Grade Ore Stockpile (LGO);
- LGO Pond (RP2) and pumping system;
- Existing Water Treatment Plan (WTP); and
- Mine roads and other ancillary facilities (e.g., pipelines).
- The new facilities proposed for closure and the mine-life water treatment system are as follows:
- Run-on diversions up-gradient of the RP1, TSF1, and WRD;
- New WTP;
- Linear Low Density Polyethylene (LLDPE) (or equivalent)-Lined Equalization Pond;



- LLDPE (or equivalent)-Lined Sludge Disposal Cell;
- TSF1 and TSF2 Closure Spillways:
- Modified TSF1 Decant Ponds;
- Modified TSF2 Sumps;
- LLDPE (or equivalent)-Lined TSF1 Collection Ditch;
- LLDPE (or equivalent)-Lined TSF2 Collection Ditch;
- LLDPE (or equivalent)-Lined LGO2 Collection Ditch;
- LLDPE (or equivalent)-Lined LGO2 Sump;
- Collection Ditch at toe of closed WRD;
- Modified HLP Seepage Collection Pump and Pipeline;
- Pumps and pipelines;
- Clay Borrow Area; and
- Three Anaerobic treatment wetlands (or equivalent passive/semi-passive water treatment system).

A PFS-level Closure Plan (PFCP) is included as an appendix (Appendix J) to the PFS. The PFCP includes descriptions, approximate dimensions, and performance criteria for proposed facilities. Arrangements and design drawings and details for these facilities have not been completed at this stage of the planning process.

The closure and water management goals for Mt. Todd include:

- Control acid-generating conditions;
- Reduce or eliminate the acid and metal loads of seepage and runoff water;
- Minimize adverse impacts to the surface and ground water systems surrounding Mt. Todd;
- Physical and chemical stabilization of mine waste and other mine-related surface disturbances;
- Protect public safety;
- Comply with the WDL and applicable Edith River water quality-based effluent standards;
   and
- Comply with NT Government regulations governing mine development and closure.

Closure plans and strategies for each major facility at Mt. Todd and the mine-life water treatment system are summarized in Appendix J.

Closure and water treatment costs were estimated at a  $\pm$  25 percent level of accuracy based on the following:

- 10.65 Mtpy mine plan and existing engineering and data presented in the PFS;
- Geochemical testing program and results (Appendix H);
- Mine-life (i.e., pre-production phase of 2 years, production phase of 15 years, closure phase of 3 years, post-closure phase of 6 years) water balance simulations, water quality estimates, and water management plans (Appendix I);



- Use of existing and new water management systems and infrastructure;
- Estimates of environmental conditions throughout the mine-life;
- NT Government mine closure and environmental protection regulations and guidelines;
- Published unit costing references;
- Tetra Tech's recent mine closure and water treatment costing experience; and
- Best professional judgment.

As summarized in TABLE 1-8 the PFS-level cost estimates for implementing the closure and mine-life water treatment plans are \$67,864,000 and \$36,590,000, respectively.



TABLE 1-8: Prefeasibility-Level Closure and Mine-Life Water Treatment Cost Estimate

VISTA GOLD CORP. – MT TODD GOLD PROJECT

January 2011

January 2011	
Area	Cost <sup>1</sup>
Tailings Storage Facility 1 (TSF1)	\$ 9,101,000
Tailings Storage Facility 2 (TSF2)	\$ 19,018,000
Неар	\$ 2,585,000
Process Plant And Pad Area	\$ 11,280,000
Batman Pit	\$ 205,000
Waste Rock Dump	\$ 8,620,000
WRD Retention Pond	\$ 1,709,000
Low Grade Ore Stockpile 1 (LGO1)	\$ 128,000
Low Grade Ore Stockpile 2 (LGO2)	\$ 244,000
Mine Roads	\$ 3,786,000
Clay Borrow Area	\$ 135,000
Sludge And Equalization Pond Closure	\$ 273,000
Total Direct Closure Cost	\$ 57,084,000
Mobilization/Demobilization (Assume On-Site Mining Equipment Fleet Used)	\$ 0-
Incidentals (Communication, Misc. Supplies, Etc.) = 0.5 % Of Total Direct Cost	\$ 385,000
Haul Road Maintenance During Closure = 0.5 % Of Total Direct Cost	\$ 385,000
Engineering Re-Design = 2 % Of Total Direct Cost	\$ 1,540,000
Contingency = 8 % Of Total Direct Cost	\$ 6,160,000
Total Indirect Cost <sup>2</sup>	\$ 8,470,000
Annual Site Maintenance and Monitoring For 6 Years Post Closure	\$ 2,310,000
Total Closure Cost	\$ 67,864,000
Water Treatment System Facility/Component	
Active Water Treatment And Sludge Disposal System Construction	\$ 4,169,000
Passive Water Treatment System #1, #2 & #3	\$ 15,314,000
Total Direct Water Treatment Construction Cost	\$ 19,483,000
Pre-Production Period (Years -2 and -1) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 5,545,000
Production Period (Years 1 through 15) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 6,125,000
Closure Period (Years 16 through 18) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 2,612,000
Post-Closure Production Period (Years 19 through 24) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$2,825,000
Total Mine-Life Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 17,107,000
Total Mine-Life Water Treatment Costs	\$ 36,590,000



- 1 Cost rounded to nearest \$1,000 in current \$.
- 2 Includes indirect costs associated with the construction of Water Treatment System
- 3 Includes Plant O& M, Lime, and Water and Sludge Pumping

The major closure and water treatment assumptions used for the development of the closure plan are provided in Appendix J and summarized in Section 5.4-Environmental Conditions.

#### 1.12 Economic Evaluation

The financial results presented herein have been developed co-operatively between Vista, Tetra Tech, and other consultants. The financial results are presented in constant dollars with the mine and mill capital having been estimated in the second and fourth quarters of 2010, respectively. A five percent discount rate has been applied to the financial analysis. Besides the Reserve case, sensitively analyses were completed using varying gold prices, currency exchange rates, capital cost estimates and operating cost estimates. Unless otherwise noted, an US/AUD conversion rate of 0.85 was used. Unless specifically noted, all monetary values in the entire document are in US dollars.

#### 1.12.1 Reserve Case

The Reserve Case project entails mining 149,875,000 tonnes over a 15-year period. The scenario requires that 10.65 Mtpy ore be mined and processed assuming \$1,000/toz Au, an exchange rate of 0.85 US/AUD dollars, and metallurgical recoveries of 82 percent. Note that the actual 3-year average gold price is \$1,023/toz Au; however, both Tetra Tech and Vista agreed to use \$1,000/toz Au for the Reserve Case analysis.

#### 1.12.2 Capital Costs

Estimated capital expenditures for the life-of-mine Reserve Case are estimated to be \$851.1 million; this being a combination of \$589.6 million start-up capital and \$261.5 million sustaining capital, both including working capital and contingency. TABLE 1-10 provides a summary of the estimated project capital costs over the life of the proposed operation.

#### 1.12.3 Mine Operating Costs

Mine operating costs have been estimated for each year of operations based on production requirements with the estimates comprising labor, fuel, material, equipment, and maintenance. A summary of the estimated mine operating costs per tonne of ore processed are presented in TABLE 1-9 for the 10.65 Mtpy Reserve Case.

#### 1.12.4 Process Operating Costs

The Reserve Case process operating costs are estimated to range from \$6.76 to \$6.79/t ore during the years of operation. Included in these costs are estimated operating expenses for the water treatment and tailings facilities. The estimates for process plant operating costs by year are given in TABLE 1-11.



		TAE	BLE 1-9:	•	•	Cost Estim		• •	•	nne Ore	Processe	ed			
						Janı	ıary 2011								
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ore Mined	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775
Total mining costs	50,882	55,947	55,555	55,046	49,107	41,713	59,865	46,330	32,800	58,451	23,991	39,725	29,086	9,747	1,145
Mine Operating Cost / tonne Processed	\$4.78	\$5.25	\$5.22	\$5.17	\$4.61	\$3.92	\$5.62	\$4.35	\$3.08	\$5.49	\$2.25	\$3.73	\$2.73	\$0.92	\$1.48

#### TABLE 1-10: Summary of Project Capital Cost Estimates (000) VISTA GOLD CORP. - MT. TODD GOLD PROJECT January 2011 **CAPITAL (\$000'S)** LOM INITIAL SUSTAINING MINE CAPITAL Primary: Open Pit Mine Equipment 98.792 46.483 52.309 Lime Operation Mine Equip 5,617 5,617 0 **Sub-Total Primary** 104,409 52,100 52,309 Ancillary: General Surface Mobil Equipment 18,596 8.404 10,191 **Sub-Total Ancillary** 18,596 8,404 10,191 Miscellaneous: Mine Office, Shop and Warehouse 2,268 2,268 0 Mining Development Supply and Labor Op Costs 9,394 9,394 0 **Sub-Total Miscellaneous** 11,662 11,662 0 **TOTAL MINE CAPITAL (Before Contingency)** 134,667 72,166 62,500 9,759 4,144 **Mine Capital Contingency** 5,615 PLANT CAPITAL Process Plant 269,243 269,243 0 Onsite Infrastructure 22.503 22.503 0 Mobile Equipment, Spares, First-Fills 11,223 11,223 0 Power Generating Station 37.678 37.678 0 Site Demolition 3,664 3,664 0 TAILING STORAGE FACILITIES CAPITAL Pre-production WTF + Tailings Management 4,777 4,777 0 TSF Fine Grading, Equipment, Piping, Drains 71,304 5,258 66,046 TSF Bulk Earthwork 88,555 4,193 84,362 TOTAL PLANT + TAILINGS STORAGE 508,948 358,539 150,408 **INDIRECT PROCESS** Temporary Construction Facilities 6,999 6,999 0 Commissioning 5,599 5,599 0 Total Indirect Process 12,598 12,598 0 TOTAL PLANT + TAILING + INDIRECT CAPITAL



(Before Contingency)

521,546

371,137

150,408

28

Plant Capital Contingency	60,208	51,202	9,006
EPCM TOTAL (PLANT & TAILING)	73,504	68,600	4,904
OTHER CAPITAL			
Off-site Infrastructure / Accommodation Village	16,268	16,268	0
Excess Water Treatment Facility	17,985	0	17,985
Permitting	2,500	2,500	0
Recruit and Training	1,700	1,500	200
Lime Kiln/Processing	6,158	6,158	0
Total Other Capital	44,611	26,426	18,185
Other Capital Contingency	6,692	3,964	2,728
Total Contingency	76,659	60,781	15,878
TOTAL CAPITAL	850,987	599,111	251,876
TOTAL WORKING CAPITAL CHANGES	102	(9,528)	9,630
TOTAL CAPITAL + WORKING CAPITAL CHANGES	851,088	589,583	261,506

NOTE: Some rounding may occur due to truncation of the numbers.

# TABLE 1-11: Process Operating Cost Estimate Summary (000)\* VISTA GOLD CORP. – MT TODD GOLD PROJECT January 2011

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ore Processed	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775
Total processing costs	72,159	72,109	72,120	72,080	72,169	72,200	72,366	72,286	72,277	72,213	72,213	72,201	72,019	72,068	5,535
Ore Processing Cost / tonne	\$6.78	\$6.77	\$6.77	\$6.77	\$6.78	\$6.78	\$6.79	\$6.79	\$6.79	\$6.78	\$6.78	\$6.78	\$6.76	\$6.77	\$7.14

<sup>\*</sup>Note: Gold doré refining, transport and treatment charges are estimated to be \$4.50/toz Au, but are included separately in the cash flow analyses.

#### 1.12.5 Cash Flow Analyses

The cash flow analysis developed for the Reserve Case includes all mining, processing, tails disposal, and reclamation.

Cash flow analyses at \$1,000/toz Au and a US/AUD exchange rate of 0.85 results in an estimated project pretax net present value (NPV) of \$385.336 million and an estimated pre-tax internal rate of return (IRR) of 13.9 percent and a post-tax rate of IRR of 10.7 percent, all evaluated at a 5 percent discount rate. Note that an estimated 3,371,914 toz Au are expected to be recovered during the operating life. TABLE 1-12 is the cash flow forecast associated with the Reserve Case scenario.

#### 1.12.6 Sensitivity Gold Price Sensitivities

Gold Price sensitivity analyses were performed on the Reserve Case reflecting Au prices from \$850 to \$1,150 in increments of \$50. A graph showing the results of these sensitivities is shown in FIGURE 1-3.



#### Mt. Todd - 10.65Mtpa (28 January 2011)

ETAX: IRR	13.9%	[	AFTER-TAX:			10.7%		CAPITAL NITIAL CAPITAL CONTINGENCY	(000'S)		\$538,330 \$60,781		TOTAL CASH C	OST PER OUNC			\$520 \$530											
NPV0 (000'S) NPV5 (000'S)	\$964,514 \$385,336		NPV0 (000'S NPV5 (000'S	s)		\$584,562 \$184,312		SUB-TOTAL WORKING CAPI NITIAL CAP, PRE-			599,111 (9,528) \$589,583	ŀ		CTION COST PE	R OUNCE		\$231 \$761											
NNUAL CF (000's) PRODUCTION YEARS NNUAL CF (000's) LIFE OF MINE	\$97,094 \$56,016		AVG ANNUAL CF AVG ANNUAL CF			\$71,764 \$41,403		SUSTAINING CA	PITAL (000'S)		235,998		UNIT COSTS MINING COST (	! \$/TONNE MINE!	0)		\$1.68											
PING RATIO (WST:ORE)	1.81			TART OF PROD	DUCTION	7.2	-	CONTINGENCY TOTAL SUSTAIN WORKING CAPI	ING CAPITAL FAL - YR 2 TO Y	′R 15	15,878 251,876 9,630		PROCESSING ( G&A Cost (\$/TO		· ·		\$4.07 \$6.847 \$0.55											
JEST PROPUSTION SQUERUM E / OOL P OF	ADEC AND CO	-	POST CLOSURE	NET CASH FLO	OW:	\$92,460	<u> </u>	TOTAL MINE LIF	E CAPITAL		\$851,088		TOTAL OPERA	TING COSTS \$/I	ONNE ORE		\$11.47											
DJECT PRODUCTION SCHEDULE / GOLD GF	KADES AND CO		Project Year -2	-1	1	2	2	4	5	6	7	0	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
RE TONNAGE TO CRUSHER (000's) RE GRADE	ore tonnes g Au/tonne	149,875 0.853	<del></del>		10,650 0.93	10,650 1.02	10,650 0.95	10,650 0.95	10,650 0.61	10,650 0.62	10,650 0.87	10,650 0.77	10,650 0.63	10,650 0.86	10,650 0.92	10,650 1.04	10,650 1.13	10,650 0.66	775 0.47	10	.,	10	13	20	21	22	23	24
NTAINED GOLD	toz Au/tonne g Au toz Au	0.027 127,900,394 4,112,090			0.030 9,950,173 319,905	0.033 10,876,180 349,677	0.031 10,118,272 325,310	0.031 10,143,927 326,135	0.020 6,472,261 208,088	0.020 6,611,008 212,549	0.028 9,267,222 297,948	0.025 8,213,125 264,058	0.020 6,701,086 215,445	0.028 9,193,713 295,585	0.030 9,779,633 314,422	0.034 11,127,334 357,752	0.036 12,003,292 385,914	0.021 7,081,749 227,683	0.015 361,418 11,620									
ASTE TONNAGE MINED (000's) PITALIZED TONS (included in total material mined) TAL MATERIAL MINED	waste tonnes kt total tonnes	271,480 57,954 421,354		6,287 6,287 6,287	22,965 33,615	25,048 700 35,698	24,400 340 35,050	25,578 360 36,228	27,824 5,795 38,474	25,041 10,200 35,691	24,662 35,312	24,710 6,972 35,360	22,655 13,200 33,304	20,386 31,036	14,158 13,833 24,808	5,940 267 16,590	1,805 12,455	22 10,672	775									
RIPPING RATIO	waste : ore	1.8			2.16	2.35	2.29	2.40	2.61	2.35	2.32	2.32	2.13	1.91	1.33	0.56	0.17	0.00										
E TONNAGE TO MILL (000's)	ore tonnes	149,875			10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775									
LL FEED GRADE NTAINED GOLD	g Au/tonne toz Au/tonne g Au toz Au	0.853 0.027 127,900,394 4,112,090			0.93 0.030 9,950,173 319,905	1.02 0.033 10,876,180 349,677	0.95 0.031 10,118,272 325,310	0.95 0.031 10,143,927 326,135	0.61 0.020 6,472,261 208,088	0.62 0.020 6,611,008 212,549	0.87 0.028 9,267,222 297,948	0.77 0.025 8,213,125 264,058	0.63 0.020 6,701,086 215,445	0.86 0.028 9,193,713 295,585	0.92 0.030 9,779,633 314,422	1.04 0.034 11,127,334 357,752	1.13 0.036 12,003,292 385,914	0.66 0.021 7,081,749 227,683	0.47 0.015 361,418 11,620									
LL RECOVERY @ 82%	% recovery of Au	82%			82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%									
OLD RECOVERED	g Au toz Au	104,878,323 3,371,914			8,159,142 262,322	8,918,467 286,735	8,296,983 266,754	8,318,020 267,430	5,307,254 170,632	5,421,027 174,290	7,599,122 244,317	6,734,763 216,527	5,494,890 176,665	7,538,845 242,379	8,019,299 257,826	9,124,414 293,357	9,842,699 316,450	5,807,034 186,700	296,362 9,528									
ERY YABLE GOLD TO REFINERY	g Au toz Au	104,878,323 3,371,914			8,159,142 262,322	8,918,467 286,735	8,296,983 266,754	8,318,020 267,430	5,307,254 170,632	5,421,027 174,290	7,599,122 244,317	6,734,763 216,527	5,494,890 176,665	7,538,845 242,379	8,019,299 257,826	9,124,414 293,357	9,842,699 316,450	5,807,034 186,700	296,362 9,528									
		Total	Project Vear																									
		LOM	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PRICE TONNES	\$/oz 000's	\$1,000 271,480		6,287	\$1,000 22,965	\$1,000 25,048	\$1,000 24,400	\$1,000 25,578	\$1,000 27,824	\$1,000 25,041	\$1,000 24,662	\$1,000 24,710	\$1,000 22,655	\$1,000 20,386	\$1,000 14,158	\$1,000 5,940	\$1,000 1,805	\$1,000 22	\$1,000									
S ORE TO MILL	000's	149,875		0,201	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775									
PING RATIO ES PAYABLE	waste:ore toz Au.	1.81 3,371,914			2.16 262,322	2.35 286,735	2.29 266,754	2.40 267,430	2.61 170,632	2.35 174,290	2.32 244,317	2.32 216,527	2.13 176,665	1.91 242,379	1.33 257,826	0.56 293,357	0.17 316,450	0.00 186,700	9,528									
GRADE S GOLD SALES	g/tonne \$000's	0.853 <b>\$3,371,914</b>			0.934 <b>\$262,322</b>	1.021 \$286,735	0.950 <b>\$266,754</b>	0.952 <b>\$267,430</b>	0.608 <b>\$170,632</b>	0.621 <b>\$174,290</b>	0.870 <b>\$244,317</b>	0.771 <b>\$216,527</b>	0.629 <b>\$176,665</b>	0.863 <b>\$242,379</b>	0.918 <b>\$257,826</b>	1.045 <b>\$293,357</b>	1.127 <b>\$316,450</b>	0.665 <b>\$186,700</b>	0.466 <b>\$9,528</b>				-	-	-			-
AL INCOME/POWER INCOME S REVENUE	\$000's \$000's	\$208,312 \$3,580,225			\$5,145 \$267,467	\$5,145 \$291,880	\$5,145 \$271,899	\$5,145 \$272,575	\$5,145 \$175,777	\$5,145 \$179,435	\$5,145 \$249,462	\$5,145 \$221,672	\$5,145 \$181,810	\$5,145 \$247,524	\$5,145 \$262,971	\$5,145 \$298,501	\$5,145 \$321,595	\$5,145 \$191,845	\$5,145 \$14,673	\$16,159 \$16,159	\$16,256 \$16,256	\$16,265 \$16,265	\$16,478 \$16,478	\$16,478 \$16,478	\$16,478 \$16,478	\$16,490 \$16,490	\$16,531 \$16,531	
REFINING, TRANS. & TREATMENT	\$000's	15,174			1,180	1,290	1,200	1,203	768	784	1,099	974	795	1,091	1,160	1,320	1,424	840	43									
NUE FROM SALES ROYALTY JAAC	\$000's \$000's	3,565,052 33,719			266,287 2,623	290,590 2,867	270,698 2,668	271,372 2,674	175,009 1,706	178,650 1,743	248,363 2,443	220,698 2,165	181,015 1,767	246,433 2,424	261,811 2,578	297,181 2,934	320,171 3,164	191,005 1,867	14,630	16,159	16,256	16,265	16,478	16,478	16,478	16,490	16,531	
REVENUE  NET REVENUE AFTER PRODUCTION		\$3,531,333			\$263,664	\$287,722	\$268,031	\$268,697	\$173,303	\$176,908	\$245,920	\$218,533		\$244,010	\$259,233	\$294,248	\$317,006	\$189,138	\$14,535	\$16,159	\$16,256	\$16,265	\$16,478	\$16,478	\$16,478	\$16,490	\$16,531	
NET REVENUE AT LER PRODUCTION	JN \$131,130	Total	Project Year						_		_											40						
ATING COSTS	\$000's	<b>LOM</b> 609,389	-2	1	50,882	<b>2</b> 55,947	<b>3</b> 55,555	55,046	5 49,107	41,713	<b>7</b> 59,865	46,330	9 32,800	<b>10</b> 58,451	23,991	<b>12</b> 39,725	29,086	9,747	15 1,145	16	17	18	19	20	21	22	23	24
<del>.</del>	\$000's \$000's	1,026,251 82,786	2,291	3,254 5,483	72,159 5,483	72,109 5,483	72,120 5,483	72,080 5,483	72,169 5,483	72,200 5,483	72,366 5,483	72,286 5,483	72,277 5,483	72,213 5,483	72,213 5,483	72,201 5,483	72,019 5,483	72,068 5,483	5,535 548	944	838	830	377	377	377	364	317	268
AMATION AL OPERATING COSTS MILL OPERATING COSTS AFTER PRODUCTION	\$000's ON 4.693	67,864 \$1,786,290	\$2,291	\$8,737	2,560 \$131,084	161 \$133,699	526 \$133,683	124 \$132,731	\$127,268	393 \$119,788	4,114 \$141,827	17,190 \$141,289	3,406 \$113,966	1,149	1,378 \$103,064	\$117,408	278 \$106,866	34 \$87,331	2,056 \$9,284	10,478 \$11,423	10,166 \$11,004	10,755 \$11,585	385 \$763	385 \$763	385 \$763	385 \$749	385 \$702	658 \$927
MILL OPERATING COSTS AFTER PRODUCTIC RECLAMATION COSTS AFTER PRODUCTIC ATING MARGIN		\$1,745,043	(\$2,291)	(\$8,737)	\$132,579	<b>\$154,023</b>	\$134,348	\$135,966	\$46,034	\$57,119	\$104,092	\$77,244	\$65,282	\$106,714	\$156,169	\$176,839	\$210,140	\$101,807	\$5,251	\$4,737	\$5,253	\$4,681	\$15,716	\$15,716	\$15,716	\$15,741	\$15,829	(\$927)
FAL COSTS E EQUIPMENT	\$000's		(42,231)				\$104,040				<b>\$104,032</b>						<b>\$210,140</b>	ψ101,007	<b>\$5,25</b> 1	ψ4,707	<b>\$0,233</b>	ψ4,001	\$13,710	ψ13,710	\$10,710	ψ13,741	ψ10,023	(\$327)
E EQUIPMENT NT EQUIPMENT & CONSTRUCTION ine Grading, Equipment, Piping, Drains	\$000's \$000's \$000's	134,667 361,686 71,304	30,779	72,166 330,906 5,258	21,930	4,933 505	0 247	3,249 (0) 267	15,932 252	2,863 192	34,980	413 23,192	2,836	7,482 4,940	2,836	27	1,472											
ulk Earthwork ER/CONTINGENCY/EPCM	\$000's \$000's	88,555 194,774	15,279	4,193 140,528	1,942	1,057 376	496 62	527 270	9,485 1,322	17,240 194	8,745	3,259	24,818 779	2,074	30,127 142	614 4	7,620			133	426	1,260	555					9,804
AGE VALUE	\$000's \$000's	\$850,987 (70,559)	\$46,059	\$553,052	\$23,872	\$6,871	\$804	\$4,312	\$26,991	\$20,488	\$43,725	\$26,864	\$28,433	\$14,496	\$33,104	\$645	\$9,091		(57,372)	\$133	\$426	\$1,260	\$555					\$9,804 (13,187)
L CAPITAL	\$000's	\$780,427	\$46,059	\$553,052	\$23,872	\$6,871	\$804	\$4,312	\$26,991	\$20,488	\$43,725	\$26,864	\$28,433	\$14,496	\$33,104	\$645	\$9,091		(\$57,372)	\$133	\$426	\$1,260	\$555					(\$3,383)
SES TO WORKING CAPITAL	\$000's	102	(\$49.353)	3,635	(13,164)	2,533	(148)	94	(89)	578	(840)	810	787	(1,685)	122	(1,215)	1,177	291	6,553	585	15	7	(9)	(4)	\$4E 740	(0)	(0)	68
AX CASH FLOWS . PRE-TAX CASH FLOWS	\$000's \$000's	\$964,514 \$964,514	(\$48,352) (\$48,352)	(\$565,423) (\$613,775)	\$121,872 (\$491,903)	\$144,620 (\$347,283)	\$133,692 (\$213,591)	\$131,560 (\$82,031)	\$19,132 (\$62,899)	\$36,053 (\$26,846)	\$61,208 \$34,362	\$49,570 \$83,931	\$36,062 \$119,993	\$93,903 \$213,896	\$122,943 \$336,839	\$177,410 \$514,249	\$199,872 \$714,121	\$101,516 \$815,637	\$56,071 \$871,707	\$4,019 \$875,726	\$4,812 \$880,538	\$3,413 \$883,951	\$15,169 \$899,120	\$15,719 \$914,839	\$15,716 \$930,555	\$15,741 \$946,296	\$15,830 \$962,126	\$2,388 \$964,514
	\$000's	850,987	9,212	117,199	121,974	123,348	123,509	115,159	14,071	13,394	20,765	25,977	30,801	27,362	29,886	21,270	17,715	12,028	9,129	2,535	2,491	1,486	475	475	448	363	111	9,804
FIT BEFORE TAX ME TAX - Australian & Northern Territories	\$000's \$000's	894,056 379,952	(11,503)	(126,949)	7,752	25,087	5,720	15,095	26,278	38,370 4,163	81,754 35,909	62,763 21,802	32,524 14,417	75,502 34,160	123,665 54,809	152,898 67,695	190,697 83,912	88,094 38,747	(1,947)	12,680	12,927 326	13,949 958	15,626 4,572	15,626 4,572	15,653 4,580	15,763 4,613	16,104 4,715	(10,073)
T INCOME AFTER TAXES  R-TAX CASH FLOW	\$000's \$000's	\$514,105 \$584,562	(\$11,503) (\$48,352)	(\$126,949) (\$565,423)	\$7,752 <b>\$121,872</b>	\$25,087 <b>\$144,620</b>	\$5,720 <b>\$133,692</b>	\$15,095 <b>\$131,560</b>	\$26,278 <b>\$19,132</b>	\$34,207 <b>\$31,890</b>	\$45,845 <b>\$25,299</b>	\$40,960 <b>\$27,767</b>	\$18,107 <b>\$21,645</b>	\$41,342 \$59,743	\$68,856 <b>\$68,133</b>	\$85,202 <b>\$109,715</b>	\$106,786 <b>\$115,960</b>	\$49,346 <b>\$62,768</b>	(\$1,947) \$56,071	\$12,680 \$4,019	\$12,601 <b>\$4,486</b>	\$12,991 <b>\$2,455</b>	\$11,054 <b>\$10,597</b>	\$11,054 <b>\$11,147</b>	\$11,073 <b>\$11,135</b>	\$11,150 <b>\$11,128</b>	\$11,388 <b>\$11,114</b>	(\$10,073) \$2,388
M. AFTER-TAX CASH FLOW	\$000's	\$584,562	(\$48.352)	(\$613,775)	(\$491,903)	(\$347,283)	(\$213,591)	(\$82,031)	(\$62,899)	(\$31.009)	(\$5,710)	\$22,057	\$43,702	\$103,446	\$171,579	\$281,293	\$397,254	\$460,022	\$516,093	\$520,111	\$524,598	\$527,053	\$537,650	\$548,797	\$559,932	\$571,060	\$582,174	\$584,562

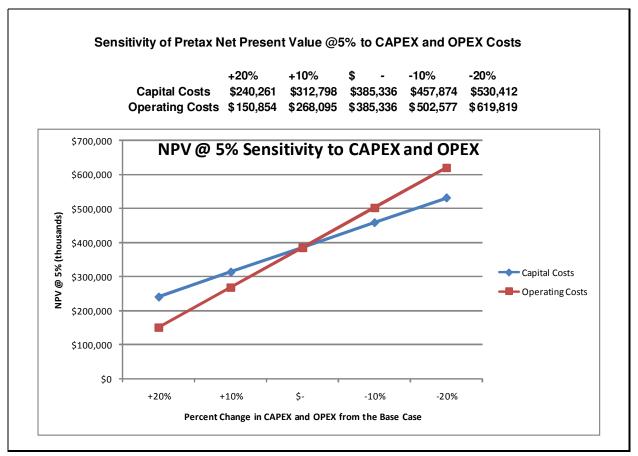
FIGURE 1-3: Sensitivity of Pretax Net Present Value Estimate to Gold Price @ 5 % Discount Rate (000's)

PRICE (\$/oz) \$ 850 \$ 900 \$ 950 \$ 1,000 \$ 1,050 \$ 1,100 \$ 1,150 NPV(5%) \$51,470 \$162,759 \$274,047 \$385,336 \$496,625 \$607,914 \$719,202



Capital and Operating Cost sensitivity analyses were performed on the pre-tax Reserve Case reflecting mutually exclusive increases and decreases of 10 percent and 20 percent for both. A graph showing the results of these sensitivities is shown in FIGURE 1-4.

FIGURE 1-4: Sensitivity of Pretax Net Present Value Estimate to CAPEX and OPEX @ 5% Discount Rate (000's)



#### 1.12.7 Sensitivities Deviating from the Reserve Case

Sensitivity analysis performed on the Reserve Case scenario at an Au price of \$1,350/toz Au and 1.00 US/AUD exchange rate yielded an after tax NPV of \$944.470 million at a five percent discount rate (note that this sensitivity is outside the range of those shown in Figure 1-3).

A second sensitivity considered an Au price of \$950/toz Au and 0.85 US/AUD exchange rate. The analysis resulted in an after tax NPV of \$274.047 million at a five percent discount rate.

#### 1.13 Conclusions

Vista's exploration and development work on the Mt. Todd Gold Project, and specifically the Batman and Quigleys deposits, continues to provide strong justification for additional expenditures and efforts to develop a new mine at this site and progress the project through full feasibility. In addition to the Batman and Quigleys deposits, other known deposits/areas that warrant addition exploration include the following.

#### Golf and Tollis Deposits

While the Quigleys and the Golf Tollis deposits have had limited drilling and some surface production, they have not been explored using the lessons learned at Batman. The exploration to date has concentrated on near-surface oxide gold mineralization with few, if any, deep drillholes existing. In addition, the Batman structural interpretation has not been applied to



these deposits either. Since these deposits are known to contain gold mineralization, a more systematic exploration program is warranted.

#### Exploration Licenses

A significant portion of the exploration licenses have yet to be systematically explored and evaluated. The broad structural and geologic trends that host the Batman, Quigleys, and Golf Tollis deposits may well host other deposits. Much of what Vista has learned from more detailed exploration of the Batman deposit has yet to be applied to these other areas; therefore, these areas remain highly prospective.

#### 1.14 Recommendations

Based on Tetra Tech's review of the database, previous studies and work products, and as an outgrowth of the recent mineral resource modeling and PFS update, Tetra Tech provides the following list of recommendations for Vista's consideration. **Tt would like to note that much of the proposed work plan from the January 28, 2011 report is either completed and/or ongoing as part of the Definitive Feasibility Study that Vista is in the process of completing. Recommendations from the January 28, 2011 report made by Tt that Vista has completed prior to the issuing of this report have been removed.** 

#### 1.14.1 Geology and Exploration

#### Quigleys and Golf-Tollis Deposits

The Quigleys and Golf-Tollis Deposits appear to be more structurally controlled than Batman with the mineralization occurring in narrower bands. Tetra Tech proposes that the following items be considered when preparing the ongoing work plan:

- Surface mapping and subsequent re-interpretation of the footwall contact to the shear zone mineralization are recommended. Any additional structural complexity that results should, where appropriate, be used to refine the mineralized envelope upon which modeling updates are based.
- Optimization of the resource provides a focus to define areas requiring further investigation or infill drilling. Due to the high degree of variability in the deposit, infill drilling is best targeted at key areas of geological complexity.
- A model should be developed for the area outside the shear zone. This will require separation of areas of mineralization from unmineralized areas using suitable envelope constraints.
- The cause of the apparent bias between some of the old and new RC drilling should be confirmed to validate the inclusion of all samples in resource calculations.

#### Other Mineralized Occurrences

Several other known mineral occurrences are found on the concession; these are Golf, Tollis, and Horseshoe deposits. There are some indications of prior exploration work, based on maps and minor references that have involved geologic, geochemical, geophysical, and drilling. While a lower priority than Batman and Quigleys, efforts should be undertaken that:

- Locate all available data and confirm, if possible, the validity;
- Re-assess the data to determine if additional exploration work is warranted; and
- Develop appropriate programs that systematically attempt to define the size and tenor of the mineralization present.



#### 1.14.2 Closure

The following closure studies are recommended:

- Complete a waste and cover material hydraulic properties analysis;
- Complete a precipitation-watershed yield study;
- Complete the waste rock management plan;
- Complete the site-wide soils, closure cover, and reclamation materials inventory and characterization study; and
- Conduct a waste and closure cover erosion and sediment control study.



#### 1.15 Limitations

Tetra Tech is not aware of any potential limitations to the Project that would materially change any of the data, resource estimates, mining, metallurgy, environmental considerations, socio-economic factors, or conclusions presented within this report that are outside of the normal factors that may impact mining projects, such as, price variability, exchange rates, permitting time, etc. With respect to the Mt. Todd Gold Project, the land tenure is secured by agreement with all of the potentially affected parties, the existing environmental liabilities are well documented and have been adequately addressed, potential new environmental issues are part of this and future studies and are not anticipated to materially impact the path forward, the site has good existing infrastructure, power and water, exploration and development drilling will continue, and metallurgical testing and analyses continues to occur.

# 1.16 Cautionary Note Regarding Forward-Looking Information and Statements

Information and statements contained in this technical report that are not historical facts are "forward-looking information" or "forward-looking statements" within the meaning of applicable Canadian securities legislation and the United States *Private Securities Litigation Reform Act of 1995*, respectively, and involve risks and uncertainties. Examples of forward-looking information and statements contained in this technical report include information and statements with respect to:

- Vista's plans and expectations for the Project;
- the results of the economic analysis of the Project, including, but not limited to, base case parameters and assumptions, base case analysis, forecasts of net present value, internal rate of return, capital costs, operating costs and cash flows and sensitivity analyses;
- Vista's plans related to mine development and design, operations, equipment, and infrastructure;
- Vista's production schedule and life-of-mine estimates;
- Vista's plans related to mineral processing and recovery methods;
- gold price projections;
- mineral resource and reserve estimates and assumptions and the potential to upgrade mineral resources and reserves to higher mineral resource or reserve classifications:
- Vista's applications for new exploration licenses and mineral leases, extensions of existing exploration licenses and mining leases and renewals of exploration licenses and mining leases;
- the potential of Vista to extend areas of known mineralization;
- estimates of power costs, water requirements and waste:ore stripping ratios;
- estimates of sustaining and working capital costs and mine reclamation and closure costs;
- the results and further testing of Vista's metallurgical testing programs including, but not limited to estimates of recovery rates;
- Vista's plans relating to exploration and development of the project, including permitting and regulatory requirements related to any such plans;



- Vista's plans and projected costs to complete additional drilling, an updated resource estimate and a feasibility study;
- Vista's plans to regarding social and environmental sustainability; and
- Vista's plans to address environmental compliance, reclamation and liabilities.

In certain cases, forward-looking information can be identified by the use of words such as "plans", "expects", "is expected", "budgets", "forecasts", "anticipates", "estimates", "intends", "targets", "scheduled", "believes", "appears", "likely", "typically", "potential", "continue", "strategy", or "proposed", or variations (including negative variations) of such words and phrases or may be identified by statements to the effect that certain actions, events or results, "may", "could", "should", "would", "will be" or "shall" be taken, occur or be achieved.

Various assumptions or factors are typically applied in drawing conclusions or making the forecasts or projections set out in forward-looking information and statements. In some instances, material assumptions and factors are presented or discussed elsewhere in this technical report in connection with the statements or disclosure containing the forward-looking information and statements. You are cautioned that the following list of material factors and assumptions is not exhaustive. The factors and assumptions include, but are not limited to, assumptions concerning gold prices; cut-off grades; short and long term power prices; processing recovery rates; mine plans and production scheduling; process and infrastructure design and implementation; accuracy of the estimation of operating and capital costs; applicable tax rates; open-pit design, accuracy of mineral resource and reserve estimates and resource modeling; reliability of sampling and assay data; representativeness of mineralization; and accuracy of metallurgical testwork.

Forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ materially from those expressed or implied by the forward-looking statements, including, without limitation:

- risks relating to gold price fluctuations;
- risks relating to estimates of mineral resources, production, purchases, costs, decommissioning or reclamation expenses, proving to be inaccurate;
- the inherent operational risks associated with mining and mineral exploration activities, many of which are beyond Vista's control;
- risks relating to Vista's ability to enforce Vista's legal rights under permits, licenses or leases or risk that Vista will become subject to litigation or arbitration that has an adverse outcome:
- risks relating to the uncertainty of applications to extend and renew exploration licenses or mineral leases and applications for new exploration licenses or mineral leases;
- risks relating to potential challenges to Vista's right to explore and/or develop the Mt.
   Todd Gold Project;
- risks relating to mineral resource estimates being based on interpretations and assumptions which may result in less mineral production under actual circumstances;
- risks relating to Vista's operations being subject to environmental compliance and remediation requirements, which may increase the cost of doing business and restrict Vista's operations;
- risks relating to being adversely affected by environmental, safety and regulatory risks, including increased regulatory burdens or delays and changes of law;



- risks relating to inadequate insurance or inability to obtain insurance:
- risks relating to the fact that the Project is not currently in commercial production and risks relating to Vista's ability to address technical issues (including crushing challenges) which contributed to prior operators failures at the Project;
- risks relating to the uncertainty as to whether Vista will acquire permitting required to further explore and develop the Project and risks related to the permitting timelines;
- risks relating to fluctuations in foreign currency exchange rates, interest rates and tax rates;
- risks relating to Vista's ability to raise funding to continue its exploration, development and mining activities; and
- risks related to performance of the Project and opportunities to improve project performance.

This list is not exhaustive of the factors that may affect the forward-looking information and statements contained in this technical report. Should one or more of these risks and uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in the forward-looking information and statements. The forward-looking information and statements contained in this technical report are based on beliefs, expectations and opinions as of the effective date of this technical report. For the reasons set forth above, readers are cautioned not to place undue reliance on forward-looking information. Vista and the authors of this technical report do not undertake to update any forward-looking information and statements included herein, except in accordance with applicable securities laws.



#### 2.0 INTRODUCTION

Vista and its Australian subsidiary, Vista Australia entered into an agreement on March 1, 2006 to acquire the mineral leases comprising the Project and certain plant, equipment and information relating to the Project. The acquisition was completed on June 16, 2006 when the mineral leases were transferred to Vista Australia and funds held in escrow were released. Vista Australia is the operator of the Mt. Todd property.

The Mt. Todd property contains a number of known occurrences of gold, which have been explored and/or exploited to various degrees. The largest and best-known deposits are the Batman and Quigleys deposits. Both of these have had historic mining from prior operators, with Batman having the most production and exploration completed. Vista has reported mineral resource estimates in accordance with NI 43-101 and CIM Standards for the Batman and Quigley Deposits and a mineral reserve estimate in accordance with NI 43-101 and CIM Standards for only the Batman Deposit. Tetra Tech was commissioned by Vista in September 2009 to prepare a Preliminary Feasibility Study (PFS) in accordance with NI 43-101 at an ore processing rate of 6.77 million tonnes per year (Mtpy) for the Project. The PFS study at 6.77 Mtpy was issued October 1, 2010. Subsequently, Vista commissioned a second PFS at an ore processing rate of 10.65 Mtpy, issued January 28, 2011.

Prior to the two PFS studies, an initial NI 43-101 technical report was completed on June 26, 2006; a Preliminary Economic Assessment report was completed on December 29, 2006; and an update to the resource report was completed in May 2008 and February 2009, based on additional exploration drilling completed by Vista during 2007 and 2008.

Based on additional drilling conducted in 2011 and 2012, Vista commissioned Tt to produce this technical report to provide a resource update for the Batman deposit.

#### 2.1 Terms of Reference

This report has been prepared in accordance with the guidelines provided in NI 43-101, amended in June 30, 2011, and in accordance with the CIM Standards. The Qualified Persons and the sections to which they are responsible are presented in TABLE 2-1.

TABLE 2-1: Listing of Qualified Persons VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2012								
<b>Qualified Person</b>	Firm	Report Section						
Rex Bryan Ph.D.	Tetra Tech MM, Inc.	1-12, 14-28						
Deepak Malhotra Ph.D.	Resource Development Inc.	13, 17						
Thomas Dyer, PE	Mine Development Associates	15-16						
Richard Jolk, PE, Ph.D.	Tetra Tech MM, Inc.	21-22						

None of Tetra Tech, Resource Development Inc. (RDi), Mine Development Associates (MDA), or any of their respective employees and associates employed in the preparation of this report has any beneficial interest in Vista or in the assets of Vista. Tetra Tech, RDi and MDA will be paid a fee for this work in accordance with normal professional consulting practice.

#### 2.2 Sources of Information and Data



Data for this resource update has been provided by Vista.

## 2.3 Property Inspection by Qualified Person

Dr. Rex Bryan conducted a site visit from September 12<sup>th</sup> to 14<sup>th</sup> 2011. Dr. Bryan spent three days on site and reviewed the current database and archived supporting material, core logging, sampling procedures, handling and security measures, QA/QC procedures and inspected modern and historically collected core. Thomas Dyer P.E. visited the site during March of 2011.

#### 2.4 Effective Date

The effective date of this report is September 4<sup>th</sup> 2012. The effective data represents the completion date of the most current resource estimation for the Batman Deposit.

#### 2.5 Units and Abbreviations

Unless explicitly stated otherwise, all units presented in this report are in metric units (i.e. metric tonnes, kilometers (km), centimeters (cm), percent (%), grams per metric tonne, and parts per million (ppm)).

TABLE 2-2 sets forth certain standard conversions from Standard Imperial units to the International System of Units (or metric units) TABLE 2-3 sets forth commonly used concentrations for Au.

TABLE 2-2: Standard Conversion Factors VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2012								
To Convert From	То	Multiply by:						
Acres	Hectares	0.4047						
Square Mile	Hectares	258.9988						
US gallon	Liter	3.7854						
M <sup>3</sup> per hour	US gallon per minute	4.403						
Inch	Meters	0.0254						
Feet	Meters	0.3048						
Yard	Meters	0.9144						
Miles	Kilometers	1.6093						
Tons (short)	Tonnes	0.9072						
Troy Ounce / Ton (short)	Gram / Tonne (ppm)	34.2857						

All dollars are presented in US dollars unless otherwise noted. For the purpose of this report the exchange rates are \$0.85 = AUD\$1.00 except as needed for the sensitivity analysis. Common units of measure and conversion factors used in this report include:

TABLE 2-3: Commonly Used Concentrations Factors VISTA GOLD CORP. – MT TODD GOLD PROJECT September 2011									
	Percent	Gram / Tonne or (ppm)	Troy Ounce / Ton (short)						
1%	1	10,000	291.667						
1 gram / Tonne or (ppm)	0.0001	1	0.0291667						
1 Troy Ounce / Ton (short)	0.003429	34.2857	1						
1 ppb	0.0000001	0.001	0.000029						

#### Frequently used acronyms and abbreviations

AA = atomic absorption spectrometry

Ag = silver

Au = gold

°C = degrees Centigrade

CIC = Carbon-in-column

CIM = Canadian Institute of Mining, Metallurgical, and Petroleum

CIP = Carbon-in-pulp

°F = degrees Fahrenheit

FA = Fire Assay

ft = foot or feet

g = gram(s)

g Au/t = grams gold per tonne

g/kWh = grams per kilowatt hour

g/t = grams per tonne

h = hour

ICP = Inductively Coupled Plasma Atomic Emission Spectroscopy

km = kilometer

kV = kilovolts

kWh = Kilowatt hour

kWh/t = Kilowatt hours per tonne

L = liter

m = meter(s)

 $m^2$  = square meter(s)

 $m^2/t/d$  = square meters per tonne per day

 $m^3$  = cubic meter(s)

 $m^3/h$  = cubic meter(s) per hour

mm = millimeter

Mtpy = million tons or tonnes per year

MW = megawatts

NSR = net smelter return

toz Ag/t= troy ounces silver per short ton (oz/ton)

toz Au/t= troy ounces gold per short ton (oz/ton)

ppm = parts per million ppb = parts per billion

RC = reverse circulation drilling method

SAG = semi-autogenous grinding

ton = short ton(s) tonne = metric tonne

t/m³ = tonne per cubic meter tpd = metric tonnes per day

tph = tonnes per hour

μm = micron(s) % = percent

tpy = tons (or tonnes) per year tpm = tons (or tonnes) per month

# Abbreviations of the Periodic Table

actinium = Ac	aluminum = Al	amercium = Am	antimony = Sb	argon = Ar
arsenic = As	astatine = At	barium = Ba	berkelium = Bk	beryllium = Be
bismuth = Bi	bohrium = Bh	boron = B	bromine = Br	cadmium = Cd
calcium = Ca	californium = Cf	carbon = C	cerium = Ce	cesium = Cs
chlorine = Cl	chromium = Cr	cobalt = Co	copper = Cu	curium = Cm
dubnium = Db	dysprosium = Dy	einsteinum = Es	erbium = Er	europium = Eu
fermium = Fm	fluorine = F	francium = Fr	gadolinium = Gd	gallium = Ga
germanium = Ge	gold = Au	hafnium = Hf	hahnium = Hn	helium = He
holmium = Ho	hydrogen = H	indium = In	iodine = I	iridium = Ir
iron = Fe	juliotium = Jl	krypton = Kr	lanthanum = La	lawrencium = Lr
lead = Pb	lithium = Li	lutetium = Lu	magnesium = Mg	manganese = Mn
meltnerium = Mt	mendelevium = Md	mercury = Hg	molybdenum = Mo	neodymium = Nd
neon = Ne	neptunium = Np	nickel = Ni	niobium = Nb	nitrogen = N
nobelium = No	osmium = Os	oxygen = O	palladium = Pd	phosphorus = P
platinum = Pt	plutonium = Pu	polonium = Po	potassium = K	prasodymium = Pr
promethium = Pm	protactinium = Pa	radium = Ra	radon = Rn	rhodium = Rh
rubidium = Rb	ruthenium = Ru	rutherfordium = Rf	rhenium = Re	samarium = Sm
scandium = Sc	selenium = Se	silicon = Si	silver = Ag	sodium = Na
strontium = Sr	sulphur = S	technetium = Tc	tantalum = Ta	tellurium = Te
terbium = Tb	thallium = TI	thorium = Th	thulium = Tm	tin = Sn
titanium = Ti	tungsten = W	uranium = U	vanadium = V	xenon = Xe
ytterbium = Yb	yttrium = Y	zinc = Zn	zirconium = Zr	

# 3.0 RELIANCE ON OTHER EXPERTS

No experts have been relied on for the completion of this report.



#### 4.0 PROPERTY DESCRIPTION AND LOCATION

#### 4.1 Location

The Mt. Todd Project is located 56 km by road northwest of Katherine, and approximately 250 km southeast of Darwin in the NT of Australia. Access to the property is via high quality, two-lane paved roads from the Stuart Highway, the main arterial within the territory (FIGURE 4-1).

#### 4.1.1 Tenements

Vista Australia is the holder of three mineral licenses (ML)MLN 1070, MLN 1071, and MLN 1127 comprising approximately 5,389 hectares. In addition, Vista Australia controls exploration licenses (EL) EL 25668, EL 25669, EL 25576, EL 25670 and EL 28321 comprising approximately 134,838 hectares. FIGURE 4-2 illustrates the general location of the tenements and the relative position of the two primary mineral deposits: Batman and Quigleys.

#### 4.1.2 Lease and Royalty Structure

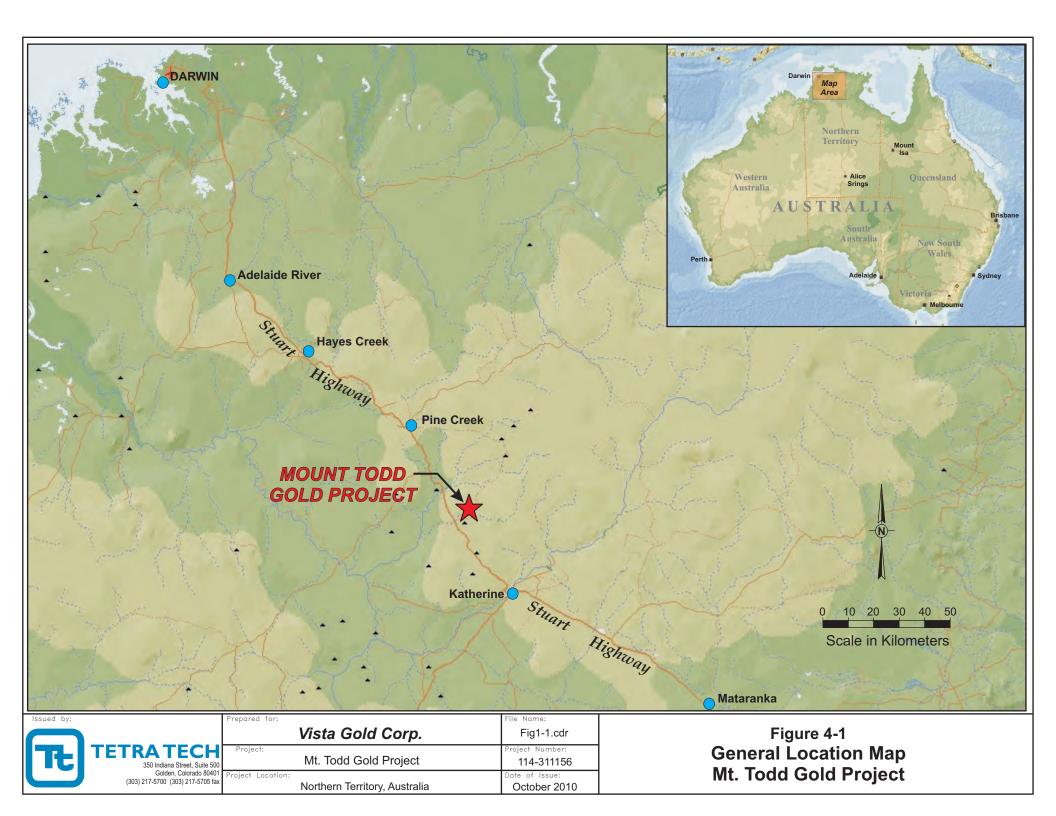
The agreement with the NT was for an initial term of five years commencing January 1, 2006, with an extension of five years at Vista Australia's option and three additional years upon the application of Vista Australia and with the approval of the NT. Pursuant to the terms of the first five-year term in accordance with the conditions of the agreement, Vista Australia has undertaken a comprehensive technical and environmental review of the Project to evaluate current site environmental conditions and developed a program to stabilize the environmental conditions and minimize offsite contamination. Vista has also reviewed the water management plan and made recommendations and developed a technical report for the re-starting of operations. During the term of the agreement, Vista Australia was also 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 of the Project site.

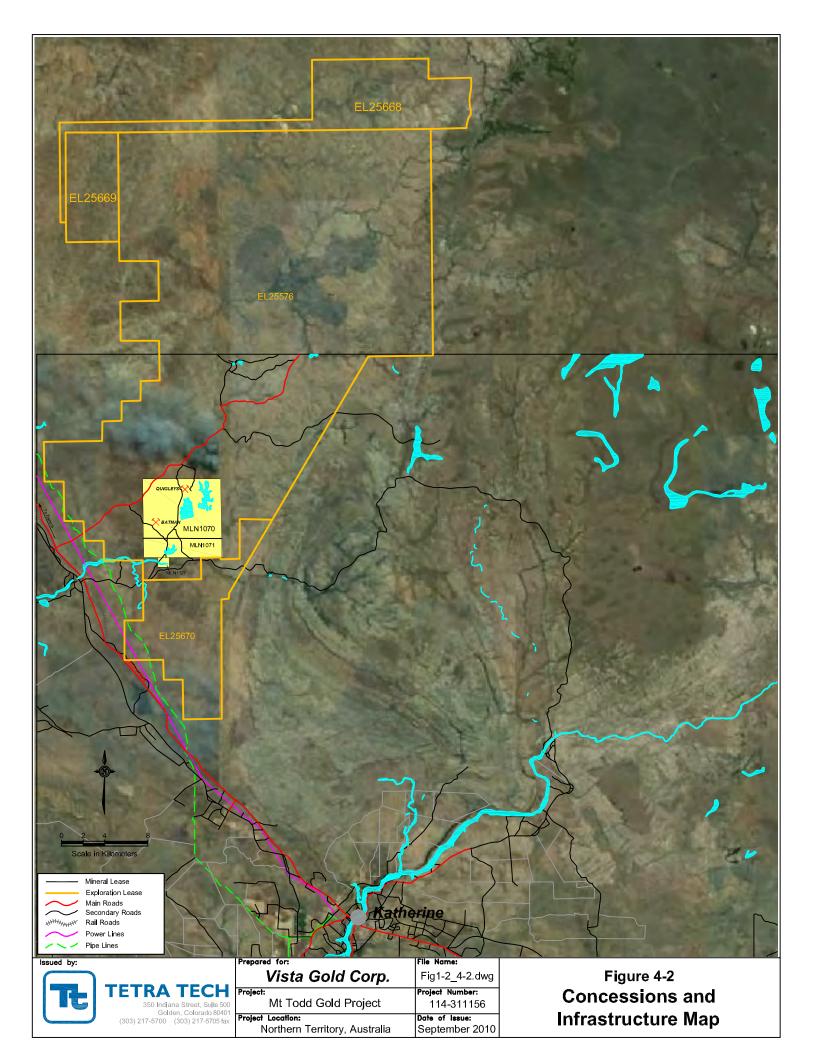
Vista provided notice to the NT government in June 2010 that it wished to extend the agreement. In November 2010, the NT government granted the renewal and the agreement has been extended for an additional five years until December 31, 2015.

Vista Australia paid the NT's costs of management and operation of the Mt. Todd site up to a maximum of AUD\$375,000 during the first year of the term, and assumed site management and pay management and operation costs in following years. In the agreement, the NT acknowledges its commitment to rehabilitate the site and the agreement provides that Vista Australia has no rehabilitation obligations for pre-existing environmental conditions until it submits and receives approval of a Mine Management Plan for the resumption of mining operations. Recognizing the importance placed by the NT upon local industry participation, Vista Australia has agreed to use, where appropriate, NT labor and services during the period of the agreement in connection with the Mt. Todd property, and further, in connection with any proposed mining activities prepare and execute a local Industry Participation Plan.

Pursuant to an agreement with the Jawoyn Association Aboriginal Corporation ("JAAC"), Vista was required to issue common shares of Vista with a value of CAD\$1.0 million as consideration for the JAAC entering into the agreement and for rent for the use of the surface overlying the mineral leases during the period from the effective date of the agreement until a decision is reached to begin production. Vista pays the JAAC AUD\$5,000 per month in return for consulting with respect to Aboriginal, cultural, and heritage issues.







If the Mt. Todd Project proves feasible for economic development of the mineral leases including a fully funded site reclamation bond, Vista will establish a technical oversight committee with representatives of the NT and the JAAC. Additionally, Vista will offer the JAAC the opportunity for joint venture participation in the operation on a 90 percent Vista/10 percent JAAC basis. For rent of the surface during production, Vista (or the Joint Venture if formed) will pay the JAAC an annual amount equal to one percent of the annual value of production with an annual minimum of AUD\$50,000. As part of the agreement, Vista will endeavor to use services and labor provided by the JAAC when feasible. Vista and the JAAC may form a 50/50 exploration joint venture to explore JAAC lands outside the mineral leases.

#### 4.2 Environmental Liabilities

#### 4.2.1 Comments On Known Liabilities

The primary environmental issue at the Mt. Todd site is water management resulting from the project shutdown without implementation of closure or reclamation activities. All of the water retention ponds (excluding the raw water pond) and the pit contain acidic water with elevated concentrations of regulated constituents, including:

- Batman Pit (RP3);
- WRD retention pond (RP1);
- TSF and pond (RP7);
- The HLP:
- The plant runoff pond (RP5); and
- Low grade ore stockpile pond (RP2).

This water has been managed through a combination of evaporation, pumping to RP3 for containment, and controlled discharge to streams during major flow events. Historically, average wet season rainfall in the area results in uncontrolled overflow from RP1, RP2, and RP5 to the Edith River due to the high amount of precipitation received in short periods of time coupled with insufficient pumping capabilities. Other uncontrolled discharges to the Edith River during the wet season include surface seeps from the heap leach facility and surface seeps and underflow from the TSF dam. Vista adopted the water management plan developed by MWH (2006b) which appears to be successful at minimizing impacts on the Edith River downstream of the Mt. Todd site.

The existing water treatment plant (Existing WTP) is being used to raise the pH and reduce metals concentrations in water from site retention ponds prior to its discharge into the TSF. Pending approval, the water management plan will be further refined to optimize the ability to discharge water and eliminate the reliance on RP3 as a repository for contaminated waters. The challenges posed by ARD/ML are significant but are believed to be manageable.

Additional hydrogeologic investigations will be necessary to improve the understanding of operational dewatering requirements as well as fully develop the site water balance. These investigations will provide the necessary information to characterize the existing groundwater conditions and develop a more rigorous groundwater monitoring program for the site. It is noted that dewatering was minimal and very manageable during previous operations at the Mt. Todd site. However, the hydrogeology of the mining area has not been investigated in sufficient detail to comment conclusively on the future dewatering requirements or provide a dewatering cost estimate at this time.

Additional information will need to be gathered to assess the quantity of salvageable soil from new disturbances (e.g., expansion of WRD and Batman, TSF2), verify that sufficient quantities



of growth medium will be available for closure of proposed and existing facilities. The adequacy of available soils for supporting plant growth and suitability for use as liner/cap material also needs to be evaluated.

The 1992 Draft EIS identified the following as the specific environmental issues to be considered for the project (Zapopan, 1992):

- Control of ARD;
- Heap leach solution containment;
- Tailings containment;
- Water management;
- Conservation of the Gouldian finch (Erythrura gouldiae) in the Yinberrie Hills;
- Impacts on Aboriginal sites of cultural significance;
- Impacts on historical and Aboriginal archaeological sites;
- Rehabilitation planning;
- Impacts of noise, dust, and blasting;
- Impacts on vegetation and fauna;
- Impacts on regional urban and social infrastructure; and
- General site management issues, such as weeds, mosquito-borne diseases, wildlife, and workforce behavior.

The Gouldian finch was classified as "Endangered" in 2001 by the NT Parks and Wildlife Commission (MWH, 2006a). The conservation of the Gouldian finch was an important consideration at the start of mining operations in 1993, when it was thought that the finch was confined to the Yinberrie Hills. However, the range of the finch is now believed to be broader than initially identified and less emphasis is being placed by the NT Government on this issue. There are currently believed to be no specific conservation practices enforced at the Mt. Todd site for the finch.

The Jawoyn people have strong involvement in the planning for the future of the Mt. Todd Project. Vista has a good relationship with the Jawoyn people, and at this time, they have raised no concerns about re-opening the mine.

## 4.3 Permitting

In 2006, Vista, including its wholly-owned subsidiary Vista Australia acquired the Mt. Todd Project through various contracts executed with the NT Government, Ferrier Hodgson as the deed administrator for Pegasus Gold Australia Pty Ltd., and the Jawoyn Association Aboriginal Corporation (JAAC). These contracts gave Vista Australia the right to explore and develop the mineral resources of the associated Mining Licenses.

On January 1, 2007, Vista became the operator of the Mt. Todd site and accepted the obligation to operate, care for and maintain the assets of the NT Government on the site. Vista Australia developed an Environmental Management Plan (EMP) for the care and maintenance of the Mt. Todd Mine Site in accordance with the provisions of the Mineral Leases 1070, 1071 and 1127 granted under the *Mining Act*. The EMP identifies the environmental risks found at the Mt. Todd site in its present state of operations and defines the actions that Vista Australia is taking to control, minimize, mitigate and/or prevent environmental impacts originating at the Mt. Todd site. As part of the agreement, the NT Government acknowledged its commitment to



rehabilitate the site and that Vista Australia has no obligations for pre-existing environmental conditions until it submits and receives approval of Notice of Intent (NOI) for resumption of mining operations.

The first step in formal mine permitting will be submission of a NOI to the NT Government. This document are intended to cover all the major issues relating to the mine development and provide sufficient information (background and technical) to allow a preliminary assessment by the Department of Resources (DoR), formerly Department of Regional Development, Primary Industry, Fisheries and Resources (DRDPIFR). Ultimately, the adequacy of the Mt. Todd Project NOI will be assessed against the following requirements:

- Description of mining activities;
- Description of the existing environment;
- Safety, health and environmental issues relevant to the mining activities and the management system to be implemented;
- Description of current and proposed mine workings and infrastructure; and
- A plan and costing of closure activities.

Simultaneously, an Environment Protection and Biodiversity Conservation Referral (EPBC Referral) will be submitted to the Commonwealth's Department of Sustainability, Environment, Water, Population and Communities (SEWPaC). SEWPaC will assess the EPBC Referral and make recommendations about whether or not the project should be approved to proceed.

DoR will determine if the proposed project should be referred to the Environment, Heritage and the Arts Division (EHA) of the Department of Natural Resources, Environment, the Arts and Sport (NRETAS) for assessment under the NT Environmental Assessment Act as detailed in FIGURE 4-3 (DRDPIFR, 2008a). If the DoR recommends referral, NRETAS, with input from the SEWPaC regarding the EPBC Referral, will advise on the requirement for either a Public Environmental Report (PER) or an Environmental Impact Statement (EIS).

The guidelines provided by NRETAS indicate that:

- A PER is required to assist in assessing environmental impacts that are considered significant but limited in extent; while
- An EIS is required to assist in assessing environmental impacts that are significant either in terms of site-specific issues, off-site issues and conservation values and/or the nature of the proposal.

An NT Environmental Minister will review the PER or EIS and authorize a draft release with a public comment period. A Supplemental Report will be prepared for review by EHA which addresses concerns from the public. Both the Supplement Report and an Assessment Report to be prepared by EHA based on the Supplement Report will be issued to SEWPaC which will prepare a draft decision for issuance and approval prior to publication of the final decision.

The estimated costs and timing of the possible paths associated with the environmental assessment process are provided in TABLE 4-1. These costs are based on estimates provided by Gustavson (2006) updated assuming an 18 percent increase in costs since 2006 (Engineering News Record, 2006) and guidance from GHD (GHD, 2010a). An allocation of \$650,000 for permitting and \$1,850,000 for baseline studies for the Mt. Todd Project has been included in the project budges for the next stage. This estimate assumes the permitting process will include an EIS; however, it is unclear at this time whether DoR will refer the project.



TABLE 4-1: Estimated Mine	Development Permittin	g Costs								
VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2010										
Task	Time <sup>1</sup>	Cost (\$) <sup>2</sup>								
Case 1: Assessment under the Mining Management Act (not referred to NRETA)										
Mining Management Plan or Notice of Intent	1 month	\$30,000								
Total	1 month	\$30,000								
Case 2: Referred to NRETA, Publi	c Environmental Review Re	equired								
Mining Management Plan or Notice of Intent	1 month	\$30,000								
Public Environmental Report	3 – 4 months	\$118,000 - \$212,000								
Total	4 – 5 months	\$148,000 - \$242,000								
Case 3: Referred to NRETA, Environ	nmental Impact Statement I	Required								
Mining Management Plan or Notice of Intent	1 month	\$30,000								
Environmental Impact Statement	3 – 6 months	\$177,000 - \$295,000								
Total	4 – 7 months	\$207,000 - \$325,000								

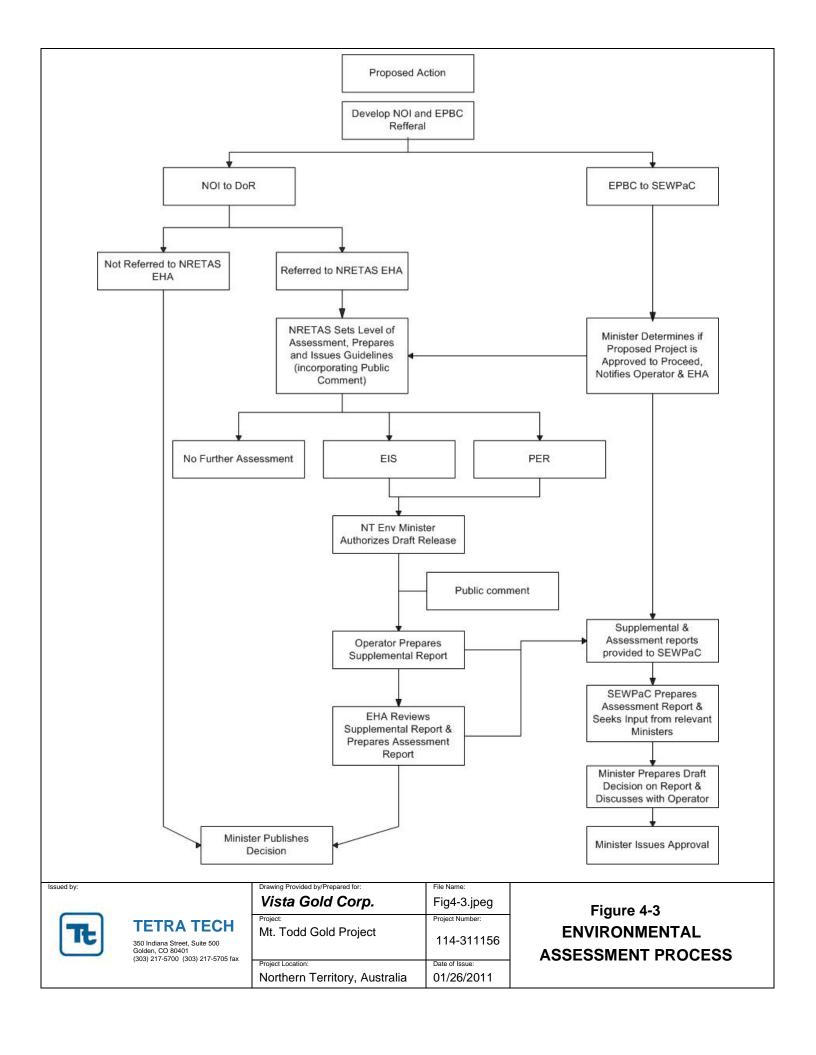
Note: <sup>1</sup>Preparation time only, does not include time for government approval process <sup>2</sup>if preparation is outsourced

#### 4.3.1 Existing Environmental Conditions

The following description of the existing environmental conditions at the Mt. Todd site is taken from Chadwick T&T Pty LTD (2009):

- Waste Discharge License 135 (EPA NT, 2005);
- Draft Waste Discharge License 178 (NT Government, 2010);
- Mt. Todd Environmental Management Services Report 1: Environmental Assessment (MWH, 2006a);
- Mt. Todd Environmental Management Services Report 2: Water Management (MWH, 2006b);
- Mt. Todd Gold Project Preliminary Economic Assessment (Gustavson, 2006);
- Environmental Management Plan (Vista, 2007a);
- Mt. Todd Waste Discharge License Report, 2006 2007 (Vista, 2007b);
- Mt. Todd Blueprint Rehabilitation Strategy (BRS) Report (DRDPIFR, 2008b);
- Mt. Todd Strategic Rehabilitation Reference Group: Status Update Papers in lieu of Meeting 11 (DRDPIFR, 2008c);
- Mt. Todd Mine Site Status Report, April 2008 to October 2008 (Vista, 2008);
- Mt. Todd Water Treatment Plant Commissioning Report (Vista, 2009);
- Mt. Todd Water Management Plan, 2010 2011 (Vista, 2010); and
- Mt. Todd Water Balance Care and Maintenance Model Calibration and Forward Modeling Predictions (HydroGeoLogica, Inc. and Tetra Tech, 2010).





# 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

#### 5.1 Accessibility

The Mt. Todd Project is located 56 km by road northwest of Katherine, and approximately 250 km southeast of Darwin in the NT of Australia (see FIGURE 4-1). Access to the mine is via high quality, two-lane paved roads from the Stuart Highway, the main artery within the territory.

## 5.2 Climate and Physiography

The Mt. Todd area has a sub-tropical climate with a distinct wet season and dry season. The area receives most of its rainfall between the months of January and early March. The temperature usually ranges from 25° to 35° C (77° to 95° F). Between November and December, temperatures can reach 40° C (104° F). Winter temperatures in the dry season are warm in the daytime, but can drop to 10° C (50° F) at night.

#### 5.3 Local Resources and Infrastructure

Access to local resources and infrastructure is excellent. The Mt. Todd Project is located sufficiently close to the city of Katherine to allow for an easy commute for workers. Because the area has both historic and current mining activity, the area contains a skilled mining workforce. In addition, Katherine offers all of the necessary support functions that are found in a medium sized city with regard to supplies, hotels, communications, etc.

The property has an existing high-pressure gas line and an electric line that was used by previous operators. In addition, both wells for potable water and a dam for process water are also located on or adjacent to the site. Finally, a fully functioning tailings dam is also present on site.

The concessions are within 2 to 3 km of the Nitmiluk Aboriginal National Park on the east. This National Park contains a number of culturally and geologically significant attractions. The proximity to the National Park has not historically yielded any impediments to operating. It is not expected to yield any issues to renewed operation of the property in the future.

# 5.4 Topography, Elevation and Vegetation

The topography of the Project is relatively flat. The mineral leases encompass a variety of habitats forming party of the northern Savannah woodland region, which is characterized by eucalypt woodland with tropical grass understories. Surface elevations are on the order of 130 to 160 meters above sea level in the area of the previous and planned site and waste dumps.



#### 6.0 HISTORY

The Mt. Todd Project area has significant gold deposits located on it and is located 250 km southeast of Darwin in the NT of Australia. It is situated in a well-mineralized historical mining district that supported small gold and tin operations in the past.

The Shell Company of Australia (Billiton), who was the managing partner in an exploration program in joint venture with Zapopan NL ("Zapopan"), discovered the Mt. Todd mineralization, or more specifically the Batman Deposit, in May 1988. Zapopan acquired Shell's interest in 1992 by way of placement of shares to Pegasus. Pegasus progressively increased their shareholding until they acquired full ownership of Zapopan in July 1995.

Feasibility studies for Phase I, a heap leach operation which focused predominately on the oxide portion of the deposit, commenced during 1992 culminating in an EPCM award to Minproc in November of that year. The Phase I project was predicated upon a 4 Mtpy on an annualized basis heap leach plant. This came on stream in late 1993. The treatment rate was subsequently expanded to a rate of 6 Mtpy on an annualized basis in late 1994.

Historical production is shown in TABLE 6-1.

TABLE 6-1: Heap Leach – Historic Feasibility Estimates vs. Historic Actual Production										
	Historic									
Category	Historic Feasibility Study	<b>Historic Production Actual</b>								
Tonnes Leached - million	13.0	13.2								
Head Grade – g Au/t	1.2	0.96								
Recovery - %	65	53.8								
Gold Recovered -toz	320,000	220,755								
Cost/tonne – A\$	7.13	8.33								
Cost/oz – A\$	281	500								

Note: All tonnages and grades shown in TABLE 6-1 are historical production numbers and are historic and pre-date Vista's ownership. The author and issuer consider historic estimates to be relevant but not current.

Phase II involved expanding to 8 Mtpy and treatment through a flotation and CIL circuit. The feasibility study was conducted by a joint venture between Bateman Kinhill and Kilborne (BKK) and was completed in June 1995.

The Pegasus Board approved the project on August 17, 1995, and awarded an EPCM contract to BKK in October 1995. Commissioning commenced in November 1996. Final capital cost to complete the project was AUD\$232 million (US\$181 million).

Design capacity was never achieved due to inadequacies in the crushing circuit. An annualized throughput rate of just under 7 Mtpy was achieved by mid 1997; however, problems with the flotation circuit which resulted in reduced recoveries necessitated closure of this circuit. Subsequently, high reagent consumption as a result of cyanide soluble copper minerals further hindered efforts to reach design production. Operating costs were above those predicted in the feasibility study.



The spot price of gold deteriorated from above \$400 in early 1996 to below \$300 per ounce during 1997. According to the 1997 Pegasus Annual Report, the economics of the project 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 on November 14, 1997.

In February 1999, General Gold Resources Ltd. ("General Gold") agreed to form a joint venture with Multiplex Resources and Pegasus to own, operate, and explore the mine. Initial equity participation in the joint venture was General Gold two percent, Multiplex Resources 93 percent, and Pegasus five percent. The joint venture appointed General Gold as mine operator, which contributed the operating plan in exchange for a 50 percent share of the net cash flow generated by the project, after allowing for acquisition costs and environmental sinking fund contributions. General Gold operated the mine from March 1999 to July 2000.

# 6.1 History of Previous Exploration

The Batman gold prospect, located about 3.5 km west of Mt. Todd, is part of a goldfield that was worked from early in the 20<sup>th</sup> century. Gold and tin were discovered in the Mt. Todd area in 1889. Most deposits were worked in the period from 1902 to 1914. A total of 7.80 tonnes of tin concentrate was obtained from cassiterite-bearing quartz-kaolin lodes at the Morris and Shamrock mines. The Jones Brothers reef was the most extensively mined gold-bearing quartz vein, with a recorded production of 28.45 kg. This reef consists of a steeply dipping ferruginous quartz lode within tightly folded greywackes.

The Yinberrie Wolfram field, discovered in 1913, is located 5 km west of Mt. Todd. Tungsten, molybdenum and bismuth mineralization was discovered in greisenised aplite dykes and quartz veins in a small stock of the Cullen Batholith. Recorded production from numerous shallow shafts is 163 tonnes of tungsten, 130 kg of molybdenite and a small quantity of bismuth.

Exploration for uranium began in the 1950s. Small uranium prospects were discovered in sheared or greisenised portions of the Cullen Batholith in the vicinity of the Edith River. The area has been explored previously by Esso for uranium without any economic success.

Australian Ores and Minerals Limited ("AOM") in joint venture with Wandaroo Mining Corporation and Esso Standard Oil took out a number of mining leases in the Mt. Todd area during 1975. Initial exploration consisted of stream sediment sampling, rock chip sampling, and geological reconnaissance for a variety of commodities. A number of geochemical anomalies were found primarily in the vicinity of old workings.

Follow-up work concentrated on alluvial tin and, later, auriferous reefs. Backhoe trenching, costeaning, and ground follow-up were the favored mode of exploration. Two diamond drillholes were drilled at Quigleys Reef. Despite determining that the gold potential of the reefs in the area was promising, AOM ceased work around Mt. Todd. The Arafura Mining Corporation, CRA Exploration, and Marriaz Pty Ltd all explored the Mt. Todd area at different times between 1975 and 1983. In late 1981, CRA Exploration conducted grid surveys, geological mapping and a 14-diamond drillhole program, with an aggregate meterage of 676.5 m, to test the gold content of Quigleys Reef over a strike length of 800 m. Following this program CRA Exploration did not proceed with further exploration.

During late 1986, Pacific Gold Mines NL ("Pacific Gold Mines") undertook exploration in the area which resulted in small-scale open cut mining on the Quigleys and Golf reefs, and limited test mining at the Alpha, Bravo, Charlie and Delta pits. Ore was carted to a CIP plant owned by Pacific Gold Mines at Moline. This continued until December 1987. Pacific Gold Mines ceased operations in the area in February 1988 having produced approximately 86,000 tonnes grading 4 g Au/t gold (Historic reported production, not NI 43-101 compliant.). Subsequent



negotiations between the Mt. Todd JV partners (Billiton and Zapopan) and Pacific Gold Mines resulted in the acquisition of this ground and incorporation into the Joint Venture.

TABLE 6-2 presents the most important historical events in a chronologic order.

	TABLE 6-2: Property History				
	VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2012				
<u>1986</u>					
October 1986 –	Conceptual Studies, Australia Gold PTY LTD (Billiton); Regional Screening;				
January 1987:	(Higgins), Ground Acquisition by Zapopan N.L.				
<u>1987</u>					
February:	Joint Venture finalized between Zapopan and Billiton. Geological Reconnaissance,				
June-July:	Regional BCL, stream sediment sampling.				
October:	Follow-up BCL stream sediment sampling, rock chip sampling and geological mapping (Geonorth)				
<u>1988</u>					
Feb-March:	Data reassessment (Truelove)				
March-April:	Gridding, BCL grid soil sampling, grid based rock chip sampling and geological mapping (Truelove)				
May:	Percussion drilling Batman (Truelove) - (BP1-17, 1475m percussion)				
May-June:	Follow-up BCL soil and rock chip sampling (Ruxton, Mackay)				
July:	Percussion drilling Robin (Truelove, Mackay) - RP1-14, (1584m percussion)				
July-Dec:	Batman diamond, percussion and RC drilling (Kenny, Wegmann, Fuccenecco) - BP18-70, (6263m percussion); BD1-71, (8562m Diamond); BP71-100, (3065m R.C.)				
<u>1989</u>					
Feb-June:	Batman diamond and RC drilling:BD72-85 (5060m diamond); BP101-208, (8072m RC). Penguin, Regatta, Golf, Tollis Reef Exploration Drilling: PP1-8, PD1, RGP132, GP1-8, BP108, TP1-7 (202m diamond, 3090m RC); TR1-159 (501m RAB).				
June:	Mining lease application (MLA's 1070, 1071) lodged.				
July-Dec:	Resource estimates; mining-related studies; Batman EM-drilling: BD12, BD8690 (1375m diamond); RC pre-collars and H/W drilling, BP209-220 (1320m RC); Exploration EM and exploration drilling: Tollis, Quigleys, TP9, TD1, QP1-3, QD1-4 (1141 diamond, 278m RC); Negative Exploration Tailings Dam: E1-16 (318m RC); DR1-144 (701. RAB) (Kenny, Wegmann, Fuccenecco, Gibbs).				
1990					
Jan-March:	Pre-feasibility related studies; Batman Inclined Infill RC drilling: BP222-239 (2370m RC); Tollis RC drilling, TP10-25 (1080m RC).				
	(Kenny, Wegmann, Fuccenecco, Gibbs)				
<u> 1993 - 1997</u>					
Pegasus Gold Australia Pty Ltd.	Pegasus Gold Australia Pty Ltd reported investing more than \$200 million in the development of the Mt. Todd mine and operated it from 1993 to 1997, when the				

	project closed as a result of technical difficulties and low gold prices. The deed administrators were appointed in 1997 and sold the mine in March 1999 to a joint venture comprised of Multiplex Resources Pty Ltd and General Gold Resources Ltd.
1999 - 2000 March - June	Operated by a joint venture comprised of Multiplex Resources Pty Ltd and General Gold Resources Ltd. Operations ceased in July 2000, Pegasus Gold Australia Pty Ltd, through the Deed Administrators, regained possession of various parts of the mine assets in order to recoup the balance of purchase price owed it. Most of the equipment was sold in June 2001 and removed from the mine. The tailings facility and raw water facilities still remain at the site.
2000 – 2006	The Deed Administrators, Pegasus Gold Australia Pty Ltd, the government of the NT, and the Jawoyn Association Aboriginal Corporation (JAAC) held the property.
2006 March	Vista Gold Corp. acquires mineral lease rights from the Deed Administrators.

# **6.2 Historic Drilling**

The following discussion centers on the historic drillhole databases that were provided to Tetra Tech for use in this report. Based on the reports by companies, individuals and other consultants, it is Tetra Tech's opinion that the drill-hole databases used as the bases of this report contain all of the available data. Tetra Tech is unaware of any drillhole data that have been excluded from this report.

#### 6.2.1 Batman Deposit

There are 730 historic drillholes in the Batman Deposit assay database. FIGURE 6-1 shows the drillhole locations for the Batman Deposit. These holes include 225-diamond drill core ("DDH"), 435 reverse circulation holes ("RVC"), and 70 open rotary holes ("OP"). Nearly all of the DDH and RVC holes were inclined 60° to the west. Samples were collected in one-meter intervals. DDH holes included both HQ and NQ core diameters. Core recoveries were reported to be very high with a mean of 98 percent. The Central area of the deposit was extensively core-drilled. Outside of the Central area, most of the drillholes were RVC and OP holes. All drillholes collars were surveyed by the mine surveyor. Down-hole surveys were conducted on most drillholes using an Eastman single shot instrument. All holes were logged on site.

A series of vertical RVC infill holes were drilled on a 25-meter-by-12.5-meter grid in the core of the deposit to depths between 50 and 85 m below the surface. Zapopan elected to exclude these holes from modeling the Batman Deposit because the assays from these holes seemed to be downwardly biased and more erratic compared to assays from inclined RVC holes. Of the possible reasons cited as to why vertical RVC holes might report lower grades and have a more erratic character, the 1992 Mining & Resource Technology Pty Ltd ("MRT") report states that "the orientation of vertical holes sub-parallel to mineralization caused preferential sampling of barren host rocks...". This statement was, at least in part, borne out by the later sampling work done on the blastholes as it was credited with part of the reproducibility problems that were encountered when the Batman Deposit was being mined.

#### 6.2.2 Drillhole Density and Orientation

Pegasus was aware of the problem of drillhole density within the Batman Deposit. According to Pegasus management, the decision to not drill out the lower portion of the Batman Deposit was based on economic considerations. Section 7.0 of the 1995 BKK feasibility study detailed the decrease in drillhole density with depth. At the time of that study, there were 593 holes in the assay database of which 531 were used in the construction of the MRT block model. Reserve Services Group ("RSG") reported that the drilling density in the Central area oxide and transition zone ore was generally 25 m by 25 m. The spacing was wider on the periphery of the ore envelope. The drilling density in the Central area of the primary ore ranged from 50 m by 50 m, but decreased to 50 m by 100 m and greater at depth.

At the time of The Winters Company's ("TWC") site visit in 1997, the drillhole database numbered 730 holes. It is not known if any holes were excluded from the Pegasus exploration models. Most of the new drilling that had been added since the 1994 MRT model was relatively shallow. TWC reviewed PGA's 50-meter drill sections through the Batman Deposit and saw that there was a marked decrease in drillhole spacing below 1000 RL (the model has had constant 1000 m added to it in order to prevent elevations below 0 (sea level) and have been denoted as RL for relative elevation) and another sharp break below 900 RL. The drillhole spacing in the south of 1000 N on the 954 RL bench plan approached 80 m by 80 m. Pegasus was able to get around this problem by using very long search ranges in its grade estimation. In the main ore zone, Pegasus used maximum search distances in the north and east directions of nearly 300 m.

Another potential problem related to drilling is the preferred orientation of the drillholes. Most of the holes in the assay database are inclined to the west to capture the vein set which strikes N10° to 20°E, dips east, and which dominates the mineralized envelope. This orientation is the obvious choice to most geologists since these veins are by far the most abundant. Ormsby (1997) discussed that while the majority of mineralization occurs in these veins, the distribution of gold mineralization higher than 0.4 g Au/t is controlled by structures in other orientations, such as east-west joints and bedding. For this reason, Ormsby stated, "The result is that few ore boundaries (in the geological model) actually occur in the most common vein orientation." If this is truly the case, the strongly preferential drilling orientation has not crosscut the best mineralization and in cases may be sub-parallel to it.

Vertically oriented RVC holes were not included in the drillhole database for the 1994 MRT model because their assay results appeared to be too low compared to other hole orientations. If vertical hole orientations were actually underestimating the gold content during exploration drilling, the vertical and often wet blastholes, which are used for ore control, pose a similar problem and will need to be addressed prior to commencing any new mining on the site.

# 6.2.3 Quigleys

TABLE 6-3 details the Quigleys exploration database as of the time of this report. FIGURE 6-1 also shows the drillhole locations for the Quigleys Deposit.



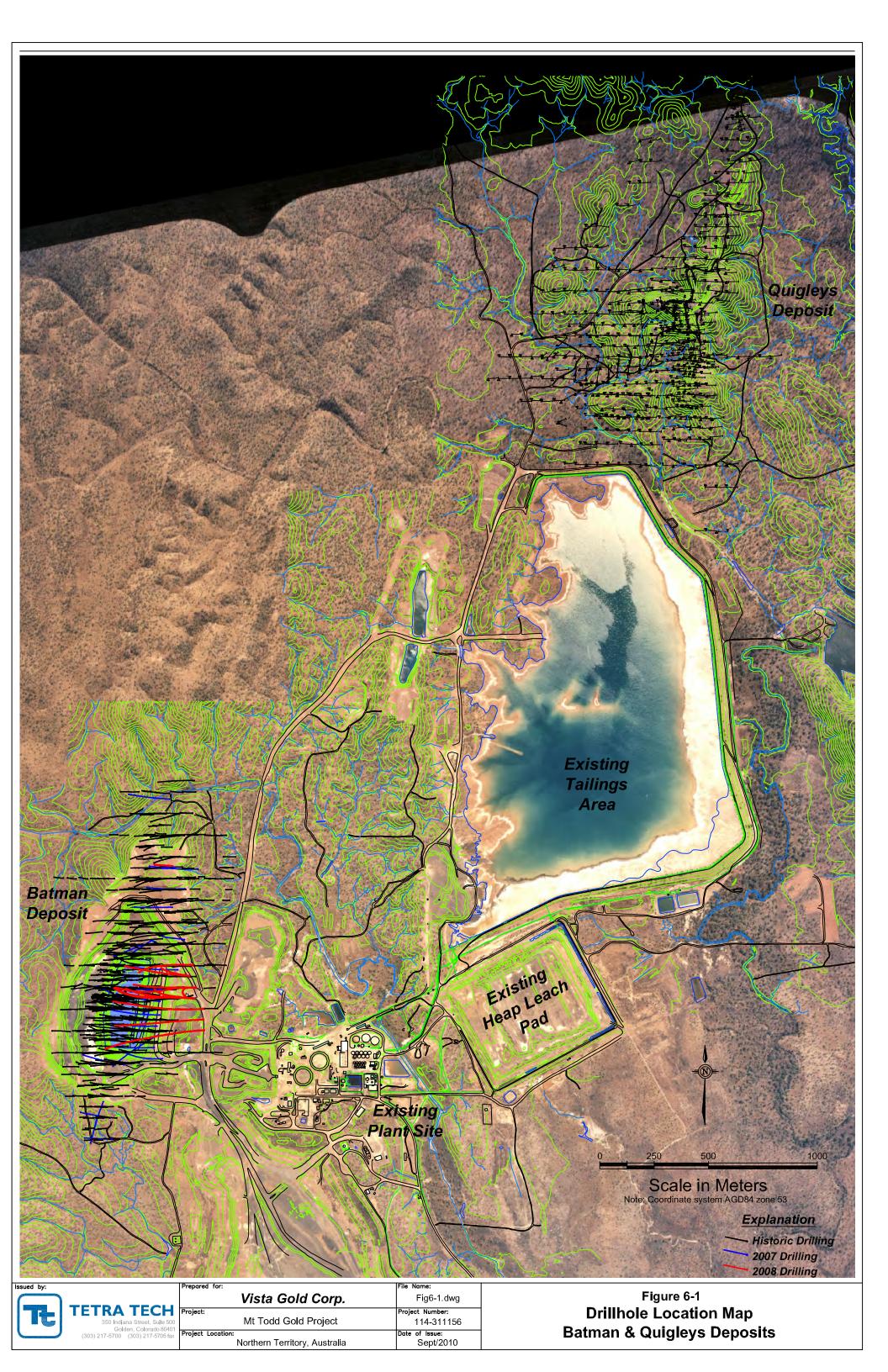


TABLE 6-3: Summary of Quigleys Exploration Database VISTA GOLD CORP. – MT TODD GOLD PROJECT							
Drillholes  Gold Assays (approx 1m)  Copper Assays Lithologic Codes							
632	49,178	41,673	51,205				

Snowden completed a statistical study of the Quigleys drillhole database in order to bias test it. A comparison of historic and recent data by Snowden suggested that a bias might exist. Further study concluded that a bias is not apparent where all drilling is oriented in a similar direction (and not clustered). This suggests the inclusion of assay data from all phases of drilling is reasonable. The March 2008 report entitled "Mt. Todd Gold Project, Gold Resource Update" contains additional information regarding the Snowden findings.

# 6.3 Historic Sampling Method and Approach

NQ core intervals were sawed lengthwise into half core. HQ core was quartered. RVC samples were riffle split on site and a 3- to 4-kg sample was sent to an assay lab. The 1992 MRT resource report commented that many of the RVC holes were drilled wet and that Billiton and Zapopan were aware of possible contamination problems. Oddly, in some comparison tests, DDH holes had averaged assays five percent to six percent higher than RVC holes; for that reason, MRT elected to exclude RVC holes from the drillhole database for grade estimation of the Central area of the Batman Deposit.

Since the property is currently not operating, Tetra Tech did not witness any drilling and sampling personally. We have taken the following discussion from reports by the various operators and more importantly, from reports by independent consultants that were retained throughout the history of the property to audit and verify the sampling and assaying procedures. It is Tetra Tech's opinion that the reports by the various companies and consultants have fairly represented the sampling and assaying history at the site and that the procedures implemented by the operators, most notably GGC, have resulted in an assay database that fairly represents the tenor of the mineralization at Batman.

# 6.4 Historic Sample Preparation, Analysis, and Security

The large number of campaigns and labs used in the Mt. Todd drilling effort has resulted in a relatively complex sampling and assaying history. The database developed prior to August of 1992 was subjected to a review by Billiton, and has been subjected to extensive check assays throughout the project life. Furthermore, a number of consultants have reviewed the integrity of the database and have been content with the data for modeling purposes.

Drillhole samples were taken on one-meter intervals, though there are instances of two-meter intervals in the typically barren outlying holes. The procedure involved sawing the NQ core lengthwise in half. HQ core was quartered. RVC samples were riffle split on site and a 3- to 4-kg sample was sent to the laboratory for analyses. Pincock Allen and Holt (PAH) stated that they actually witnessed the sample preparation process at a number of steps and concurred with the methods in use; however, PAH also noted that they would prefer that the sample cuts following the ring grinding process be conducted with a splitter rather than a scoop. While free gold is not a problem in this deposit, the potential does exist for segregation based upon particle hardness, which could bias assay results.



Pegasus (and Zapopan NL, before) conducted a check assay program which is consistent with industry practice. Every 20th assay sample was subjected to assay by an independent lab. Standards were run periodically as well, using a non-coded sample number to prevent inadvertent bias in the labs.

Billiton conducted an audit/analysis of the data set available in 1992, which resulted in a number of recommendations. Generally, factoring of any kind, particularly upward, can be a source of problems and is not recommended practice. The four percent adjustment applied to a portion of the pre-1989 data set is unlikely to introduce a significant problem. Similarly, averages of multiple samples were placed into the assay field designated AU\_PREF, which is also a potential source of error, as it creates a set of samples whose variance will be somewhat lower than the single-assay population. Again, the number of samples subjected to averaging is less than one in ten, so the net effects are negligible.

While the concerns mentioned thus far are relatively minor, It was PAH's feeling that a more detailed examination of the assay set would be in order. The first concern focused on the integrity of the AU\_PREF assays, which were calculated from a number of methods depending upon date drilled and the existence of check assays. PAH ran regressions and correlations on AU\_PREF against the primary and repeat assays of the Batman Deposit and noted that their data set contained 39 percent more samples than the feasibility dataset, most of which have been prepared under the more stringent and repeatable guidelines as specified by Pegasus and others.

The results indicated that at higher grades, the AU\_PREF assay differed by less than one percent (on average) from the primary and repeat assays. Agreement with the primary assay was within one percent over the entire range, which, indicates that AU\_PREF, even with the averaged data, does not materially differ from the source assays. The average difference between the regressed grade and AU\_PREF becomes larger at lower grades, particularly at less than 0.5 g au/t. This effect is probably due to detectability differences between the different labs and the mathematical effect of even small differences on low-grade samples.

## 6.4.1 Sample Analysis

According to reports by Pegasus, various consultants, and others, the early exploration assays were largely done at various commercial labs in Pine Creek and Darwin. Later assays were done at the Mt. Todd mine site lab. At least three different sample preparation procedures were used at one time or another. All fire assays were conducted on 50-gram charges. Based on these reports, it appears that the assay labs did use their own internal assay blanks, standards, and blind duplicates.

Assay laboratories used for gold analysis of the Batman drill data were Classic Comlabs in Darwin, Australia Assay Laboratories in Pine Creek and Alice Springs and Pegasus site Laboratory.

The exploration data consist of 91,225 samples with an average and median length of 1 meter. The minimum sample length is 0.1 m and the maximum sample length is 5 m. 137 samples are less than 1 meter and 65 samples are over one meter in length.

All exploration drill data were used for the resource estimate. Four-meter down hole composite samples were calculated down hole for the resource estimate. The assay composited data were tabulated in the database field called "Comp". The weighted average grades, the length, and the hole were recorded.

## 6.4.2 Check Assays



Extensive check assaying was carried out on the exploration data. Approximately five percent of all RVC rejects were sent as duplicates and duplicate pulps were analyzed for 2.5 percent of all DDH intervals. Duplicate halves of 130 core intervals were analyzed as well. Overall, Mt. Todd's check assay work is systematic and acceptable. The feasibility study showed that the precision of field duplicates of RVC samples is poor and that high errors exist in the database. The 1995 feasibility study stressed that because of the problems with the RVC assays, the RVC and OP assays should be kept in a separate database from the DDH assays. However, since that time, the majority of the identified assaying issues have been corrected by GGC based on recommendations of consultants. It is Tetra Tech's opinion that the assay database used in the creation of the current independent resource estimation exercise is acceptable and meets industry standards for accuracy and reliability.

# 6.4.3 Security

Tetra Tech is unaware of any "special" or additional security measures that were in place and/or followed by the various exploration companies, other than the normal practices of retaining photographs, core splits, and/or pulps of the samples sent to a commercial assay laboratory.

# **6.5 Historic Process Description**

The Mt. Todd deposit is large, but low-grade gold deposit. The average grade of the gold mineralization is approximately 1 g Au/t. The gold mineralization occurs in a hard, uniform greywacke host and is associated with sulfide and silica mineralization which has resulted from deposition along planes of weakness that had opened in the host rock. Gold is very fine grained (<30 microns) and occurs with both silica and sulfides. The host rock is very competent with a Bond Work Index of 23 to 30.

Pegasus and earlier owners did extensive metallurgical testing from 1988 to 1995 to develop a process flowsheet for recovering gold from low-grade extremely hard rock. The treatment route, based on the metallurgical studies, was engineered to provide for the recovery of a sulfide flotation concentrate which was subsequently reground and leached in a concentrate leach circuit. Flotation tailings were leached in a separate CIL circuit.

The historic design process flowsheet for the Mt. Todd Project is given in FIGURE 6-2. A brief description of the major unit operations is as follows:

**Crushing:** Four stages of crushing were employed to produce a product having a  $P_{80}$  of 2.6 mm. The primary crusher was a gyratory followed by secondary cone crushers in closed circuit. Barmac vertical shaft impact crushers were used for tertiary crushing in closed circuit and quaternary crushing stages. The crushed product was stored under a covered fine ore stockpile.

**Grinding:** The crushed product was drawn from the fine ore stockpile into three parallel grinding circuits, each consisting of an overflow ball mill in closed circuit with cyclones to produce a grind with a  $P_{80}$  of 150 microns.

**Flotation:** Cyclone overflow was sent to the flotation circuit where a bulk concentrate was supposed to recover seven percent of the feed with 65 to 70 percent of the gold.

**CIL of Tailing:** The flotation tailing was leached in carbon-in-leach circuit. The leach residue was sent to the tailings pond. Approximately 60 percent of the gold in the flotation tailings was supposed to be recovered in the CIL circuit.

**CIL of Flotation Concentrate:** The flotation concentrate was reground in Tower mills to 15 microns and subjected to cyanide leaching to recover the bulk of the gold in this product



(94.5 percent of the flotation concentrate). The leach residue was sent to the tailings pond.

**Process Recycle:** The process water was recycled to the milling circuit from the tailings pond. The overall gold recovery was projected to be 83.8 percent for the proposed circuit. However, during the initial phase of plant optimization, problems were encountered with high levels of cyanide in the recycled process water which, when returned to the mill, caused depression of pyrite and much lower recoveries to the flotation concentrate. As a result, the flotation plant was shut down and the ground ore was directly sent to the CIL circuit. The modified process flowsheet is given in FIGURE 6-3. Without the flotation circuit, the CIL plant recovered 72 to 75 percent of the gold.

The plant was shut down and placed on care and maintenance within one year of startup due to a collapse in gold price, under performance of the process plant and higher than projected operating costs.

## 6.6 Technical Problems with Historical Process Flowsheet

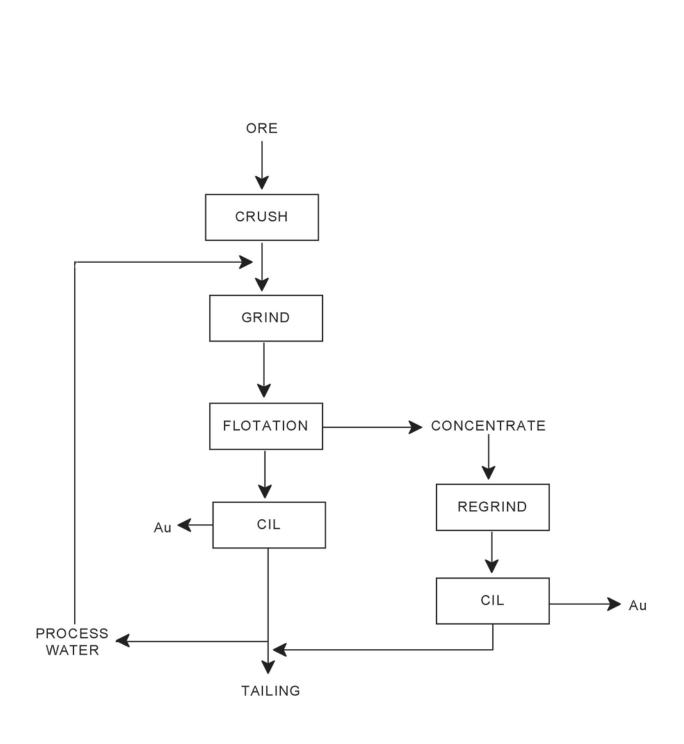
Besides the collapse in the gold price, there were several technical problems with the design flowsheet. These technical problems have been documented by plant engineers, The Winters Company, and other investigators. They are briefly discussed in this section.

## 6.6.1 Crushing

The four-stage crushing circuit was supposed to produce a product with  $P_{80}$  of 2.6 mm. Also, historically the tonnage was projected to be 8 million tonnes per year on an annualized basis. The actual product achieved in the plant had a  $P_{80}$  of 3.2 to 3.5 mm and the circuit could handle a maximum of 7 million tonnes per year on an annualized basis. This resulted in an increased operating cost for gold production.

A four-stage crushing/ball mill circuit was selected over a SAG/ball mill/crusher circuit because crushers were available from the Phase I heap leach operation and could be used in the Phase II program. The use of this available equipment did reduce the overall capital cost.

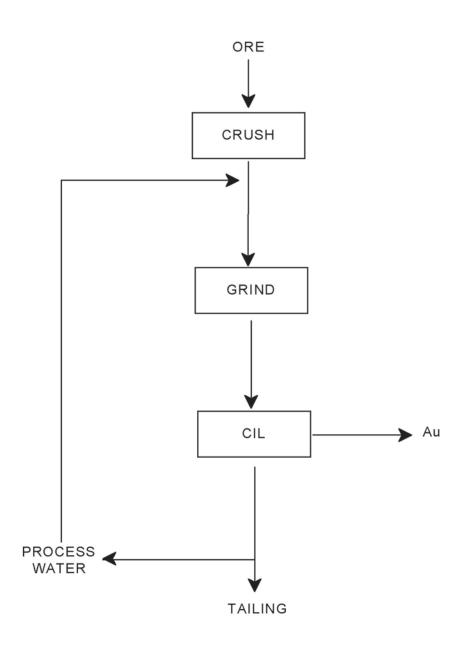




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repared for:	File Name:	
Vista Gold Corp.	Fig6-2.dwg	
Project: Mt. Todd Gold Project	Project Number: 114-311156	
roject Location: Northern Territory, Australia	Date of Issue: 03/05/2008	

Figure 6-2
Plant Process Flowsheet for
Mt. Todd Project (as designed)





Prepared for:	File Name:	
Vista Gold Corp.	Fig6-3.dwg	
Mt. Todd Gold Project	Project Number: 114-311156	
Project Location: Northern Territory, Australia	Date of Issue: 03/05/2008	

Figure 6-3
Modified Plant Process Flowsheet
for Mt. Todd Project

The following problems were encountered with the crushing circuit:

- The mechanical availability of the Barmac vertical shaft impact crushers was extremely poor.
- The Barmac crushers were not necessarily the best choice for the application. The three-stage crusher product could have been sent to the mills which would have had to have been larger size mills.
- The crushing circuit generated extreme amounts of fines and created environmental problems. The dust also carried gold with it. The dust levels increased the wear on machinery parts and were a potential long-term health hazard.
- The use of water spray to keep the dust down resulted in use of large amounts of fresh water. This was a strain on the availability of fresh water for the plant.

GGC operated a whole-ore cyanide leach facility but no technical reports describing their process have been located by Vista to date.

#### 6.6.2 Grinding Circuit

The SAG mill/ ball mill / crusher (ABC circuit) would have been a better selection of the comminution circuit rather than the four-stage crushing/ball milling circuit. The circuit was tested, but not implemented in the final flowsheet for reasons discussed in the previous section.

#### 6.6.3 Flotation Circuit

The flotation circuit was supposed to recover 60 to 70 percent of the gold in a bulk sulfide concentrate which was seven percent of the feed material. The flotation circuit recovered  $\pm$  1% of the weight of material and less than 50 percent of the gold values. This was due to the significant amount of cyanide in the recycle process water which depressed the sulfide minerals in the flotation process. If the process water had been detoxified, the problems would not have occurred. This was not done because of the cost associated with a cyanide detoxification plant.

Additional problems which were overlooked during the testwork and design of the plant included the following:

- The presence of cyanide soluble copper was known but was not taken into consideration during the design of the process flowsheet; and
- Removal of copper from the bulk sulfide in the form of a copper concentrate would have reduced the consumption of cyanide as well as the amount of WAD cyanide in the recycled process water. Pilot plant testing was undertaken in the plant to produce copper concentrate. Documented results do indicate ± 60 percent of copper recovery at a concentrate grade of +10% Cu. Approximately 45 percent of the gold reported to this concentrate. However, from our discussions with the engineering contractors and the Pegasus staff running the pilot plant, a copper concentrate assaying over 20 percent was achieved in some of the later tests.

## 6.6.4 CIL of Flotation Concentrate and Tailings

A portion of the copper was depressed with cyanide with the recycle process water in the flotation process. Hence, the cyanide consumption was high even in the leaching of the flotation tailings. The availability of dissolved oxygen in leaching terms was very low thereby resulting in poor extraction of gold in the leach circuit. This resulted in an estimated reduction of 40 percent of gold recovery in the circuit.



## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

# 7.1 Geological and Structural Setting

The Mt. Todd Project is situated within the southeastern portion of the Early Proterozoic Pine Creek Geosyncline (FIGURE 7-1). Meta-sediments, granitoids, basic intrusives, acid and intermediate volcanic rocks occur within this geological province.

Within the Mt. Todd region, the oldest outcropping rocks are assigned to the Burrell Creek Formation. These rocks consist primarily of interbedded greywackes, siltstones, and shales of turbidite affinity, which are interspersed with minor volcanics. The sedimentary sequence incorporates slump structures, flute casts and graded beds, as well as occasional crossbeds. The Burrell Creek Formation is overlain by interbedded greywackes, mudstones, tuffs, minor conglomerates, mafic to intermediate volcanics and banded ironstone of the Tollis Formation. The Burrell Creek Formation and Tollis Formation comprise the Finniss River Group.

The Finniss River Group strata have been folded about northerly trending F1 fold axes. The folds are closed to open style and have moderately westerly dipping axial planes with some sections being overturned. A later north-south compression event resulted in east-west trending open style upright D2 folds.

The Finniss River Group has been regionally metamorphosed to lower green schist facies.

Late and Post Orogenic granitoid intrusion of the Cullen Batholith occurred from 1789 Ma to 1730 Ma, and brought about local contact metamorphism to hornblende hornfels facies.

Unconformably overlying the Burrell Creek Formation are sandstones, shales and tuffaceous sediments of the Phillips Creek sandstone, with acid and minor basic volcanics of the Plum Tree Creek Volcanics. Both these units form part of the Edith River Group, and occur to the south of the Project Area.

Relatively flat lying and undeformed sediments of the Lower Proterozoic Katherine River Group unconformably overlie the older rock units. The basal Kombolgie Formation forms a major escarpment, which dominates the topography to the east of the Project Area.

# 7.2 Local Geology

The geology of the Batman Deposit consists of a sequence of hornfelsed interbedded greywackes, and shales with minor thin beds of felsic tuff. Bedding is striking consistently at 325°, dipping at 40 to 60° to the southwest. Minor lamprophyre dykes trending north-south pinch and swell, cross cutting the bedding.

Nineteen lithological units have been identified within the deposit and are listed in TABLE 7-1 below from south to north (oldest to youngest).



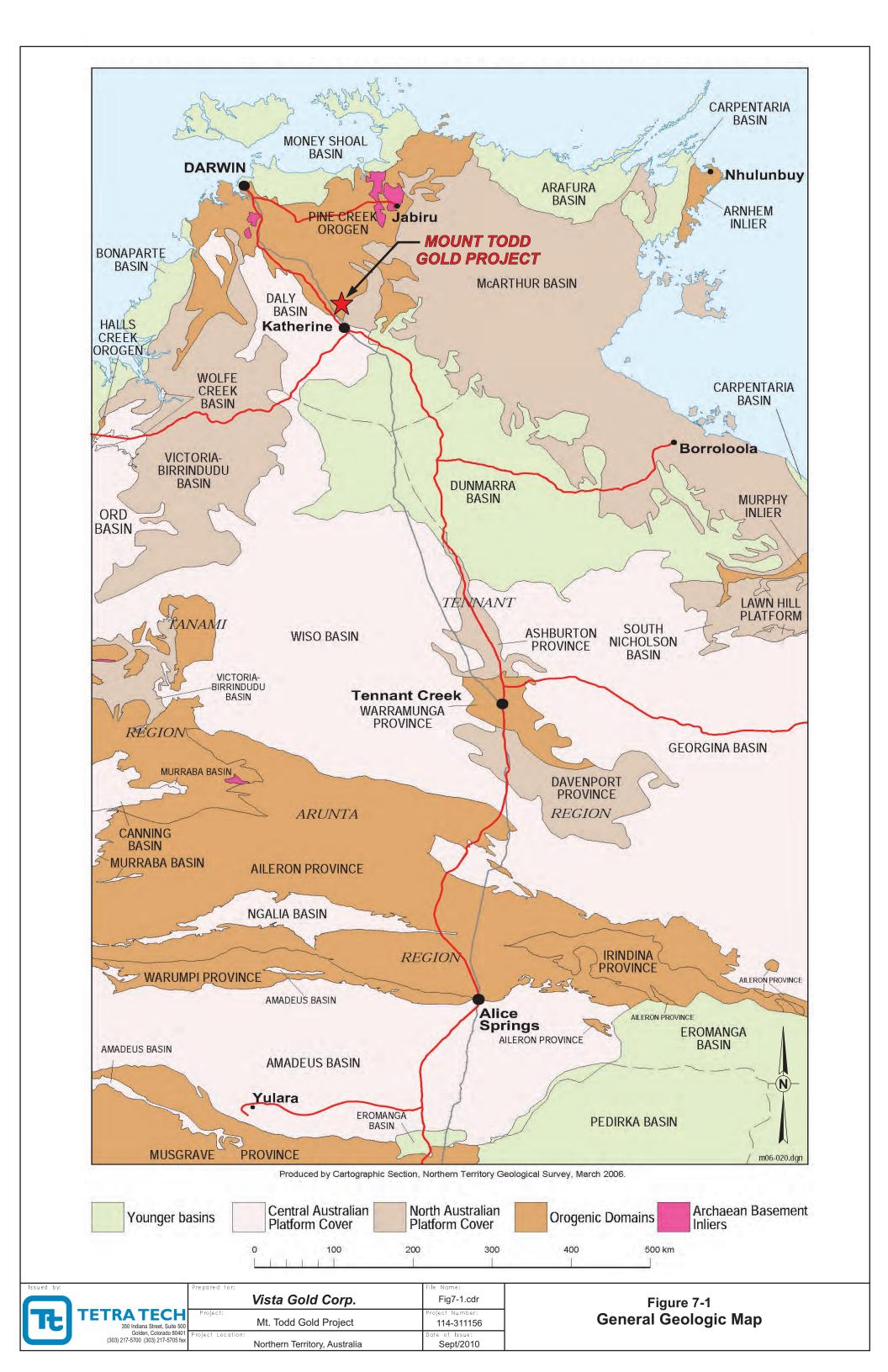
TABLE 7-1:	TABLE 7-1: Geologic Codes and Lithologic Units					
VISTA GOLD CORP. – MT TODD GOLD PROJECT						
	June 2009					
Unit code	Lithology	Description				
1	GW25	Greywacke				
2	SH24	Shale				
3	GW24A	Greywacke				
4	SHGW24A	shale/greywacke				
5	GW24	Greywacke				
6	SHGW23	shale/greywacke				
7	GWSH23	greywacke/shale				
8	GW23	Greywacke				
9	SH22	Shale				
10	T21	felsic tuff				
11	SH21	Shale				
12	T20	felsic tuff				
13	SH20	Shale				
14	GWSH20	greywacke/shale				
15	SH19	Shale				
16	T18	felsic tuff				
17	SH18	Shale				
18	GW18	Greywacke				
Int	INT	lamprophyre dyke				

Bedding parallel shears are present in some of the shale horizons (especially in units SHGW23, GWSH23 and SH22). These bedding shears are identified by quartz/ calcite sulphidic breccias. Pyrite, pyrrhotite, chalcopyrite, galena and sphalerite are the main primary sulfides associated with the bedding parallel shears.

East west trending faults and joint sets crosscut bedding. Only minor movement has been observed on these faults. Calcite veining is sometimes associated with these faults. These structures appear to be post mineralization.

Northerly trending quartz sulfide veins and joints striking at 0° to 20°, dipping to the east at 60° are the major location for mineralization in the Batman Deposit. The veins are 1 to 100 mm in thickness with an average thickness of around 8 to 10 mm. The veins consist of dominantly quartz with sulfides on the margins. The veining occurs in sheets with up to 20 veins per horizontal meter. These sheet veins are the main source of mineralization in the Batman Deposit.





#### 7.3 Mineralization

A variety of mineralization styles occur within the Mt. Todd area. Of greatest known economic significance are auriferous quartz-sulfide vein systems. These vein systems include the Batman, Jones, Golf, Quigleys and Horseshoe prospects, which occur within a north-northeast trending corridor, and are hosted by the Burrell Creek Formation. Tin occurs in a north-northwest trending corridor. The tin mineralization comprises cassiterite, quartz, tourmaline, kaolin, and hematite bearing assemblages, which occur as bedding parallel breccia zones and pipes. Polymetallic Au, W, Mo, and Cu mineralization occurs in quartz-greisen veins within the Yinberrie Leucogranite; a late stage highly fractionated phase of the Cullen Batholith. The Batman Deposit extends approximately 2200 m along strike, 400 m in across dip and drill tested to a depth of 800 m. Drilling indicates the Batman mineralization to be open along-strike and down-dip.

#### 7.3.1 Batman Deposit

#### **Local Mineralization Controls**

The mineralization within the Batman Deposit is directly related to the intensity of the north-south trending quartz sulfide veining. The lithological units impact on the orientation and intensity of mineralization.

Sulfide minerals associated with the gold mineralization are pyrite, pyrrhotite and lesser amounts of chalcophyrite, bismuthinite and arsenopyrite. Galena and sphalerite are also present, but appear to be post-gold mineralization, and are related to calcite veining in the bedding plains and the east-west trending faults and joints.

Two main styles of mineralization have been identified in the Batman Deposit. These are the north-south trending vein mineralization and bedding parallel mineralization.

## North-South Trending Corridor

The north-south trending mineralization occurs in all rock units and is most dominant in the shales and greywackes designated SHGW23. Inspection of grade control and exploration data, drill logs, diamond core and the pit has shown that the north-south trending mineralization can be divided into 3 major zones based on veining and jointing intensity.

#### Core Complex

Mineralization is consistent and most, to all, joints have been filled with quartz and sulfides. Vein frequency per meter is high in this zone. This zone occurs in all rock types.

## Hanging Wall Zone

Mineralization is patchier than the core complex due to quartz veining not being as abundant as the core complex. The lithology controls the amount of mineralization within the hanging wall zone. The hanging wall zone doesn't occur north of T21. South of reference line T21 to the greywacke shale unit designated GWSH23, the mineralization has a bedding trend. A large quartz/ pyrrhotite vein defines the boundary of the hanging wall and core complex in places.

#### Footwall Zone

Like the Hanging Wall Zone, the mineralization is patchier than the core complex and jointing is more prevalent than quartz veining. Footwall Zone mineralization style is controlled by the lithology and occurs in all lithological units.



Narrow bands of north-south trending mineralization also occur outside the three zones, but these bands are patchy.

## **Bedding Parallel Mineralization**

Bedding parallel mineralization occurs in rock types SH22 to SH20 to the east of the Core complex. Veining is both bedding parallel and north south trending. The mineralization appears to have migrated from the south along narrow north-south trending zones and "balloon out" parallel to bedding around the felsic tuffs.

#### 7.3.2 Quigleys Deposit

The Quigleys Deposit mineralization was interpreted by Pegasus and confirmed by Snowden to have a distinctive high-grade shallow dipping 30°-35° NW shear zone extending for nearly 1 km in strike and 230m vertical depth within a zone of more erratic lower grade mineralization. The area has been investigated by RC and diamond drilling by Pegasus and previous explorers on 50m lines with some infill to 25m.

Drillhole intersections generally revealed an abrupt change from less than 0.4 g Au/t to high grade (>1 g Au /t) mineralization at the hanging wall position of the logged shear, but also revealed a gradational change to lower grade mineralization with depth. Some adjacent holes were also noted with significant variation in the interpreted position of the shear zone, and some of the discrepancies appeared to have been resolved on the basis of selection of the highest gold grade. While the above method may result in a valid starting point for geological interpretation, the selection of such a narrow high grade zone is overly restrictive for interpretation of mineralization continuity and will require additional work prior to estimating any resources.

It was further thought that while the shear might be readily identified in diamond drillholes, interpretation in RC drilling, and in particular later interpretation from previously omitted RC holes, must invoke a degree of uncertainty in the interpretation.

The conclusion was that, while the shear zone was identifiable on a broad scale, the local variation was difficult to map with confidence and therefore difficult to estimate with any degree of certainty at this time.



## 8.0 DEPOSIT TYPE

According to Hein (2003), the Batman and Quigleys gold deposits of the Mt. Todd Mine are formed by hydrothermal activity, concomitant with retrograde contact metamorphism and associated deformation, during cooling and crystallization of the Tennysons Leucogranite and early in D2 (Hein, submitted for publication). It is speculated that pluton cooling resulted in the development of effective tensile stresses that dilated and/or reactivated structures generated during pluton emplacement and/ or during D1 (Furlong et al., 1991), or which fractured the country rock carapace as is typical during cooling of shallowly emplaced plutons (Knapp and Norton, 1981). In particular, this model invokes sinistral reactivation of a northeasterly trending channelization basement strike-slip fault, causing brittle failure in the upper crust and/or dilation of existing north-northeasterly trending faults, fractures, and joints in competent rock units such as meta-greywackes and siltstones. The generation of dilatant structures above the basement structure (i.e., along a northeasterly trending corridor overlying the basement fault), coupled with a sudden reduction in pressure, and concomitant to brecciation by hydraulic implosion (Sibson. 1987; Je'brak, 1997) may have facilitated channelization of predominantly metamorphic fluid in the intermediate contact metamorphic aureole (possibly suprahydrostatic-pressured) and into the upper crust (Furlong et al., 1991; Cox et al., 2001). Rising fluids decompressed concurrent with mineral precipitation. Throttling of the conduit or fluid pathways probably resulted in over pressuring of the fluid (Sibson, 2001), this giving way to further fracturing, etc. precipitation accompanied a decrease in temperature although, ultimately, the hydrothermal system cooled as isotherms collapsed about the cooling pluton (Knapp and Norton, 1981).

Gold mineralization is constrained to a single mineralizing event that included:

- Retrogressive contact metamorphism during cooling and crystallization of the Tennysons Leucogranite;
- Fracturing of the country rock carapace;
- Sinistral reactivation of a NE-trending basement strike-slip fault;
- Brittle failure and fluid-assisted brecciation; and
- Channelization of predominantly metamorphic fluid in the intermediate contact metamorphic aureole into dilatant structures.

The deposits are similar to other gold deposits of the PCG and are classified as orogenic gold deposits in the subdivision of thermal aureole gold style. The Batman Deposit shares some characteristics with intrusion-related gold systems, especially in terms of the association of gold with bismuth and reduced ore mineralogies. This makes the deposit unique in the PCG.



## 9.0 EXPLORATION

Vista exploration staff conducted a surface exploration program, including prospecting, rock sampling and GPS surveying of drillhole collars and grid pickets on the Mt. Todd Exploration Licenses from April to July, 2008. Equipment and personnel were mobilized from the Mt. Todd Mine site. The work was conducted by geologists and field technicians.

During the 2008 field season, the exploration effort was focused on four areas: Red Kangaroo Dreaming ("RKD"), Mt. Todd mine site area, Tablelands area and Wolfram Hill. All prospects can be accessed from the Mt. Todd mine site easily via existing roads. A total of 216 rock samples were collected from all areas as presented in Table 9-1. These prospect areas were chosen for further exploration as they were along strike (or proximal) of a mineralized northeast regional trend which hosts the Batman Pit and numerous gold prospects.

TABLE 9-1: 2008 Rock Samples VISTA GOLD CORP. – MT TODD GOLD PROJECT June 2009				
Prospect Samples Collected				
Red Kangaroo Dreaming (RKD)	145			
Mt. Todd Mine Site Area	52			
Tablelands Area	6			
Wolfram Hill Area	13			
Total Samples	216			

RKD was explored by the previous operator (Pegasus: 38 RC holes, 58 RAB holes). Mineralization was defined along a south trending 575 meter strike length. The area sampled during the 2008 program is west and south of the main RKD mineralized zone. The rock sampling was conducted to confirm both historical gold anomalies and soil anomalies from the 2007 Vista soil sampling program. At RKD, 145 samples were collected and submitted for analysis.

Prospecting and rock sampling was conducted at the Mt. Todd mine site to locate mineralization proximal to Batman pit. Approximately 52 samples were collected and submitted for analysis. The area sampled includes the area south of the waste dump and heap leach pad. The sampled area contains historical soil and rock chip Au anomalies that have seen limited exploration.

In the Wolfram Hill area, 13 samples were collected and submitted for analysis. There are numerous historical gold anomalies in the Wolfram Hill area that have seen limited exploration. The area that was sampled includes historical shafts and adits from previous tungsten mining operations.

Limited sampling at Tablelands area, 33 km northeast of the Batman pit (14 km northeast of RKD), comprised only six samples. Previous drilling by past operators returned a near surface assay of 36 g Au/t as well as other anomalous values.

All observations and sampling are recorded as "stations" which have UTM coordinates that are located in the field with a GPS unit.



An ICP multi-element suite was utilized to analyze the rock samples from RKD, Mt. Todd mine site area, Tablelands area and Wolfram Hill prospect by ALS Chemex Labs in Adelaide, South Australia. The ICP analysis consist of a multi-element suite that reports analyses for base and precious metals, pathfinder elements for these commodities, as well as elements useful for mapping bedrock geology.

Concurrent with the rock sampling, from April to July 2008, drillhole collar locations and grid pickets were surveyed at Tablelands prospects using a GPS unit. Accurate drillhole locations has enabled the compilation of an accurate database for further drill planning and geological interpretation.

#### 9.1 Results

Approximately 1,100 m due west of the RKD prospect, a 600 meter long arsenic soil anomaly was prospected and sampled during the 2008 exploration program. Historical rock samples have assayed up to 17.37 g Au/t within the anomaly. During the program, a topographic ridge corresponding within the southern portion of the anomaly was explored. The ridge was sampled along 500 m with 41 samples collected. Of the samples collected almost half (46 percent) were over 0.3 g Au/t (ranging from 0.3 to 2.36 Au/t). No known drilling has been conducted on the anomaly and the mineralized ridge, although historical drillholes are collared 500 m west and 200 m south of the current target. Further field work is recommended including mapping, rock sampling and further soil sampling to define the anomaly and develop a drill target.

At the Wolfram Hill prospect, the 2008 rock sampling located anomalous gold, silver, copper, and tungsten anomalies including one sample which assayed 2.33 g Au/t, 738 g Ag/t, 37.8 %Cu and 0.21 %W. Only preliminary work was conducted in 2008; further work is warranted due to the significant gold, silver and copper values that were delineated in 2008 and by previous operators. It should also be noted that other historic tungsten occurrences, similar to the Wolfram Hill prospect, in the Pine Creek Orogen, also have significant enrichment of tantalum (it is currently unclear if the Wolfram Hill prospect has been explored for or historic samples have been analyzed for tantalum). Tantalum mineralization is present in a number of deposit styles including pegmatites and polymetallic veins of which both are found at the Wolfram Hill prospect.

Preliminary reconnaissance exploration was completed at the Tablelands prospect and additional work is recommended to follow up anomalous gold mineralization identified by previous operators.

South of the waste dump at the Mt. Todd mine site, a spot gold anomaly of 1.2 g Au/t confirms historical gold anomalies of 1.99 to 14.2 g Au/t. All three samples occur along a 200 meter strike length which trends north-south. The area sampled south of the heap leach pad also had isolated spot gold anomalies up to 2.29 g Au/t. Further work is required and recommended to locate and further refine known areas of gold mineralization proximal to the Mt. Todd mine site.



## **10.0 DRILLING**

In 2011 and 2012 the Vista exploration program at the Batman deposit consisted of 18 diamond core containing 13,035.5 meters that targeted both infill definitional drilling and step-out drilling. TABLE 10-1 contains information for the 18 drillholes completed.

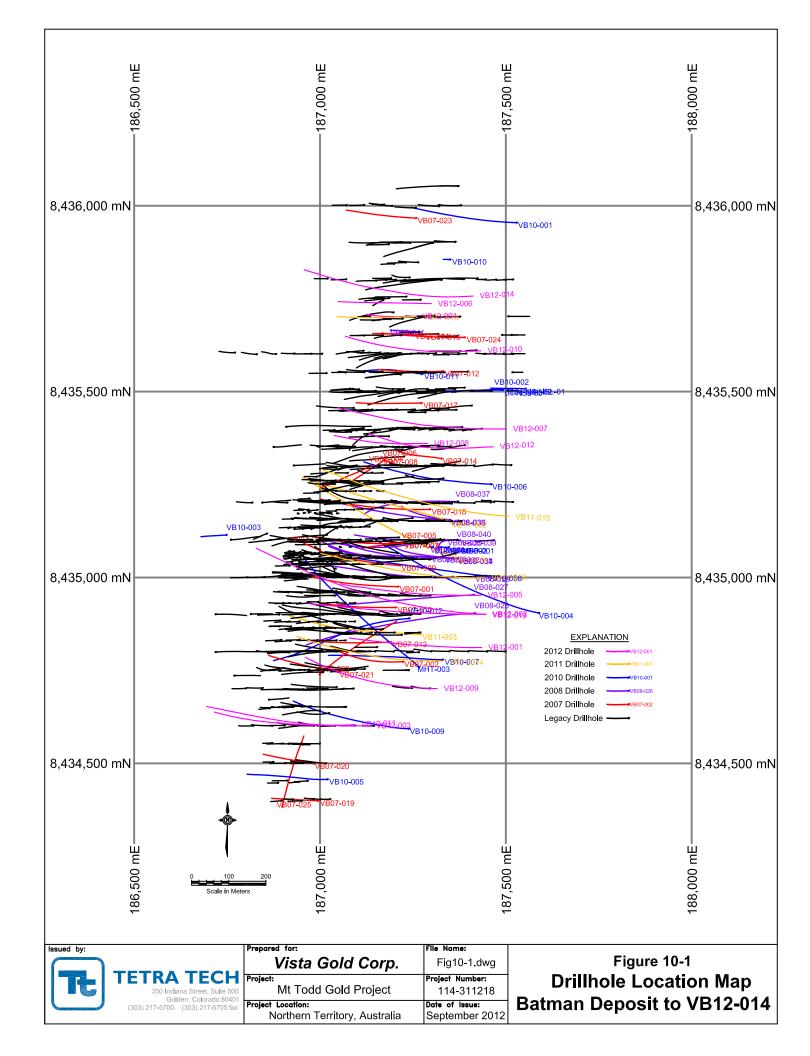
Note: drillholes VB11-004 to VB11-011 were geotechnical drillholes and were not assay, and therefore not part of this estimate. Tt would recommend that in the future, drillholes drilled for axillary purposes are given independent identification naming/number schemes to avoid confusion.

A total of 12,820 assays from 18 drillholes were added for this resource. FIGURE 10-1 is a plan map that details the locations of all exploration drillholes drilled at the Batman deposit up to and including VB12-014.



# TABLE 10-1: Drillholes Added For Resource Update VISTA GOLD CORP. - MT TODD GOLD PROJECT October 2011

Hole ID	Northing m (MGA94 z53)	Easting m (MGA94 z53)	Elevation (m above msl)	Bearing (degrees)	Dip (degrees)	Total Depth (m)	Hole Type
VB11-012	8434999.3	187443.5	145.0	269	-59	806.8	Diamond
VB11-013	8435702.4	187261.4	169.7	272	-67	388.3	Diamond
VB11-014	8434775.2	187329.2	144.2	271	-59	704.9	Diamond
VB11-015	8435164.8	187508.3	142.6	272	-61	890	Diamond
VB12-001	8434811.7	187434.8	144.7	269	-65	744.2	Diamond
VB12-002	8434900.9	187446.6	144.4	269	-58	890	Diamond
VB12-003	8434601.0	187133.3	147.3	269	-60	890	Diamond
VB12-004	8435702.1	187257.1	169.7	269	-55	383.4	Diamond
VB12-005	8434952.2	187433.6	145.7	269	-60	761.6	Diamond
VB12-006	8435736.9	187299.4	169.4	270	-55	475.6	Diamond
VB12-007	8435399.9	187501.5	143.3	269	-60	887.8	Diamond
VB12-008	8435360.5	187289.7	161.9	269	-65	645.9	Diamond
VB12-009	8434701.3	187315.6	144.5	269	-60	728.7	Diamond
VB12-010	8435609.7	187432.9	145.1	267	-60	774	Diamond
VB12-011	8434604.0	187093.5	146.4	267	-57	629.8	Diamond
VB12-012	8435351.8	187466.2	146.0	267	-63	793.7	Diamond
VB12-013	8434900.9	187445.2	144.4	270	-55	883.1	Diamond
VB12-014	8435757.1	187412.0	149.5	267	-60	757.7	Diamond



# 10.1 Sampling

The sampling method and approach was similar to what has historically been used at Mt. Todd. The drill core, upon removal from the core barrel, is photographed, geologically logged, geotechnically logged, and placed into metal core boxes. The metal core boxes are transported to the sample preparation building where the core is marked and sawn into halves. One-half is placed into sample bags as one-meter sample lengths, and the other half retained for future reference. The only exception to this is when a portion of the remaining core has been flagged for use in the ongoing metallurgical testwork.

In the few case of short reverse circulation drillholes reverse circulation pre collars, Vista employed a rifle splitter to collect one meter samples intervals the entire length drilled by reverse circulation. Vista has ceased the practice of RC pre-collaring for this resource estimate, all 18 drillholes added for this estimate are full diamond drillholes.

The bagged samples have sample tags placed both inside and on the outside of the sample bags. The individual samples are grouped into "lots" for submission to ALS Chemex for preparation and analytical testing. All of this work was done under the supervision of a Vista geologist.



# 11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

The following section describes the sample preparation, analyses and security undertaken by Vista only for exploration drilling added for this resource update. Details regarding prior procedures can be found in previously issued technical reports.

# 11.1 Sample Preparation

The diamond drilling program was conducted under the supervision of the Geologic Staff which was composed of a Chief Geologist, several contract expatriate geologists, and a core handling/cutting crew. The core handling crew was labor recruited locally.

Facilities for the core processing included an enclosed logging shed and a covered cutting and storage area that was fenced in. Both of these facilities were considered to be limited access areas and kept secured when work was not in progress.

The diamond drill core was boxed and stacked at the rig by the drill crews. Core was then picked up daily by members of the core cutting crew and transported directly into the logging shed.

Processing of the core included photographing, geotechnical and geologic logging, and marking the core for sampling. The nominal sample interval was 1 meter. When this process was completed, the core was moved into the core cutting/storage area where it was laid out for sampling. The core was laid out for the following procedures:

- One-meter depth intervals were marked out on the core by a member of the geologic staff:
- Geotechnical logging was done in accordance with the instructions received from SRK;
- Core orientation (bottom of core) was marked with a solid line when at least three orientation marks aligned and used for structural measurements. When orientation marks were insufficient an estimation orientation was indicated by a dashed line,
- Geologic logging was then done by a member of the geologic staff. Assay intervals were selected at this time and a cut line marked on the core. The standard sample interval was one-meter, with a minimum of 0.2m and a maximum of 1.2m. Of the 9,635 assay added for this resource update 41 intervals were outside of the previously described optimal interval length. With the minimum being 5cm and the maximum being 5.4m. Tt has incorporated these samples within the resource as is, but recommends that future sampling adhere to the optimal sample range. Sample intervals were constrained by lithologic, alteration and structural boundaries,
- Blind sample numbers were then assigned based on pre-labeled sample bags. Sample intervals were then indicated in the core tray at the appropriate locations; and
- Each core tray was photographed and restacked on pallets pending sample cutting and stored on site indefinitely.

The core was then cut using diamond saws with each interval placed in sample bags. At this time, the standards and blanks were also placed in plastic bags for inclusion in the shipment. Standards, blanks and duplicates were inserted at a minimum ratio of 1 in 20. At suspected high grade intervals addition blank sample were added. Standard reference material was sourced from Ore Research & Exploration Pty Ltd and provided in 60g sealed packets. When a sequence of 5 samples was completed, they were placed in a shipping bag and closed with a zip tie. All of these samples were kept in the secure area until crated for shipping.



Samples were then placed in crates for shipping with 100 samples per crate (20 shipping bags). The crates were secured with padlocks and numbered globe seals as soon as they were loaded. The secured crates were stacked outside the core shed until picked up for transport.

# 11.2 Sample Analyses

The following laboratories were used for lab preparation, analyses, and check analyses.

TABLE 11-1: Assay and Preparation Laboratories							
Vista Gold Corp Mt Todd Gold Project October 2012							
Laboratory Address Purpose Abbreviation Independent Certified							
ALS   Minerals	31 Denninup Way Malaga, WA 6090	Main assay analyses	ALS	Certified			
ALS   Minerals	13 Price St Alice Springs, NT 0870	Sample Preparation	ALS Alice Springs	Certified			
Genalysis Laboratory Services (Intertek Group)	15 Davison St Maddington, WA 6109	Check Analyses	Genalysis	Certified			
North Australian Laboratories Pty Ltd	MLN 792 Eleanor Rd Pine Creek, NT 0847  Alternative assay analyses		NAL	Pending			
Northern Territory Environmental Laboratories (Intertek Group)	3407 Export Dr Berrimah, NT 0828	Check Analyses	NTEL	Certified			

The majority of the samples were transported first to ALS in Alice Springs for sample preparation. After preparation, samples were then forwarded on to ALS in Malaga for assay analyses. One in every 20 pulp and reject was sent from ALS in Alice Springs to NAL, Vista was notified by email which samples were sent to NAL.

Following completion of assay results, all pulps and reject material was shipped back to the Mt Todd Project site and stored.

# 11.3 Sample Security

ALS was selected as the primary laboratory for all further preparation and analysis. The closest ALS facility with the capability of preparing the samples to the desired specifications was their sample preparation facility located in Adelaide. A series of padlocks were purchased for the sample crates and keys to these padlocks were sent to the sample preparation facility. ALS was instructed to notify Vista immediately if a crate of samples arrived without the padlocks or if the globe seals were missing or showed evidence of tampering.

Sample shipments were scheduled for approximately once a week. The sealed crates were picked up on site by the transport company for road transport to the preparation facility. A chain-of-custody note was prepared and signed by both the shipping company and the geologist



supervising the loading. These chain-of-custody notes were attached to the sample inventory and filed in the geologist office on site.

When the shipment left site, sample transmittals were prepared and e-mailed to ALS. When the shipment arrived at the preparation facility the samples were lined out and a confirmation of sample receipt was e-mailed back to Vista.

The author is satisfied with the adequacy of sample preparation, security and analytical procedures employed.



## 12.0 DATA VERIFICATION

# 12.1 Drill Core and Geologic Logs

As stated earlier in this report, the Mt. Todd Project has an excellent drillhole database comprised of drill core, photographs of the drill core, assay certificates and results, and geologic logs. The meticulous preservation of the drill core and associated "hard copies" of the data are a testament to the originators of the project and the subsequent companies that have worked on the project. All data are readily available for inspection and verification. In addition, most of the subsequent companies or their consultants that have examined the project have completed checks of the data and assay results. The author has reviewed drill core, drill core logs and assay certificates. Other than the "normal" types of errors inherent in a project this size, (i.e. mislabeled intervals, number transpositions, etc.), which were corrected prior to Tetra Tech's resource estimation, it is Tetra Tech's opinion that the databases and associated data are of a "high quality" in nature and valid for use in mineral resource and reserve estimation.

Tetra Tech found no significant discrepancies with the existing drillhole geologic logs and is satisfied that the geologic logging, as provided for the development of the three-dimensional geologic models, fairly represents both the geologic and mineralogic conditions of each of the deposits that comprise the Mt. Todd Project.

# 12.2 Topography

The topographic map of the project area was delivered electronically in an AutoCAD® compatible format and represent the topography in half meter accuracy. The native coordinate system of the topography is MGA94 zone 53, and for this resource update and as the Project goes forward MGA94 zone 53 will be the used coordinate system. The surveyed drillhole collar coordinates, once translated to MGA94 zone 53 agree well with the topographic map; it is Tetra Tech's opinion that the current topographic map is accurate and accurately represents the topography of the project area. In addition, it is suitable for the development of the geologic models, mineral resource estimates, and mineral reserve estimates.

# 12.3 Verification of Analytical Data

As part of the 2007 exploration program, Vista embarked on a program to both verify the historic assay results and ensure that any future analytical work meets all current NI 43-101 standards for reporting of mineral resources. This program consisted of two components; re-assaying of a portion of the historic drillholes, and assaying of the new core drillholes.

Vista completed a multi-phase program to evaluate the accuracy of gold assays generated by North Australian Labs (NAL) on Mt. Todd core samples. The test involved three phases including, 1) cross checking assay standards used in the program between NAL and ALS-Chemex, 2) preparing and assaying 30, 1-meter intervals of remaining half-core and detailed analysis of crushing and analytical performance between the two labs, and 3) screen sieve assay analysis of 45 coarse reject samples plus the 45 comparable remaining half core samples.

Analysis of the results from the two labs confirmed that finer material tends to be higher grade and that this fine material had been preferentially lost through the coarse-weave sample bags during storage and handling of the coarse reject samples. The test also showed good reproducibility between labs in all tests at grade ranges typical of the deposit. Greater variance, which is not unexpected, showed up in the few samples assaying in the 5-20 g Au/t range.

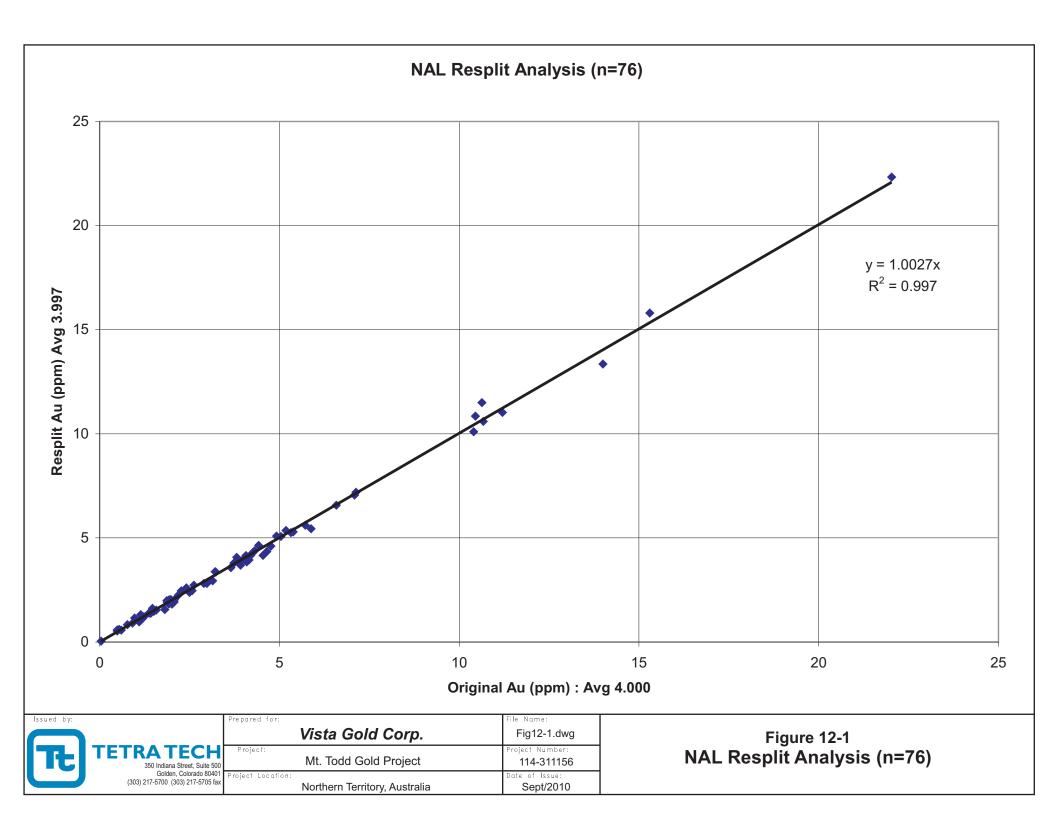
FIGURES 12-1, 14-2, and 12-3 detail the results of the analytical check program that was completed on the 2007 exploration drillholes. The program was designed to check both internal



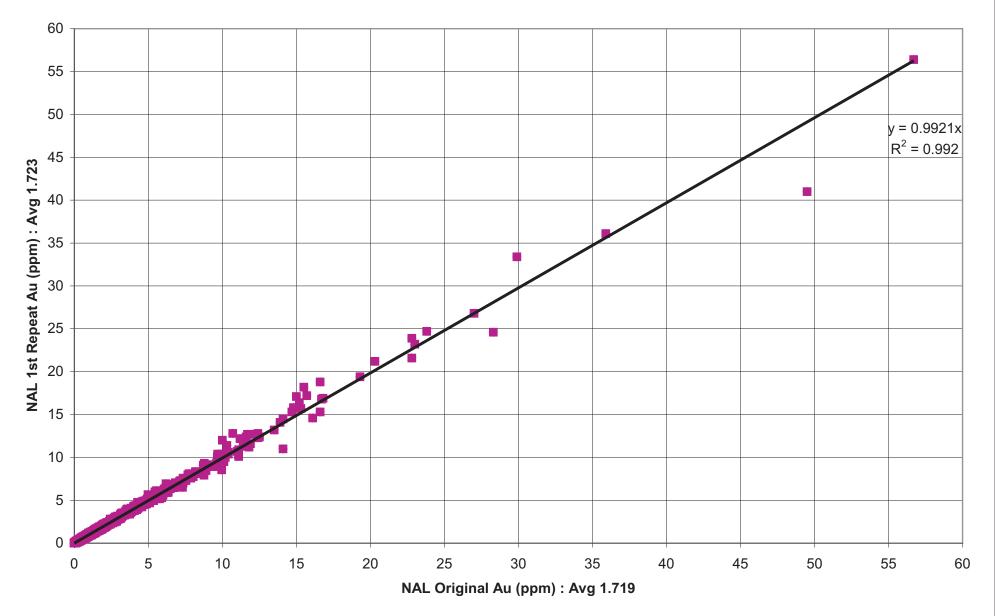
laboratory accuracy and inter-laboratory accuracy. NAL was the primary laboratory for completion of the sample analyses. ALS Chemex in Sydney, Australia performed the inter-laboratory analyses. As can be seen from the plots, the correlation coefficient was 99.7 percent for the resplits of original assays, 99.2 percent for pulp repeats, and 98.6 percent for inter-laboratory analyses, respectively.

Vista continued their verification program as part of the 2008-2012 exploration programs.





# NAL Pulp Repeats (n=2,948)

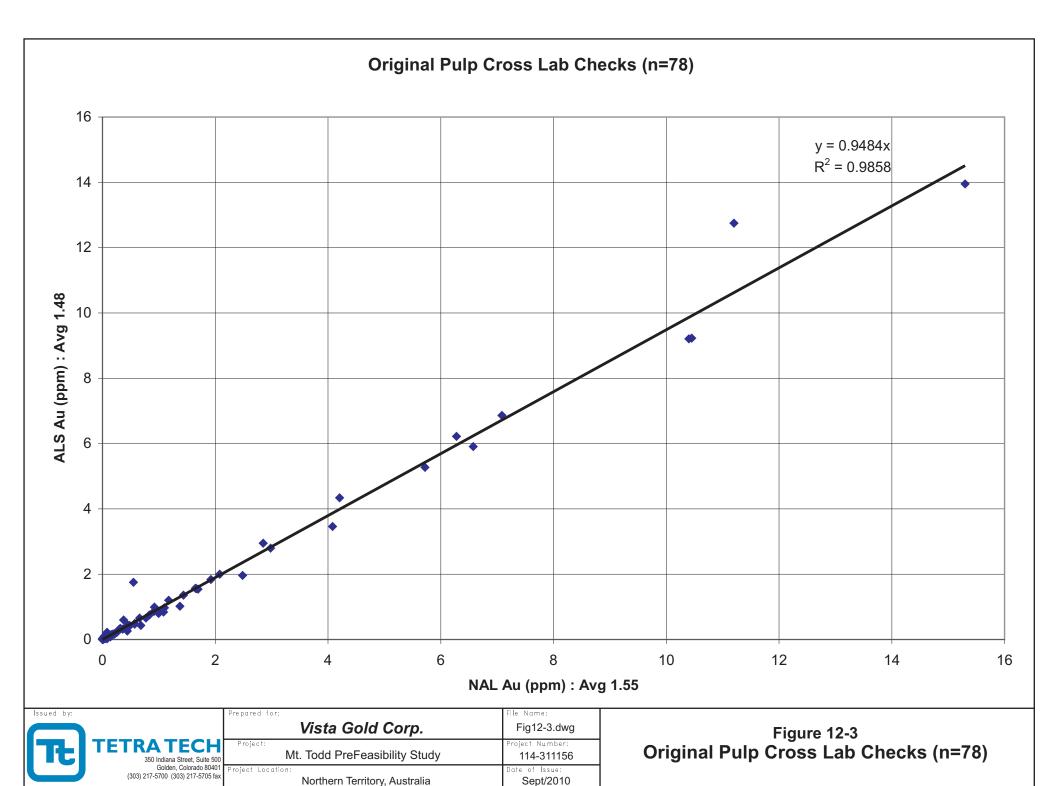


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٦	Prepared for:	File Name:
	Vista Gold Corp.	Fig12-2.cdr
0	Project: Mt. Todd Gold Project	Project Number: 114-311156
1 X	Project Location: Northern Territory, Australia	Date of Issue: Sept/2010

Figure 12-2
NAL Pulp Repeats (n=2,948)



## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The Mt. Todd project was an operating gold mine in the 1990's. Previous operators successfully recovered gold from the oxide portion of the deposit, but encountered difficulties in processing the ore as the mine transitioned from the oxide heap leach operation to a sulfide milling operation. Some of the metallurgical challenges encountered, but not adequately addressed at that time were: hard ore (23.5-Bond ball mill work index), cyanide-soluble secondary copper minerals, and inefficient flotation sulfide mineral recovery resulting from presence of free cyanide in the process make-up water. Vista acquired the Project with the belief that each of these challenges could be overcome through the use of current technology, adequate metallurgical testing and higher gold prices.

In 2006, Vista retained RDi to evaluate the metallurgical characteristics of the Mt. Todd Project and develop a process flowsheet that would optimize the recovery of gold through the efficient use of proven processing technologies. Testwork has also been undertaken at several other testing facilities including; Krupp Polysius Research Center Germany, JK Tech Pty. Ltd. Australia, Pocock Industrial, Inc. Utah, and Kappas, Cassidy and Associates Nevada. The extensive metallurgical testwork has resulted in an economically viable process flowsheet which has overcome the metallurgical challenges encountered by earlier operators.

The process flowsheet discussed in this section has the following significant advantages over earlier processing options:

- Better characterization of the resources at site has indicated that copper may not be as important an issue as indicated by a reviewer of the historic processing challenges encountered by earlier operators. This has resulted in the development of the orecyanidation leach process presented in the process flowsheet;
- Incorporation of the HPGR technology in the communition circuit to handle the extremely hard and coarsening of the grind has resulted in a significant reduction in the energy requirement for the proposed flowsheet; and
- Pre-aeration of the ground ore with lime has resulted in a reduction of the cyanide consumption in the process.

These processing advantages combined with higher gold price significantly improve the viability of the proposed operation.

# 13.1 Historical Review of Conceptual Process Flowsheet

RDi reviewed historical metallurgical testwork for the project conducted in 2006 and proposed a conceptual process flowsheet that could potentially overcome the technical problems encountered by previous operators. The proposed flowsheet consisted of crushing and grinding the ore followed by floating the sulfides and gold in the rougher flotation. The objective of the rougher flotation step was to maximize recoveries of gold, copper and other sulfides. Rougher tailings would have negligible amounts of sulfides and would be non-acid generating thereby allowing the tailings to be sent to the existing tailings pond. Rougher concentrate containing 85 percent or more of the gold content in the ore would be reground and selectively floated to recover copper and gold in a cleaner concentrate which would assay over 20 percent Cu. The concentrate would contain approximately 50 percent of the gold and would be sold to a smelter. Cleaner tailings would be cyanide leached in the CIL circuit. Leach residue would be subjected to cyanide destruction and the sulfides would be sent to a separate tailings pond. The tailings pond would be constantly monitored to ensure that acid is not generated.



To confirm this flowsheet, RDi undertook a testing program in late 2006 utilizing core samples provided by Vista. The core samples consisted of approximately 3 kg each of ten drill core reject samples stored for several years. The composite sample prepared for the study assayed 1.78 g Au/t, 448 ppm Cu, and 1.43 percent  $S_{Total}$ . Based on sequential copper analyses, the copper present in the composite consisted of three percent oxide copper, 63 percent secondary copper and 34 percent primary copper. The major sulfide mineral in the sample was pyrite. Froth flotation using a simple reagent suite consisting of potassium amyl xanthate, Aeropromotor 3477 and methyl isobutyl alcohol recovered approximately 82 percent of gold and 90 percent of copper in a rougher concentrate at a primary grind of  $P_{80}$  of 200 mesh. Following regrind, the rougher concentrate was upgraded to  $\pm$  19 percent Cu in two cleaner flotation stages. Additional cleaner stages could not be tested due to limited sample availability. Cyanide leaching of the cleaner tailings which contained  $\pm$  35 percent of the gold extracted 84 percent of the gold in the tailing. The limited open-circuit testwork indicated that the proposed conceptual process flowsheet should work for the deposit.

# 13.2 Metallurgical Testwork

Vista conducted the first of the two exploration programs on the Mt. Todd Project in 2007. Part of the core from the 2007 drilling program was used for metallurgical testing to confirm the conceptual process flowsheet. The composite sample was very hard (Bond ball mill work index of 23.9 Kwh/t) and averaged 1.37 g Au/t, 447 ppm Cu and 0.92 percent  $S_{Total}$ . The metallurgical testwork indicated that gold recovery into the rougher flotation concentrate was  $\pm$  80 percent at a primary grind of  $P_{80}$  of 200 mesh. Copper in the rougher concentrate could not be upgraded to provide concentrate assaying  $\pm$  20 percent Cu. The best results were  $\pm$  6 percent Cu using the same test procedure as employed for earlier core testing (2006).

Similar metallurgical results were obtained on a composite using 2008 core samples. This composite assayed 0.89 g Au/t and 450 ppm Cu. The poor metallurgical performance results obtained on the 2007/2008 core sample composites prompted a study to determine the reasons for the differences in metallurgical response compared to the historic core. The results, summarized in TABLE 16-1, indicated that historical core had copper predominantly as secondary copper which is known to be a major consumer of cyanide. The major sulfide mineral was pyrite. However, 2007 and 2008 drill core had primary copper as predominant copper species and pyrrhotite as major sulfide mineral. Pyrrhotite is known to float readily as compared to pyrite and is significantly more difficult to depress in the flotation process. Thus, it was difficult to selectively float copper minerals and produce a copper concentrate.

As a result of flowsheet changes and the incorporation of HPGR technology, power requirements have dropped.

Historical drill core stored at site, i.e. sample material used in the earlier conceptual studies, was predominantly from the transition zone. Subsequent studies have confirmed that ore with similar characteristics (i.e., transition zone sulfide minerals) accounted for less than five percent of the remaining resources at the mine. Over 95 percent of the resources were typical of ore encountered in 2007 and 2008 drilling. Hence, copper may not be as important an issue as indicated by a review of the historical processing challenges encountered by earlier operators.



TABLE 13-1: Assays of Various Composite Samples								
VISTA GOLD CORP. – MT TODD GOLD PROJECT June 2009								
Parameter	Parameter Historical Core 2007 Drilling 2008 Drilling							
g Au/t	1.78	1.3	0.89					
Cu <sub>Total</sub> , ppm	448	447	450					
Cu <sub>AcidSol</sub> , ppm	14	19	24					
Cu <sub>CNSol</sub> , ppm	295	68	65					
S <sub>Total</sub> , %	1.42	0.92						
	Cu Distribution	on, %	,					
Oxide	3.1	4.3	5.3					
Secondary	65.8	15.3	14.4					
Primary	31.1	80.4	80.3					
Primary Sulfide Mineral	Pyrite	Pyrrhotite	Pyrrhotite					

While this ore characterization study was on-going, the issue of ore hardness was also evaluated by RDi. It is widely recognized that the energy required to grind the material to a desired size in a conventional flowsheet increases as the hardness of the ore increases. Taking advantage of the basic principle "that it is cheaper to crush than to grind" since crushing requires less energy than grinding, testwork was undertaken to evaluate HPGR in order to reduce energy requirements for the process flowsheet. Based on subsequent laboratory studies, the energy requirements for the flowsheet shown in FIGURE 13-1 was determined. The results found in TABLE 16-2 indicate a significant reduction in power requirements by incorporating HPGR in the grinding circuit and changing the process to whole ore leach at a coarse grind size. As a result of flowsheet changes and the incorporation of HPGR technology power requirements dropped from 33.70 kwh/t to 18.11 kwh/t. The reduction in energy consumption was ± 25 percent when HPGRs were incorporated into the circuit. JK Tech Pty Ltd. conducted comminution tests on five samples of drill core from Mt. Todd Mine for Vista 4. This testing included SAG Mill Comminution (SMC), Bond Rod Mill Work Index (BRMWI), Bond Ball Mill Work Index (BBMWI), Bond Abrasion Index (BAI) and HPGR testing. These results confirmed earlier finding that the ore was "very hard", compared to a database of other ores, and this hardness did not exhibit a large variability across the range of samples tested.

Ausenco undertook a technical evaluation of the various comminution circuits based on the testwork undertaken by JK Tech Pty Ltd.<sup>5</sup> They evaluated six different processing options and concluded that Vista should adopt a comminution flowsheet based on a secondary crush, HPGR and ball mill circuit for treating the Batman deposit. This circuit would have 23 percent reduction in energy requirements over the conventional SABC circuit.

VISTA GO	LD CORP. – MT TODD GOLD PI June 2009	
	Process	
	Flotation Process (P <sub>80</sub> =200 mesh)	Direct Leach (P <sub>80</sub> =100 mesh
	Conventional Crush/Grind	
Power, kwh/t	33.70	24.06
Steel, kg/t	0.72	0.66
	HPGR/Grind	•
Power, kwh/t	24.22	18.11
Steel, kg/t	0.79	0.72

A decision was made not to recover copper as by-product as a result of better understanding the mineralogy of the Batman Deposit through the metallurgical testing completed on the drill core from the 2007 drill program. RDi evaluated a whole ore leach option to determine the viability of this flowsheet at a coarser grind. Based on past experience, pyrrhotite can be pacified with a pre-aeration of the pulp at pH 11. The process flowsheet evaluated for whole ore leach is given in FIGURE 16-1.

Testwork was systematically undertaken to evaluate and optimize the various process parameters one-at-a-time. The parameters evaluated included grind size, pre-aeration time, cyanide concentration (in both maintained and decay modes), leach time and carbon-in-pulp gold recovery (CIP). The successful completion of each subsequent test and the definition of the optimal range of the corresponding variables resulted in an improvement in the process flowsheet. As this was a process that occurred over a period of time, the CIP test was the last variable tested. Results from the CIP tests, shown in the TABLE 16-3, incorporate the optimal ranges determined by previous tests. It is important to note that the results of the CIP tests are best estimates of the expected gold recovery from the proposed process flowsheet. Carbon adsorption of the gold and subsequent gold assay of the carbon reduces the inherent sampling and assaying errors of direct measurement of low grade solutions.

The Mt. Todd Project can be expected to recover 82 percent of the contained gold with the proposed process flowsheet.

RDi provided cyanide leach residue to Pocock Industrial, Inc. to develop data for design of thickening and filtration equipment for the Project. The testwork undertaken included flocculant screening tests, conventional and dynamic thickening tests, viscosity tests and vacuum filtration tests to size horizontal belt filters<sup>6</sup>. The highlights of the study indicated the following:

Results from particle size analyses showed the leach residue to have a  $P_{80}$  of 195  $\mu$ m.

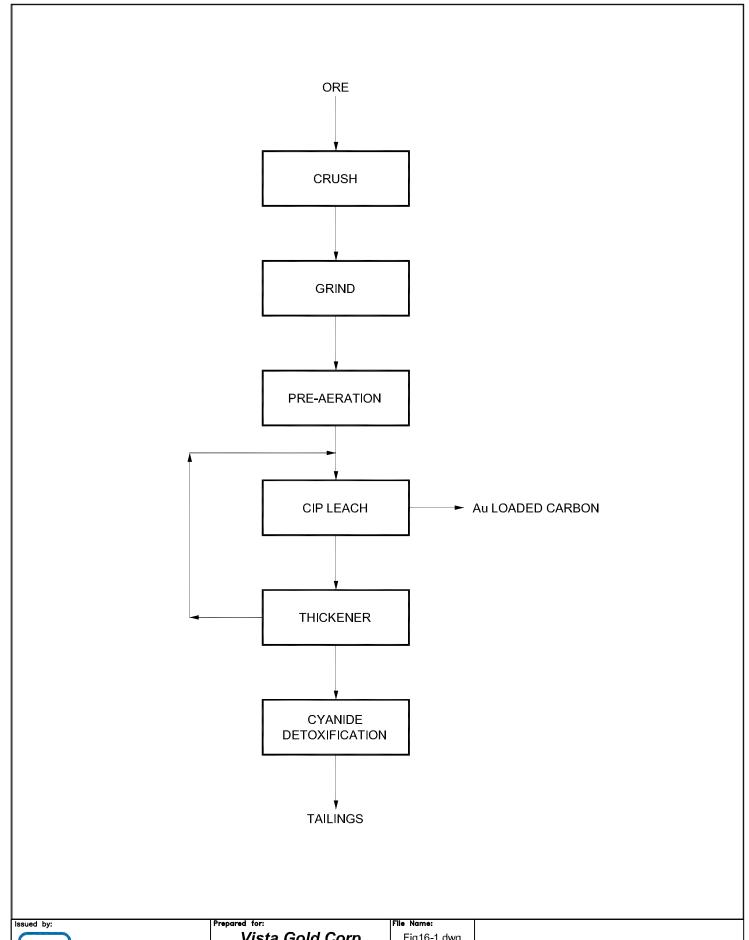
- The flocculant selected for the study was high molecular weight, low charge density anionic polyacrylamide (Hychem AF303).
- The unit area for conventional thickening was determined to be 0.125 m²/Mtpd with 70 percent underflow solids using 10-15 g/mt of flocculant.



- The design basis for a high rate thickener was determined to be 7.33 m³/m²hr of feed loading with maximum 70 percent underflow solids.
- For paste thickening (74 to 75 percent solids), the recommended design basis net feed loading was determined to be 7.3 to 8.3 m<sup>3</sup>/m<sup>2</sup>hr.
- The horizontal belt filtration rate ranged from 65.88 to 1076 dry kg/m²hr depending on the moisture content of the filter cake (i.e., 15 to 18 percent).

Kappes, Cassiday and Associates undertook limited tailing characterization testwork which included detoxification of leached tailings followed by characterization and environmental testing of the detoxified tailings<sup>7</sup>. The SO<sub>2</sub>/air process produced less than 50 ppm WAD cyanide following the detoxification process using 2.3 grams of SMBS per gram of total cyanide.







Prepared for:	File Name:
Vista Gold Corp.	Fig16-1.dwg
Project: Mt Todd Gold Project	Project Number: 114-311156
Project Location: Northern Territory, Australia	Date of Issue: Sept/2010

Figure 13-1 Leach Process Flowsheet

TABLE 13-3: Leach Test Results (P<sub>80</sub>=100 mesh)
VISTA GOLD CORP. – MT TODD GOLD PROJECT
June 2009

				= 5 6 6			
Test	Cyanide	Leach Extraction %		tion %	Residue	Cal.	NaCN
No.	Maintain/ Decay	Time, Hours	Au	Cu	g Au/t	Head g Au/t	Consumption Kg/t
72	Decay	24	82.6	13.5	0.20	1.14	0.60
76	Decay	30	80.4	14.3	0.20	1.03	0.54
78	Maintain	30	82.2	14.5	0.17	0.93	0.60
80	Decay	36	82.2	15.0	0.14	0.79	0.54
82	Maintain	36	84.0	16.3	0.14	0.85	0.59
99	Decay	CIP 24+6	82.3	14.1	0.19	1.05	0.52
100	Decay	CIP 24+6	82.0	15.6	0.18	1.01	0.58
101	Decay	CIP 24+6	85.4	14.4	0.15	1.04	040
102	Decay	CIP 24+6	86.7	14.4	0.15	1.15	0.46

Note: Leach tests at 40% solids, pH 11 with 1 g/L NaCN initial addition. CIP tests run with 20 g/L carbon added after 24 hrs. All tests have 4 hours pre-aeration.

#### REFERENCES:

- 1. Metallurgical Review of Mt. Todd Project: Progress Report No. 1, RDi report dated May 19, 2006.
- Preliminary Metallurgical Testing of Mt. Todd Ore: Progress Report No. 2, RDi Report dated May 9, 2007.
- 3. Metallurgical Testing of Mt. Todd Samples, RDi Report dated July 29, 2009.
- 4. Comminution Test Report on Five Samples from Mt. Todd Mine, JK Tech. Pty. Ltd., June to August 2009.
- 5. JKSimMet Circuit Simulations for the 11 mt Vista Gold Mt. Todd Plant, Ausenco Report dated August 19, 2009.
- 6. Flocculant Screening, Gravity Sedimentation, Pulp Rheology and Vacuum Filtration Studies for Vista Gold Mt. Todd Project, Pocock Industrial Inc. Report dated October 2009.
- 7. Mt. Todd Project Report of Tailings Characterization Test Work, KCA Report dated May 6, 2010.



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### 14.0 MINERAL RESOURCE ESTIMATES

The following sections summarize the thought process, procedures, and results of Tetra Tech's independent estimate of the contained gold resources of the Batman and Quigleys Deposits. Only the Batman and Quigleys Deposits currently have resource estimates classified in accordance with NI 43-101 and CIM Standards.

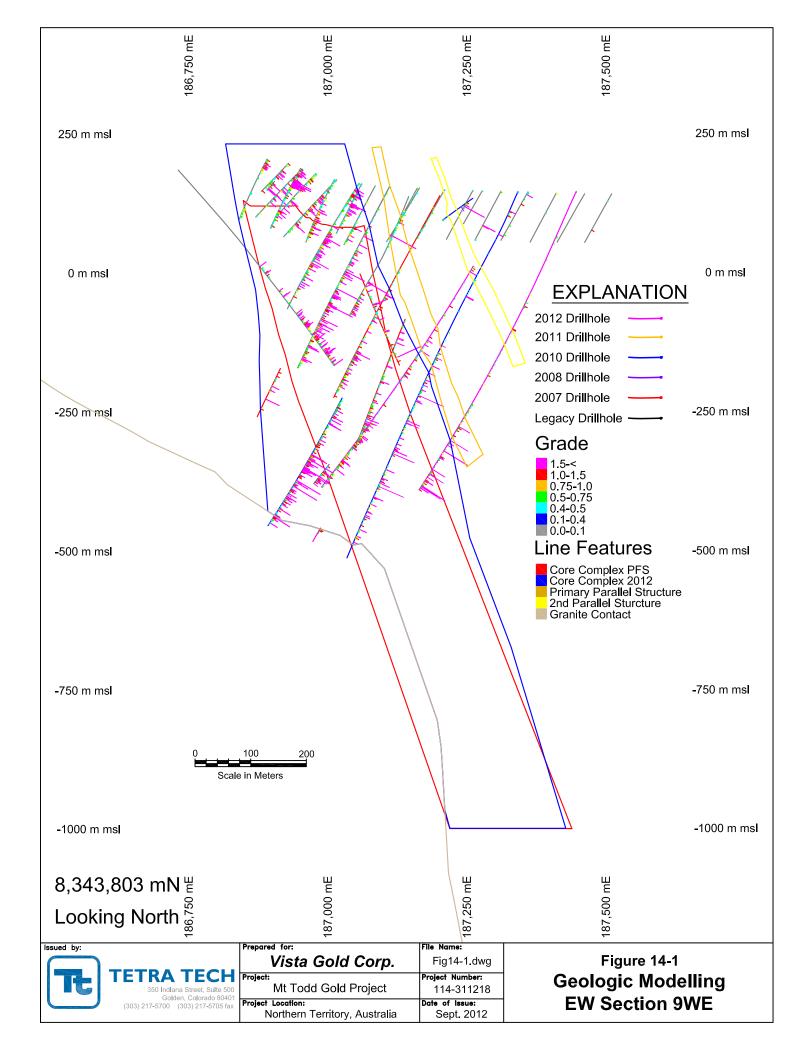
The resource estimation of the Quigleys Deposit has not been updated for this report and is presented here in its entirety from the previously issued preliminary feasibility study from January 28<sup>th</sup> 2011.

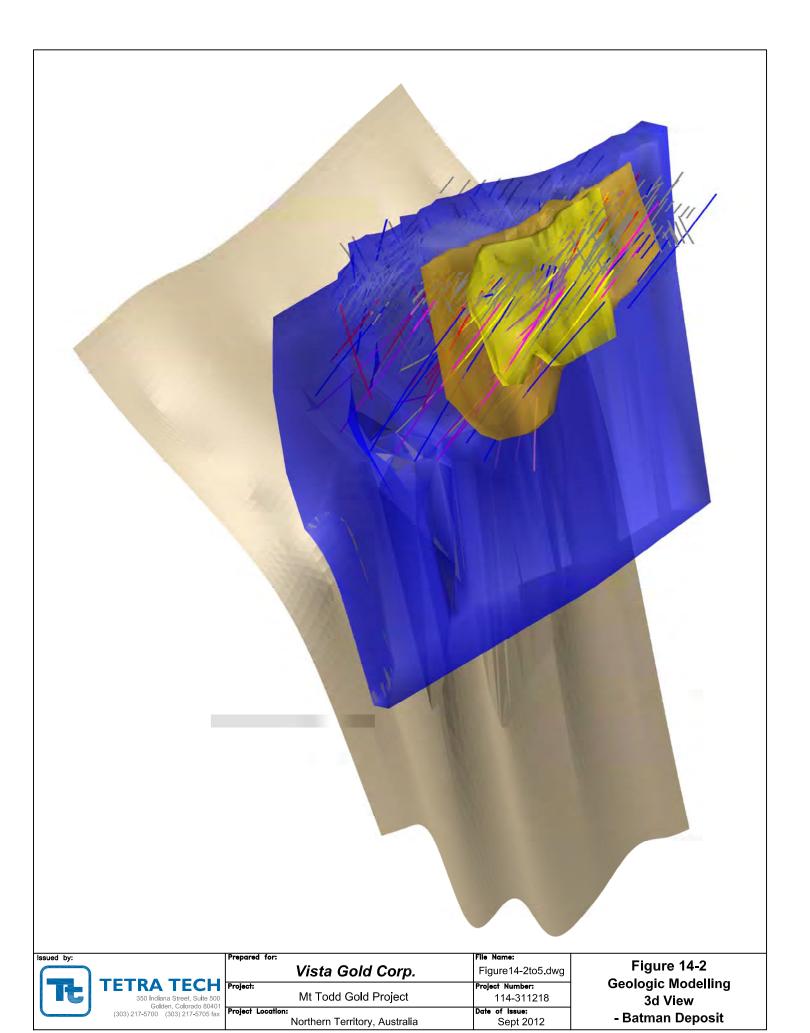
## 14.1 Geologic Modelling

The Batman Deposit resource has been updated to reflect the increase in available data provided by drilling conducted in 2011 and 2012. The core complex wireframe, which represents the main body of the mineralized shear zone, was adjusted and resized to accommodate this new data. Deep step-out drilling by Vista has indicated a "bump out" or possibly inflection point in the lower footwall of the core complex previously not drill tested (FIGURE 14-1). The "bump" feature correlates well with the previously indicated higher grade plunge of the core complex. Vista site geologic staff has put considerable effort to define the granite contact that constrains the lower footwall and "bump out" which can be seen in FIGURE 14-1.

In addition to resizing the core complex wireframe, two structures paralleling the core complex to the east were also resized and constructed into wireframes and used for this resource estimate (FIGURE 14-1). The interpreted parallel structures represent an echoing of the main mineralization controls of the core complex nearer the surface and to the east. Wireframes for the parallel structures were interpreted on section using Au mineralization, veining percentage, visual sulfide percentages, structural orientations and multi element data. Deep drilling conducted in 2011 and 2012 has confirmed the existence of these structures and indicate a possible increasing definition and grade at depth. FIGURE 14-2 shows the Batman Deposit in a 3 Dimensional View.







## 14.2 Batman Deposit Density Data

A total of 16,373 samples were tested for bulk density (diamond core). These bulk densities were carried out on a 10 to 15 cm piece of core from a meter sample. Based on this work, the bulk densities applied to the resource model are presented in TABLE 14-1.

TABLE 14-1: Summary of Batman SG Diamond Core Data by Oxidation State  VISTA GOLD CORP. – MT TODD GOLD PROJECT  March 2008						
Oxidation	No of samples	Min	Max	Mean	Variance	CV
Oxide	2,341	1.77	3.28	2.47	0.04	0.08
Transitional	1,316	2.07	3.55	2.67	0.01	0.04
Primary	12,716	1.58	3.90	2.77	0.006	0.03

In addition, one hundred fist-sized grab samples (50 from 1060 level and 50 from 1040 level) were collected and sent to Assay Corp for moisture and bulk density determination and are presented in TABLE 14-2. Results show that the average moisture content is less than one percent and the average SG for the 1060 RL (all primary) is 2.77 and 1140 RL (mixture of primary and transitional) is 2.74. These results match the predicted specific gravity within the existing and new block models.

TABLE 14-2: Batman Pit Sample SG Data VISTA GOLD CORP. – MT TODD GOLD PROJECT March 2008								
	1060-1068 RL 1146- 1140RL							
	SG	Moisture%	SG	Moisture%				
Number of samples	50	50	50	50				
Average bulk density (t/cm)	2.77	0.01	2.74	0				
Median bulk density (t/cm)	2.78	0	2.76	0				
Maximum bulk density (t/cm)	2.88	0.18	2.83	0.07				
Minimum bulk density (t/cm)	2.54	0	2.52	0				
Standard deviation.	0.05	0.03	0.07	0.01				

## 14.3 Quigleys Deposit Drillhole and Density Data

The Quigleys Deposit is approximately 3.5 kilometers northeast of the Batman Deposit. The deposit is not as deep as the Batman Deposit. It reaches a maximum depth of approximately 200 m. The deposit has been sampled with 57,600 m of drilling by 631 drillholes, with the majority reaching a depth of 100m at a 60 degree dip; oriented 83 degrees azimuth. Assays were taken at a nominal one meter interval. Geologic interpretation in section produced wireframes modeling thin ore zones dipping west. Material inside the wire frames has been given a code of 1. Outside the mineralization zones, the material has been given a code of 9999.

Zone 1 gold grades range from .001 to 21.75 g Au/t., averaging 0.703 g Au/t. Zone 9999 gold grades range from 0.001 to 11.318, with an average of 0.148 g Au/t. The gold grades have a lognormal distribution for both Zone 1 and 9999, with observable outlier values at the highest grades. Discussion of the capping composite gold grade values is presented in the Quigleys block modeling section.

Bulk density data were supplied by Pegasus for two ore types and waste within the oxide, transition and primary zones, based on a total of 39 samples collected from recent RC drilling. The two densities supplied were for stockwork and shear, with the density of the shear material substantially higher, particularly in the transition and primary zones. These samples were over 1-m to 2-m intervals and thus selected the narrow high grade portion of the shear zone as originally interpreted by Pegasus. The final mineralization envelope was much broader than this, and the bulk density was therefore estimated by assuming the final envelope contained 15 percent shear and 85 percent stockwork and weighting the density values accordingly. TABLE 14-3 contains the SG data assigned to the Quigleys area according to oxidation state.

TABLE 14-3: Quigleys Deposit SG Data VISTA GOLD CORP. – MT TODD GOLD PROJECT						
March 2008						
Oxide within modeled shear (t/cm)	2.60					
Oxide Waste (t/cm)	2.62					
Transition within modeled shear (t/cm)	2.65					
Transition Waste (t/cm)	2.58					
Primary within modeled shear (t/cm)	2.70					
Primary Waste (t/cm)	2.61					

More confidence in the geological interpretation would be needed to ascertain the geometry of the high-grade portion of the shear zone. Alternatively, it may be appropriate, with a more detailed density study, to weight the high-grade blocks with a higher density.

# 14.4 Drillhole Data Batman and Quigleys

An Access database set up in Gemcom has been recreated from the old exploration database. Tables for the grade control database have been inserted into this database.



### 14.4.1 Batman Exploration Database

TABLE 14-4 is a summary of the Batman exploration database that formed the basis of the resource estimation of that deposit.

	TABLE 14-4:	Summary of Ba	tman Explorati	on Databas	e			
	VISTA GO	LD CORP. – MT October		ROJECT				
		Drillhole S	tatistics					
Northing (m) MGA94 z53 Elevation (m) Azimuth Dip Depth (m)								
Minimum	8,434,383.0	186,719.3	110.0	0.0	25.0	0.0		
Maximum	8,436,053.0	187,589.0	223.5	319.2	90	864.4		
Average	8,435,151.6	187,126.9	168.6	240.8	61.5	154.7		
Range	869.7	1670.0	113.5	319.2	65.0	864.4		
	(	Cumulative Drillh	nole Statistics					
Total Count	813							
Total Length (m)	135547.0							
		Drillhole Grad	e Statistics					
Label	Number	Average	Std. Dev.	Min.	Max	Missing		
Au (GPT)	129,894	0.5415	1.262	0.001	77.70	1631		
Cu (%)	34,336	0.03557	0.05837	0.000	2.4	97,189		

The pre-2007 exploration database consisted of 743 drillholes, 226 diamond holes and 517 percussion holes. A total of 97,810 samples existed within that exploration database. Diamond core is a combination of NQ and HQ, with the NQ core being sawed into half splits and the HQ core being sawed into guarter splits.

Problems have been identified from the original Batman exploration database:

- Only one gold field existed in the database called "Au Preferred". Au Preferred was a factored gold grade;
- Zones of non-assayed mineralized core were incorrectly coded and given 0 grade; and
- Some samples with assays below detection have been incorrectly coded as not sampled.

Original assays from logs and/or laboratory assay sheets have shown that there are up to 15 gold assay fields (five different splits with three gold fields). The Au Preferred is usually the average of the gold assay, but with the early data, notably the Billiton data, the Au Preferred has been factored. Exactly how this factoring was calculated is uncertain. Billiton reports suggest that different laboratories along with the orientation of drillholes have impacted on the grade



returned from the laboratory and factors to counter this have been applied in the calculation of the Au Preferred field.

MicroModel® files have been found containing 80 percent of the original assay data. Inspection of these data has shown codes, in some cases, were used for below detection (- 0.800 or - 0.008) while other times below detection was given a grade (0.005 or 0 or 0.001) instead of the code. Missing samples were given a code (- 0.900 or - 0.009 or - 0.700). Sometimes these codes have been misused with below detection codes being used instead of missing samples and vice versa. This has impacted on the Au Preferred field in the database. Original lab assay data sheets and logs have been used to address this problem.

After going through all the logs and laboratory assays, the data have now been corrected and reloaded into the database. Codes have been allocated, with below detection assays given a grade of 0.005, which is half the detection limit of 0.01 and missing samples given a code – 9.000.

The assays in the database have been split into different tables to save room and make the processing of the data more efficient. The gold fields have been split up into six different tables, depending on the number of duplicate samples. Gold1 is the first assay taken, Gold2 the second assay taken and so on to Gold5. An Auav (average gold grades) table has also been added for the average gold grade from the five gold assay tables. The Au Preferred field has been retained in the present drillhole database. A separate table has also been created for the multi-element data.

The resource update described in this report is supported by 19 core holes drilled in 2010 and 3 core holes drilled in 2011. The 22 core holes added and used for this resource update account for 9,612 Au assay intervals for 9,235.94 linear meters of sampling.

In 2011, Vista commissioned a third party contractor to construct a project database consolidating all available drillhole data. There are 13 data tables included in the database including which are shown in TABLE 14-5 below. Instances where tables are tagged as "old", current data collection and interpretation and previous data collection and interpretation were incompatible and unable to be reconciled into one table.



TABLE	TABLE 14-5: Mt Todd Project Access® Database				
VISTA	GOLD CORP. – MT TODD GOLD PROJECT October 2011				
Table Name	Description				
tbIDHCollar	Contains all collar details with hole co-ordinates in either MGA94 or AMG84, Zone 53				
tbIDHAlteration	Alteration logs of Batman_2010 and Goldeneye_2010 drillholes				
tbIDHAlteration_old	Alteration logs of Batman_2007, Batman_2008 and Pre2007 drillholes.  These holes were logged using a different spreadsheet structure – where each key alteration mineral has its own column heading.				
tbIDHAssays	All gold assays, with Lab Batch number recorded where available. There is NO calculated Au field averaging the lab repeat values.				
tbIDHAssays_ME	All other multi-element assays with Sample_ID only, and Lab Batch number where available.				
tbIDHGeol	All geological logs based on the 2010 logging system. Where possible data (matching columns) from Pre2007 logs were imported into this 2010 system.				
tbIDHGeotech	Full geotechnical logs from Batman_2007, 2008 and 2010 and Goldeneye_2010 drilling were imported. Some Recoveries, RQD, Hardness and Fracture% data were extracted from the Pre2007 data.				
tbIDHQAQC	Standard, blanks, field duplicates, pulp repeats, coarse rejects assays both Au and multi-elements from Batman_2007, 2008 and 2010 and Goldeneye_2010 drilling.				
tbIDHStructure_Orientation	All structure data using the Batman_2010 file structure (many do not have a Beta measurement)				
tbIDHSulphides	Sulphide data logs of Batman_2010 and Goldeneye_2010 drillholes				
tbIDHSulphides_old	Sulphide data logs of Batman_2007, Batman_2008 and Pre2007 drillholes. These holes were logged using a different spreadsheet structure – where each key sulphide mineral has its own column heading.				
tbIDHSurvey	Down hole survey data from all datasets. Survey method/type was recorded wherever the data was available.				
tbIDHVeins	Vein data logs of Batman_2010 and Goldeneye_2010 drillholes				

## 14.4.2 Quigleys Exploration Database

TABLE 14-6 details the Quigleys exploration database.

TABLE 14-6: Summary of Quigleys Exploration Database									
	VISTA GOI	LD CORP. – MT August		ROJECT					
	Drill Hole Statistics								
Northing (m) Easting (m) Elevation Azimuth Dip Depth (m)									
Minimum	8,430,1876	188,445.7	129.7	0	45	0			
Maximum	8,432,290	189,746.5	209.0	354.0	90	330.5			
Average	8,431,129.5	189,230.8	155.9	83.4	62.5	91.3			
Range	2,104.0	1,300.8	79.3	354.0	45.0	330.5			
		umulative Drill	Hole Statistics						
Total Count	631								
Total Length (m)	57821.28								
Assay Length (m)	1 (approx)								
	Drill Hole Grade Statistics								
Label	Number	Average	Std. Dev.	Min.	Max	Missing			
Au (GPT)	52,152	0.2445	0.8764	0	36.00	82			
Cu (%)	40,437	0.0105	0.0305	0	2.98	11,897			

### 14.5 Batman Block Model Parameters

TABLE 14-7 details the physical limits of the Batman deposit block model utilized in the estimation of mineral resources.

z-dir

203

TABLE 14-7: Block Model* Physical Parameters – Batman Deposit VISTA GOLD CORP. – MT TODD GOLD PROJECT							
	October 2012						
Direction	Minimum (m) MGA94 z53	Maximum (m) MGA94 z53	Block size	#Blocks			
y-dir	8,433,801 mE	8,436,213 mE	12m	201			
x-dir	185,999mN	187,931mN	12m	161			

<sup>\*</sup> Model changed from previous Tetra Tech estimates to reflect the 2011drillhole locations and depths.

224m

6 m

# 14.6 Quigleys Block Model Parameters

-994 m

Quigleys' block model parameters are shown in TABLE 14-8. The model consists of 37,082 blocks within the modeled mineralized zones (blocks within the modeled grade zones are coded as 1). Each of the blocks is 250 m³ (5x25x2m) with a defined density of 2.77 (692.5 tonnes).

TABLE 14-8: Block Model* Physical Parameters – Quigleys Deposit VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2010						
Direction	Minimum(m) AMG84 z53			# Blocks		
x-dir	188,250 mE	189,900 mE	5m	330		
y-dir	8,430,337.5 mN	8,432,487.5mN	25m	86		
z-dir	-200 m	208m	2m	204		

### 14.7 Mineral Resource Estimate

At the present time, resources have only been estimated for the Batman and Quigleys Deposits. Tetra Tech created three-dimensional computerized geologic and grade models of the Batman and Quigleys Deposits.

The resource estimation of the Quigleys deposit has not been updated for this report and is presented here in its entirety from the previously issued preliminary feasibility study from January 28<sup>th</sup> 2011.

The geologic model of the Batman and Quigleys Deposits was originally created by GGC and audited by Tt. For this resource update of the Batman deposit the geologic model has been updated by Tt to accommodate additional drilling in 2011 and 2012. The geologic model was constructed by creating three-dimensional wire-frames of the main geologic units, oxidation types, and mineralizing controls and super-imposing them on each other to create an overall numeric code that details all of the input parameters. General Gold Resources Ltd. ("GGR") created the model based on the prior work of others, recommendations of other consultants, and GGR's own experience. It is Tetra Tech's opinion that the GGC geologic model and the updates made accurately portray the geologic environment of the Batman Deposit.

Tetra Tech used the geologic model to guide the statistical and geostatistical analysis of the gold assay data. The analysis of the gold assays further confirmed the geologic divisions made by in the geologic model. Gold grades were estimated into the individual blocks of the model by ordinary, whole-block kriging. The estimate was prepared using MicroMine®, GEMCOM® and MicroModel® software

Variograms and kriging search parameters are the same as that used for the more detailed Appendix A of the January 28 2011 prefeasibility study. A more detailed discussion of the findings of a series of geostatistical studies can be found therein.

The rock model was then assigned a tonnage factor based on the oxidation state (i.e., oxidized, transition, primary). The tonnage factors were based on a number of tests from the core and, in Tt's opinion, are representative of the various rock units, and are acceptable for estimation of the in-place geologic resources.

The updated mineral resource estimate includes 18 drill holes (13,036 total meters) from Vista's ongoing resource conversion drilling program at the Mt. Todd gold project. The total mineral resource estimate for the Batman Deposit is now 7.01 million ounces of Measured and Indicated mineral resources and 2.09 million ounces of Inferred mineral resources at a cutoff grade of 0.4 g Au/t. The drilling program is ongoing and new results are expected to be included in a further updated resource estimate that will be the basis for a feasibility study. Growth of the Batman Deposit resource estimate overtime is outlined in TABLE 14-9.

This updated resource estimate represents an increase of over one million ounces in the Measured and Indicated mineral resource categories since the previous resource estimate in September 2011 and an increase of over 1.8 million ounces of Measured and Indicated resources since the completion of the January 2011 PFS.

The estimated gold resources were classified into measured, indicated, and inferred categories for both the Batman and Quigleys deposits according to the parameters detailed in TABLE 14-10 and TABLE 14-11.



Highlights of the updated mineral resource estimate include:

- A 17% increase in contained gold ounces in the Measured and Indicated categories (+1,024,000 ozs) compared to the previous resource estimate (September 2011); and
- A 37% increase in contained gold ounces in the Measured and Indicated categories (+1,882,000 ozs) compared to the January 2011 PFS.

TABLE 14-9: Progression of Resource Estimate – Batman Deposit							
VISTA		IT TODD GOLD PROJE er 2012	СТ				
Category	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)				
1	Septem	ber 2012	1				
Measured	75,101	0.88	2,127				
Indicated	186,299	0.81	4,879				
Measured & Indicated	261,400	0.83	7,007				
Inferred	88,774	0.73	2,093				
1	Septem	ber 2011	1				
Measured	67,166	0.88	1,897				
Indicated	154,836	0.82	4,089				
Measured & Indicated	222,022	0.84	5,987				
Inferred	103,563	0.78	2,612				
1	January	2011 PFS	1				
Measured	52,919	0.91	1,543				
Indicated	138,020	0.81	3,581				
Measured & Indicated	190,939	0.84	5,125				
Inferred	94,008	0.74	2,244				
I	June 2006 <sup>(3)</sup>						
Measured	22,095	0.89	629				
Indicated	45,715	0.88	1,294				
Measured& Indicated	67,810	0.88	1,923				
Inferred	61,754	0.84	1,672				

#### Notes:

- (1) Tonnage, grades and totals may not total due to rounding.
- (2) All estimated resources are shown using a 0.4g/t cutoff grade.
- (3) Vista's first mineral resource estimate for the Batman Deposit .



# TABLE 14-10: Resource Classification Criteria VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2011

Category	Search Range & Kriging Variance	No. of Sectors/ Max Points per DH	Search Anisotropy	Min Points	Composite Codes	Block Codes	CORE
Indicated	Core Complex: 150 m & KV < 0.34 Pass	4/2	(1.0:0.7:0.4) [110:80:0]	2	1000	1000	, LEX
Measured	Core Complex: 60 m & KV < 0.30 Pass 2 (overwrite Pass 1)	4/3	(1.0:0.7:0.4) [110:80:0]	4	1000	1000	CORE COMPLEX
Inferred	Core Complex KV >= 0.34 Classification Step	NA	NA	NA	1000	1000	CORE
Inferred	Outside Core Complex: 150 m & KV <= 0.45 Pass 3	4/3	(1.0:0.7:0.4) [110:80:0]	3	500/3500	500/ 3500	
Inferred	Outside Core Complex: 50 m & KV < = 0.45 Pass 4 (overwrite Pass 3)	4/3	(1.0:0.7:0.4) [110:80:0]	8	500/3500	500/ 3500	PLEX
Inferred	Primary Satellite Deposit: 150 m & KV < 0.45 Pass 5	4/3	(1.0:0.7:0.4) [110:80:0]	3	600	600	COM
Indicated	Primary Satellite Deposit: 50 m & KV < 0.34 Pass 6 (overwrite Pass 5)	4/3	(1.0:0.7:0.4) [110:80:0]	8	600	600	E CORE
Inferred	Secondary Satellite Deposit: 150 m & KV < 0.45 Pass 7	4/3	(1.0:0.7:0.4) [110:80:0]	3	700	700	OUTSIDE CORE COMPLEX
Indicated	Secondary Satellite Deposit: 50 m & KV < 0.34 Pass 8 (overwrite Pass 7)	4/3	(1.0:0.7:0.4) [110:80:0]	8	700	700	
		INDEX	(				
Zone Codes	Zone Names		Searc	h Anisotropy (E	Ellipsoid)		
3500	Footwall	Sparch Ranges (athio)	Proportion of Maximum Range	for: a Primary Av	is Length: h. Secondary /	vis Length: a Tertion	ν Δvie Lenath
1000	Core Complex	Jeai Cir Haliyes (a.D.C)	Troportion of Maximum Hallye	ioi. a. i illilaly Ax	a Lengin. D. Secondary F	wie Lengin. C. Terliary	y ANIS LENGTH
700	Secondary Satellite (n HW farthest from Core)						
600	Primary Satellite (in HW Nearest to Core)	Orientation of E	Illipse [1:2:3] 1. Azimuth of Prin	nary Axis : 2. Dip o	of Primary Axis: 3. Rotation	n (Tilt) around Primar	y Axis
500	Hanging Wall Area						

# TABLE 14-11: Quigleys Resource Classification Criteria VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2011

## BATMAN (March 2008 & February 2009)

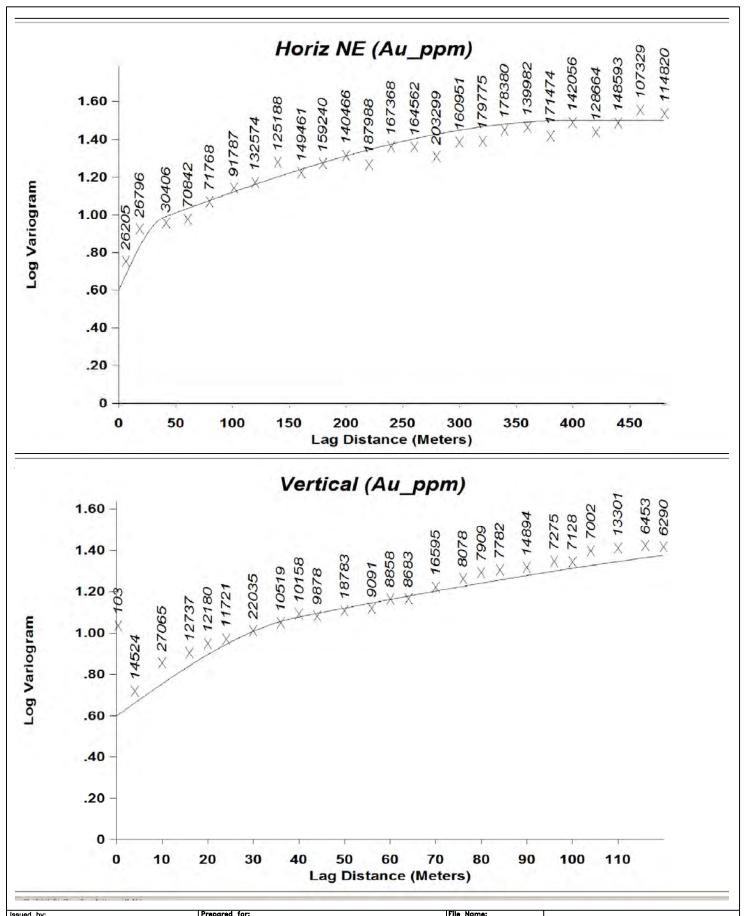
Category	Search Range & Kriging Variance	No. of Sectors/ Max Points per DH	Min Points
Measured	Zone 1: 20 m search & KV < 0.335	4/3	7
Indicated	Zone 1: 20-40 m search & KV < 0.335	4/3	6
Inferred	Zone 1 40-200 m search &< 0.335 Zone 9999 < 25 m	4/3	3

The classification was accomplished by a combination of search distance, kriging variance, number of points used in the estimate, and number of sectors used. TABLES 14-12 and 14-13 detail estimated resources by cutoff and classification. All of the resources quoted are contained on Vista's mineral leases. FIGURE 14-3 shows two log Variograms for gold in the core zone (zone code 1000). FIGURE 14-4 is three relative block count histograms of measured, indicated and inferred overlaid for the Batman deposit. The histograms for measured and indicated are higher grade and have a tighter distribution than that of the inferred class. This is a direct outcome of the ongoing drilling programs based on geostatistics designed to enhance the classification within higher gold grade portions of the block model.

FIGURE 14-5 illustrates one of the several methods used to validate the block model. The figure shows the cumulative frequency plot of blocks, composites, and assays. The three overlaid plots show the expected decrease in the variability of the gold distributions going from assays to assay composites and then to kriged blocks. Additional verification of the block model was completed by the use of jackknife studies (model validation) where known assays were estimated using surrounding samples, visual inspection of the kriged blocks models in section and plan and the inspection of gold histograms of assays, composites and blocks. More detail on the different model validation techniques employed can be found in Appendix A of the January 28 2011 PFS.

TABLES 14-12 and 14-13 detail the estimated in-place resources by classification and by cutoff grade for the Batman and Quigleys Deposits respectively. All of the resources quoted are contained on Vista's mineral leases. The cutoff grade selected for the resource reporting is 0.4 g Au/t and is bolded in the table. This cutoff grade was determined in the June 11, 2009 "Mt Todd Gold Project Updated Preliminary Economic Assessment Report" using then-current gold price and cost assumptions. The estimate of in-place resources remains consistent with those reported in the 2009 report.





TETRA TECH

350 Indiana Street, Suite 500
Golden, Colorado 80401
(303) 217-5700 (303) 217-5705 fax

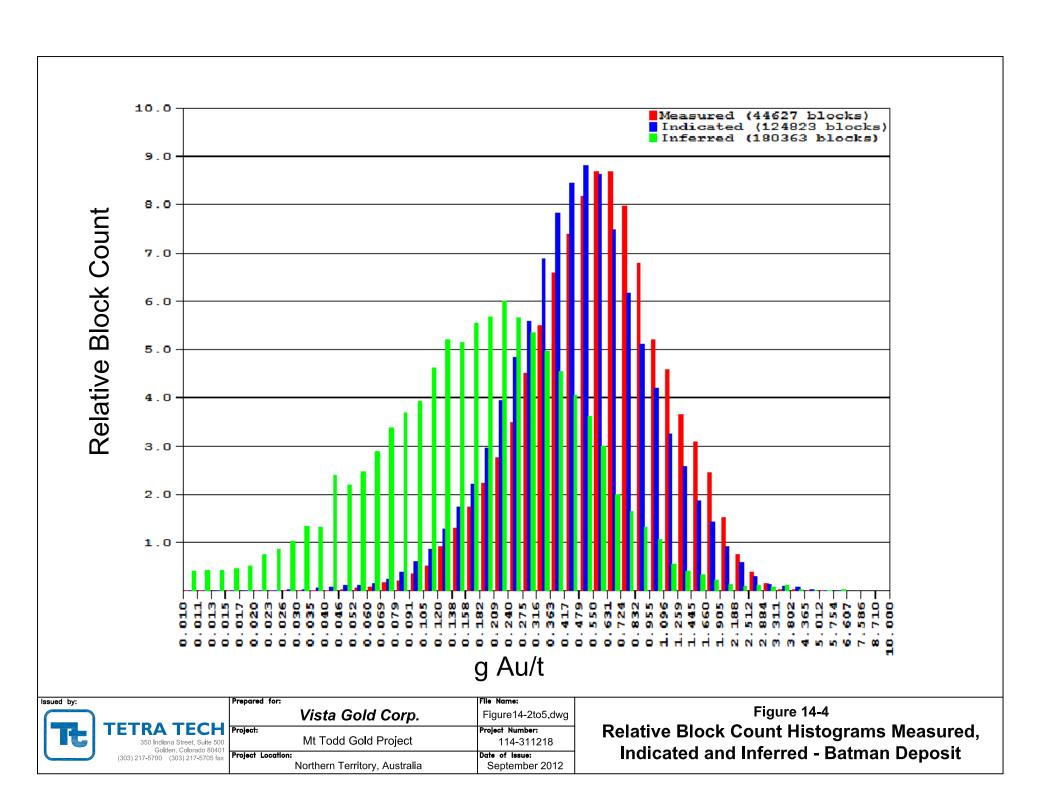
TETRA TECH

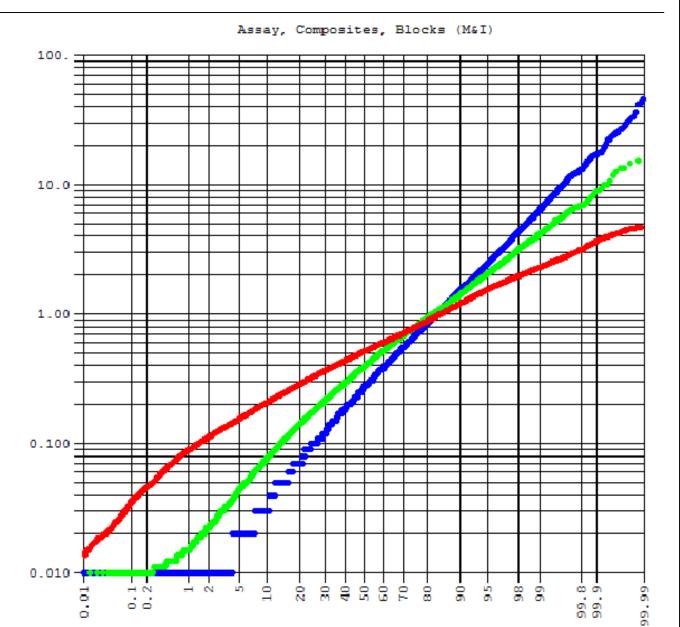
350 Indiana Street, Suite 500
Golden, Colorado 80401
(303) 217-5705 fax

Project Indiana Street, Suite 500
Northern Territory, Australia

File Name:
Figure 14-3
Example Log Variograms of Au within the Core Complex

Sept 2012





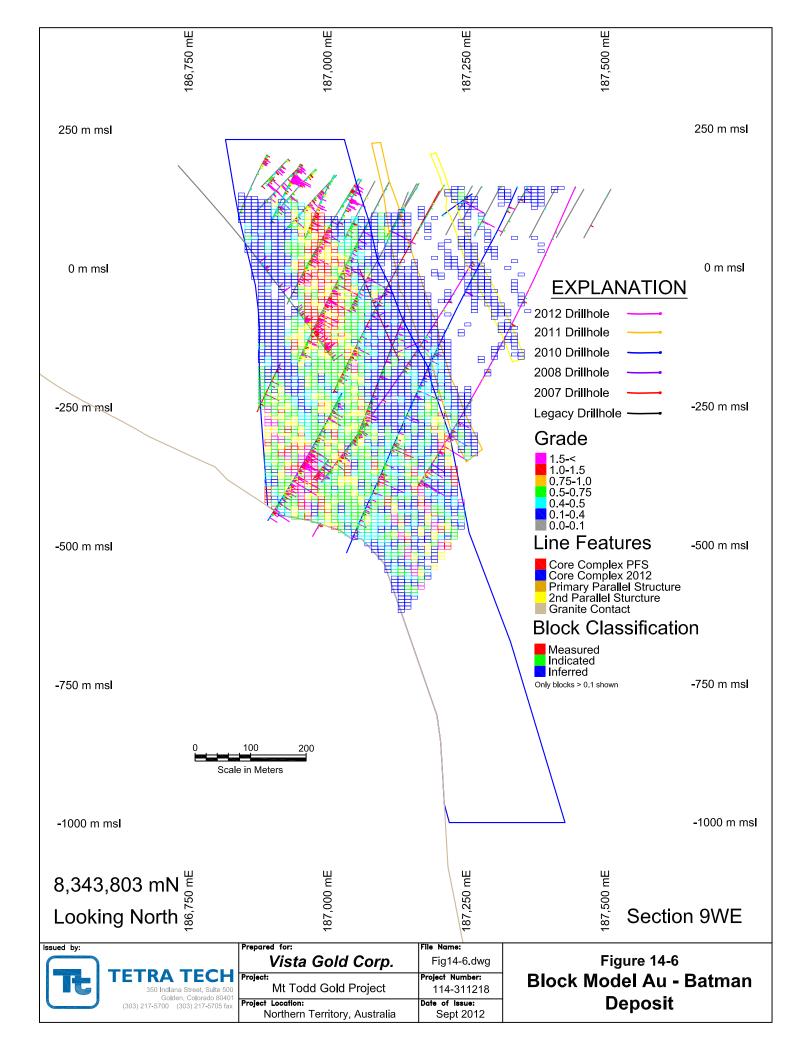
Cumulative Frequency Pct Au-ppm Up To "X" Value

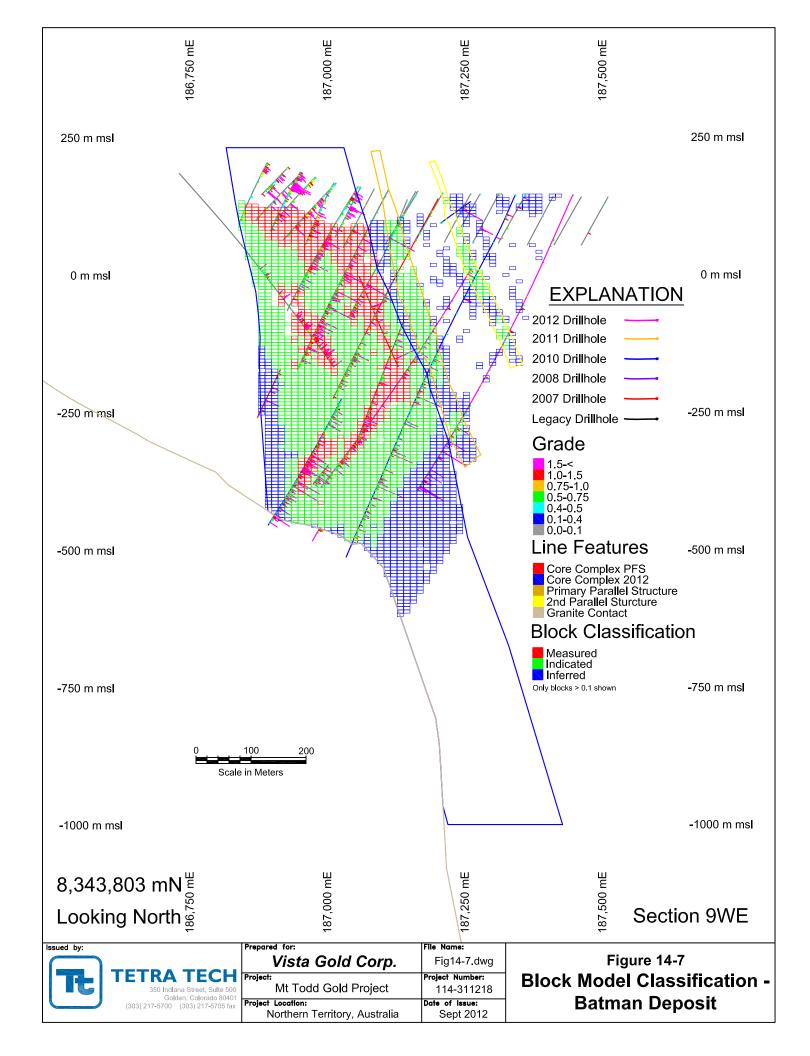
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Number of Samples:	60194	15142	169460
Number Missing:	498	2.63	0
Number Below Limits:	2409	218	10
Number Above Limits:	0	0	0
Number in Range:	57287	14661	169450
Minimum Value:	0.010	0.010	0.010
Maximum Value:	65.200	15.455	5.797
Mean Value:	0.672	0.648	0.633
Median Value:	0.270	0.390	0.514
Variance:	2.301	0.752	0.213
Standard Deviation:	1.517	0.867	0.462

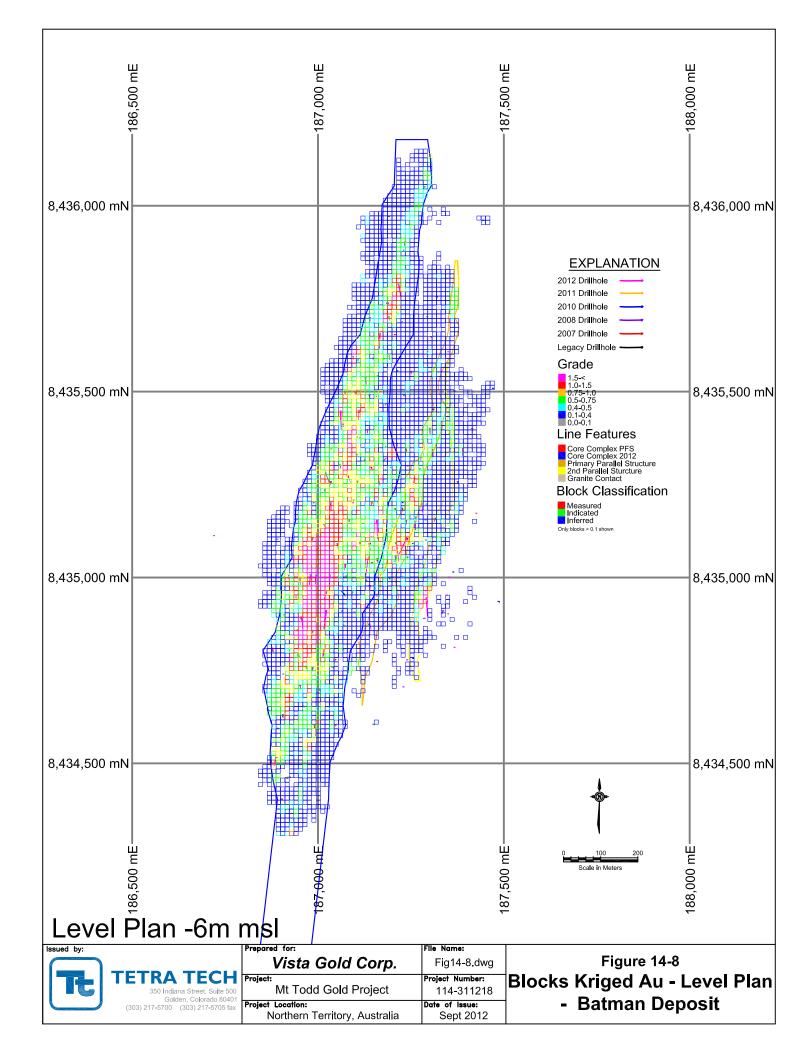
Issued by:		, 
	I LIIVA I LOII	F
	350 Indiana Street, Suite 500 Golden, Colorado 80401 (303) 217-5700 (303) 217-5705 fax	F

Prepared for:	File Name:
Vista Gold Corp.	Figure14-2to5.dwg
Project:	Project Number:
Mt Todd Gold Project	114-311218
Project Location:	Date of Issue:
Northern Territory, Australia	Sept 2012

Figure 14-5 Cumulative Frequency Blocks, Composites, and Assays - Batman Deposit







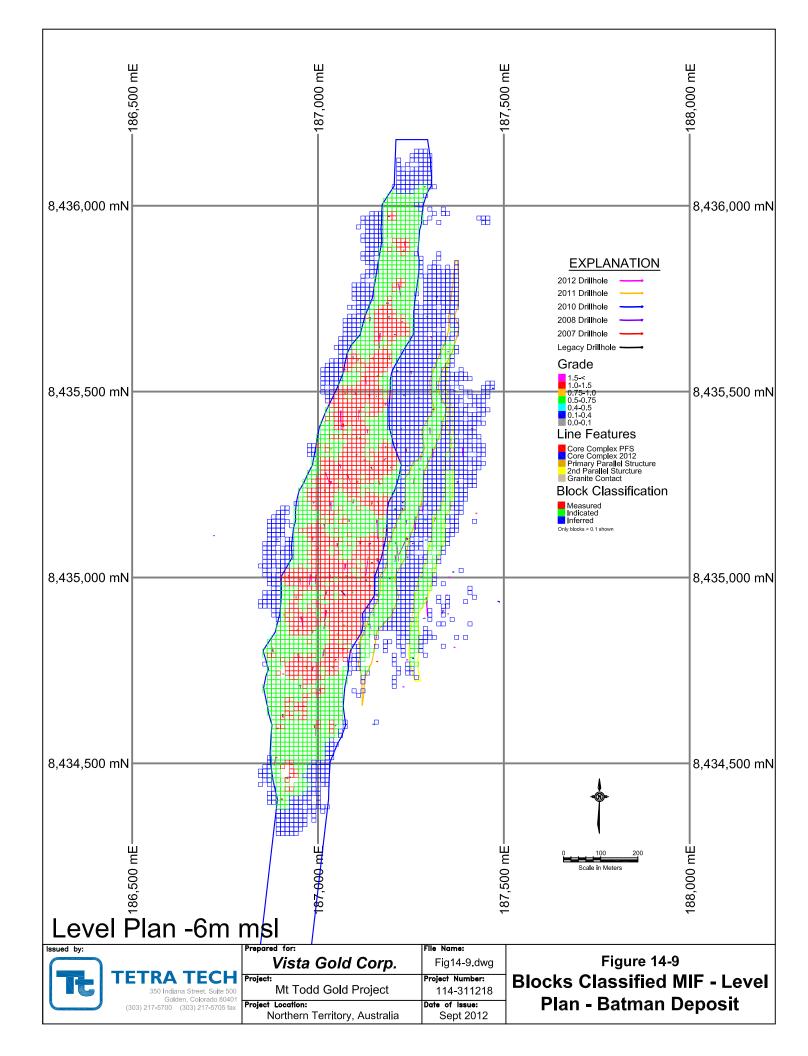


TABLE 14-12 details the estimated in-place resources by classification and by cutoff grade for the Batman Deposit and has been updated for this technical report. TABLE 14-13 details the in-place resource estimate by classification and by cutoff grade for the Quigleys Deposit which has not been updated for this technical report.

		osit Classified Gold I	
	Se	eptember 2012	
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
•	N	MEASURED <sup>(2)</sup>	
2.00	2,440	2.40	188
1.75	4,542	2.15	314
1.50	8,020	1.92	495
1.25	12,944	1.71	712
1.00	21,090	1.48	1,004
0.90	25,932	1.38	1,152
0.80	32,429	1.27	1,328
0.70	40,542	1.17	1,524
0.60	51,009	1.06	1,742
0.50	62,562	0.97	1,946
0.40	75,101	0.88	2,127

Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
	1	NDICATED <sup>(2)</sup>	
2.00	5,220	2.54	427
1.75	8,738	2.27	637
1.50	14,567	2.01	941
1.25	24,253	1.75	1,366
1.00	41,531	1.48	1,983
0.90	52,107	1.38	2,305
0.80	66,171	1.26	2,689
0.70	84,780	1.15	3,136
0.60	110,995	1.03	3,681
0.50	145,784	0.92	4,295
0.40	186,299	0.81	4,879

Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
	MEASUR	RED+INDICATED <sup>(1), (2)</sup>	
2.00	7,660	2.5	615
1.75	13,280	2.23	952
1.50	22,587	1.98	1,436
1.25	37,197	1.74	2,077
1.00	62,621	1.48	2,987
0.90	78,038	1.38	3,457
0.80	98,602	1.27	4,017
0.70	125,325	1.16	4,660
0.60	162,011	1.04	5,423
0.50	208,353	0.93	6,241
0.40	261,400	0.83	7,007

### NOTES:

(1) The sum of measured and indicated resources as reported under NI 43-101 is equivalent to mineralized material under SEC Industry Guide 7.(2) Tonnage, grades and totals may not total due to rounding



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INFERRED RESOURCES (2)			
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
2.00	2,462	3.0707	243
1.75	3,335	2.7581	296
1.50	4,610	2.4421	362
1.25	7,070	2.0682	470
1.00	11,929	1.6748	642
0.90	16,207	1.4844	774
0.80	22,047	1.3149	932
0.70	29,030	1.1783	1,100
0.60	40,586	1.026	1,339
0.50	60,049	0.8705	1,681
0.40	88,774	0.7332	2,093

### NOTES:

- (1) Tables above (Measured, Indicated, Measured + Indicated, Inferred) show the resources present and are not contained within a pit (i.e. all possible resources).
- (2) Tonnage, grades and totals may not total due to rounding

TABLE 14-13: Quigleys Deposit Classified Gold Resource Estimate
VISTA GOLD CORP. – MT TODD GOLD PROJECT
October 2010

October 2010			
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
		MEASURED	
2.00	30	2.27	2
1.75	50	2.11	3
1.50	87	1.90	5
1.25	136	1.71	7
1.00	222	1.48	11
0.90	263	1.39	12
0.80	305	1.32	13
0.70	355	1.24	14
0.60	428	1.14	16
0.50	511	1.04	17
0.40	571	0.98	18
<u> </u>		INDICATED	I
2.00	158	2.38	12
1.75	273	2.17	19
1.50	450	1.95	28
1.25	897	1.66	48
1.00	1,634	1.41	74
0.90	2,057	1.32	87
0.80	2,618	1.22	102
0.70	3,374	1.11	121
0.60	4,363	1.01	141
0.50	5,565	0.91	162
0.40	6868	0.820	181



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	MEASURED + INDICATED (1), (2)		
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
2.00	188	2.36	14
1.75	323	2.16	22
1.50	537	1.94	34
1.25	1,033	1.66	55
1.00	1,856	1.42	85
0.90	2,320	1.33	99
0.80	2,923	1.23	115
0.70	3,729	1.12	135
0.60	4,791	1.018	157
0.50	6,076	0.919	179
0.40	7,439	0.833	199

### NOTES:

- (1) The sum of measured and indicated resources as reported under NI 43-101 is equivalent to mineralized material under SEC Industry Guide 7.
- (2) Tonnage, grades and totals may not total due to rounding.

	INFERRED RESOURCES <sup>(2)</sup>		
Cutoff Grade g Au/t	Tonnes (x1000)	Average Grade g Au/t	Total Au Ounces (x1000)
2.00	335	2.35	25
1.75	559	2.16	39
1.50	975	1.93	60
1.25	1,854	1.66	99
1.00	3,193	1.43	147
0.90	3,950	1.34	170
0.80	4,795	1.25	193
0.70	5,871	1.16	219
0.60	7,473	1.05	252
0.50	9,416	0.95	287
0.40	11,767	0.85	320

### NOTES:

- (1) Tables above (Measured, Indicated, Measured + Indicated, Inferred) show the resources present and are not contained within a pit (i.e. all possible resources).
- (2) Tonnage, grades and totals may not total due to rounding.



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The following SECTIONS, 15 to 22, are for advanced stage properties only. The Mt Todd Gold Project is considered an advanced stage property; however, the following sections have not been re-evaluated based on the updated resource estimate presented in this report. The following sections are transcribed from SECTION 1.0 (the SUMMARY) of the January 28 2011 Prefeasibility Study (PFS) that is filed on SEDAR (www.sedar.com) and are included here for context and completeness.



### 15.0 MINERAL RESERVE ESTIMATES

Mineral reserves have not been re-estimated for the resource described in the SECTION 14.0 of this report. The following reserves are transcribed from the summary section of the January 28 2011 PFS report and are based on the resource quoted in January 28 2011. Mineral reserves are included here for context.

The updated resource model is an expansion of previous resources, and as such the previously reported Proven and Probable reserves are a subset of the updated resource. Though some costs may have increased since the reporting of Reserves, the gold price has risen to a current 3-year average of over \$1400 per ounce Au (a 40% increase over the gold price used to establish reserves). This, MDA believes that the Mt. Todd Proven and Probable Reserves remain current.

Potentially mineable pit shapes were evaluated using a Lerchs-Grossman (LG) analysis performed with the GEMCOM® Whittle® pit optimization software and the Mt. Todd mineral resource model. The optimization is an iterative process with initial parameters coming from the Mt. Todd October 1<sup>st</sup>, 2010 PFS. The final parameters incorporate mining costs developed during this study. The optimization runs used only Measured and Indicated material for processing. All Inferred material was considered as waste. Mineral resources that are not mineral reserves have no demonstrated economic viability. The parameters assumed for the LG analyses are summarized in TABLE 15-1.

TABLE 15-1: Reserve Case Parameters for Lerchs-Grossman Analyses  VISTA GOLD CORP. – MT TODD GOLD PROJECT  January 2011		
Overall Pit Slopes 33° from pit centered azimuth ranging 10° – 150°		
	55° from pit centered azimuth ranging 150° – 10°	
Gold Price	US\$1000 per toz Au	
Gold Recovery	82 percent	
Mining Cost	US\$1.40 per tonne mined	
Processing Cost	US\$7.60 per tonne processed	
Tailings Construction	\$1.00 per tonne processed	
Tailings Reclamation	\$1.14 per tonne processed	
Waste Dump Rehabilitation	\$0.12 per tonne waste	
General and Administrative Cost	US\$0.60 per tonne processed	

The Reserve Case LG shell is defined by the economic factors listed in TABLE 15-1. Varying gold prices were used to evaluate the sensitivity of the deposit to the price of gold as well as to develop a strategy for optimizing project cash flow. To achieve cash flow optimization, mining phases or push backs were developed using the guidance of Whittle pit shells at lower gold prices.

Using the Reserve Case, the ultimate pit was designed as an open-pit mine using large haul trucks, hydraulic shovels, and front-end loading equipment. Primary production is achieved using 21 cubic meter hydraulic shovels along with 180 tonne haul trucks. This equipment is used primarily for the movement of waste material.



Secondary production is achieved using a CAT 992 loader and smaller CAT 785C trucks. The 992 loader is assumed to have a 12 cubic meter bucket, and the CAT 785C trucks have a rated payload of 140 tonnes. The loader and smaller trucks are used primarily to move ore from the pit to the crusher and for reclaiming ore from stockpiles. Waste production from the 992 loader and 785C trucks is anticipated as well.

After the ultimate pit was designed, pits or phases within the ultimate pit were designed to enhance the project by providing higher-value material to the process plant earlier in the mine life. The design includes smoothed pit walls, haulage ramps, benches, and pit access. Phase 1 and phase 2 pit designs remain unchanged from the previous PFS work. Phase 3 was designed to the ultimate pit limit on the south, while phase 4 (the final pit phase) is used to achieve the ultimate pit in the north.

TABLE 15-2: Classification of Mineral Reserve Estimate  VISTA GOLD CORP. – MT TODD GOLD PROJECT  January 2011								
Class	Ore Tonnes (x 1000)	Average Gold Grade (gm/t)	Contained Gold (oz x 1000)	Waste Tonnes (x 1000)	Total Tonnes (x 1000)	Stripping Ratio (W:O)		
Proven	48,961	0.91	1,431					
Probable	100,913	0.83	2,681					
Proven + Probable	149,874	0.85	4,112	271,480	421,354	1.81		

Note: Reserves are reported using a 0.40 g Au/t cutoff grade. Mineral reserves are the economic portion of the measured and indicated mineral resources. Mineral reserves are not in addition to mineral resources.

The waste stripping ratio (Waste: Mineral Reserves) has been estimated to be approximately 1.81.

The Reserve Case production schedule for this PFS assumes a 10.65 Mtpy ore production rate, resulting in a 14-year operating life, as shown in TABLE 15-3.

TABLE 15-3: Reserve Case Production Schedule VISTA GOLD CORP. – MT TODD GOLD PROJECT January 2011								
PP1	1,084	0.68	6,287	5.80				
1	12,210	0.86	22,965	1.88				
2	13,584	0.90	25,048	1.84				
3	11,997	0.90	24,400	2.03				
4	10,650	0.95	25,578	2.40				
5	6,200	0.71	27,824	4.49				
6	8,175	0.67	25,041	3.06				
7	13,198	0.79	24,662	1.87				
8	11,158	0.76	24,710	2.21				
9	8,990	0.66	22,655	2.52				
10	13,626	0.78	20,386	1.50				
11	12,102	0.86	14,158	1.17				
12	13,379	0.93	5,940	0.44				
13	11,310	1.09	1,805	0.16				
14	2,213	1.40	22	0.01				
Total <sup>(1)</sup>	149,875	0.85	271,480	1.81				

Note: Totals may not add up due to rounding.



## **16.0 MINING METHODS**

Mining methods have not been re-evaluated for this report. Details regarding mining methods can be found in the January 28 2011 PFS report. The Mt. Todd Project has been planned as an open-pit truck and shovel operation. The truck and shovel method provides reasonable cost benefits and selectivity for this type of deposit. Only open-pit mining methods are considered for mining at the Mt Todd Gold Project.

For a summary of the proposed production rate, expected mine life and waste to ore stripping ratio, see Section 15 of this technical report.



### 17.0 RECOVERY METHODS

Recovery methods have not been re-evaluated for this report. Details regarding recovery methods can be found in the January 28 2011 PFS report. The following recovery methods are transcribed from the summary section of the January 28 2011 PFS report. Recovery methods are included here for context

## 17.1 Processing and Process Flowsheet

The Mt. Todd gold recovery process evolved both historically and through studies commissioned by Vista from Resource Development, Inc. (RDi). The evolved process uses proven technologies to recover 82 percent of the contained gold by carbon in leach (CIL) leaching. For purposes of the PFS, an ore feed grade of 1.08 g Au/t has been assumed and an Ausenco adjusted plant feed rate of 1,427 tonnes per hour (t/h) (nominally 30,000 tonnes per day [tpd] or 10.65 Mtpy) was assumed. Note that Ausenco frequently describes their work as the "11Mtpy Engineering and Cost Study."

Testwork completed by RDi on samples provided by Vista supports a process using conventional coarse crushing followed by HPGR crushing and ball mill grinding to produce a leach feed at  $P_{80}$  150 micrometer ( $\mu$ m) (100 mesh Tyler). The resulting pulp is then pre-aerated and subjected to CIL leaching followed by adsorption, desorption, and recovery (ADR) leading to gold doré. The CIL tailings are detoxified and sent to an impoundment, from which plant process water is recycled. The process is robust.

For a more detailed discussion of the process flowsheet, plant design and specifications and projected requirements, see Section 13.0.

# 17.1 Tailings Disposal

A tailings disposal tradeoff study was completed in early 2010 in order to explore several options for tailings disposal, such as a dry stack facility, new tailings storage facility (TSF) designs for both thickened and conventional tailings, and several raises to the existing TSF. The 60 million tonne capacity raise to the existing TSF design (TSF1) was originally selected based on economic tradeoff studies and the relatively low cost per tonne of tailings stored. Since the total required tailings storage for the project is approximately 150 million tonnes, a new TSF (TSF2) has been designed to provide an additional 100 million tonnes of tailings storage. This provides extra storage as a contingency.

The design for the raises to TSF1 was adapted from the MWH design completed in 2006, with some modifications to accommodate the projected capacity of the facility. The facility will be constructed in six separate stages, using centerline construction techniques for the first raise and upstream construction techniques for subsequent raises. The embankments will be constructed with 2.5:1 (horizontal [H] to vertical [V]) downstream slopes and 2:1 (H:V) upstream slopes. Three saddle dams will be constructed to contain the tailings on the west side of the facility. It was assumed that all of the existing toe drains, under-drains, and decant towers installed at the existing facility will be fully operational when tailings deposition begins and that minimal construction will be required to raise or extend the drains and towers to the required elevation at each stage.

TSF2 will be completed in four construction stages using upstream raise construction methods. The embankments will be constructed with 3:1 (H:V) upstream and downstream inter-bench slopes and five-meter wide benches at the downstream crest of each stage, yielding an overall slope of 3.2:1 (H:V). The crest will be 30 m wide and will slope at 0.5 percent from the high point in the southeast corner to the tie-in with existing ground near Mt. Todd. The facility will be



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fully lined and will include a system of toe drains, under-drains, and over-drains, as well as a new water reclaim system. A small surface water diversion will be constructed at the southwest corner of the proposed facility to direct Horseshoe Creek away from the new TSF footprint.



#### **18.0 INFRASTRUCTURE**

Infrastructure has not been re-evaluated for this report. Details regarding infrastructure can be found in the January 28 2011 PFS report. The following text regarding infrastructure is transcribed from the summary section of the January 28th 2011 PFS report. Infrastructure is included here for context

# 18.1 Power Supply

The Power Engineers report, "Mt. Todd Power Station, Phase 3 Pre-Feasibility Study," dated September 30, 2010, provides a detailed discussion of the generation equipment options available for onsite electrical supply to meet the power requirements of the re-commissioned Mt. Todd mine operations to be operated by Vista. The site electrical power demands are a fixed constant operating load estimated at 46 megawatts (MW) with a minimum of startup/shutdown cycles. This load falls between gas turbine size categories so surplus generating capacity is expected if the load is met with a single turbine.

The cost analysis for this study is based on a 14-year operating plant life without annual pricing index. Fuel costs are based on a rate of \$5.75 (AUS) per gigajoule. Calculated 13-year project life costs (includes all capital and operating costs) are estimated to be \$0.0710 to 0.0950 (AUS) per kilowatt-hour for the 46 MW site demand compared to the commercially purchased electricity rate of \$0.1636 per kilowatt-hour (kWh) (adjusted for demand) for the same time period.

Five options were considered for generation of power at Mt Todd. A Rolls Royce Trent 60 WLE was selected for use in this study. This unit will generate power at a direct operating cost estimated to average \$0.0629 (AUD) per kWh over the life of the Project.



# 19.0 MARKET STUDIES AND CONTRACTS

Market studies and contracts have not been evaluated for this report and no specific reference can be made to the January 28 2011 PFS



# 20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Environmental studies, permitting and social or community impact have not been reevaluated for this report. The following analysis is transcribed from the summary of section of the January 28 2011 PFS report and are included here for context.

The primary environmental issue at the Mt. Todd site is water management resulting from the project shutdown without implementation of closure or reclamation activities. All of the water retention ponds (excluding the raw water pond) and the pit contain acidic (~pH 3-4.5) water with elevated concentrations of regulated constituents.

#### 20.1.1 Permitting

In 2007, Vista became the operator of the Mt. Todd site and accepted the obligation to operate, care for and maintain the assets of the NT Government on the site. As part of the agreement, the NT Government acknowledged its commitment to rehabilitate the site and that Vista has no obligations for pre-existing conditions until it submits and receives approval of a Notice of Intent (NOI) for resumption of mining operations. A decision on the appropriate permitting route will be initiated by submission of an NOI to the Department of Regional Development, Primary Industry, Fisheries and Resources (DRDIPFR), now the Department of Resources (DoR).

A referral and assessment process will determine how the Environment Protection and Biodiversity Conservation Act (EPBC Act) will be applied. The EPBC Act addresses the protection of matters of national environmental significance which include flora, fauna, ecological communities and heritage places. If significant impacts are likely to occur, the project will require formal assessment either through preparation of a Public Environmental Report (PER) or an Environmental Impact Statement (EIS).

#### 20.1.2 Water Management

Current and historic evidence indicates that Mt. Todd waste rock, ore, and tailings contain sulfides capable of generating acid and metal laden leachates (ARD/ML). ARD/ML currently occurs or is found in the waste rock dump and associated pond (RP1), the lean ore stockpile and associated pond (RP2), exposed pit walls and associated pit lake (RP3), the heap leach pad (HLP) and associated pond and moat, the plant runoff pond (RP5), and within the tailings storage facility (RP7).

The Edith River and tributaries are protected beneficial use under the Water Act 2000 for aquatic ecosystem protection. As a result, discharges from the site are regulated under the Mt. Todd Project Waste Discharge License (WDL 135) which allows controlled discharges from RP1 to the Edith River during high flow events. The impacted water is sufficiently diluted during high flow events to ensure downstream compliance with established copper criteria which in turn dilutes other regulated constituents to acceptable levels. Improvements to the water management system have reduced uncontrolled discharges during the wet seasons.

In August 2009, Vista commissioned a water treatment plant (WTP) to treat ARD/ML water at a capacity of 193 cubic meters per hour (m³/hr). Pilot studies showed that lime treatment removed 98 percent of the cadmium, 98.8 percent of aluminum, and greater than 99 percent of the copper and zinc in acidic water from the waste rock dump pond (RP1). The treated solution including the reaction by-products (gypsum and metal hydroxide compounds) flows by gravity to the tailings storage facility (RP7). Testing is underway to define the operational conditions required to meet standards to discharge treated water after clarification either on a continuous basis or during the wet season. Based on recent measurements (flow meter installed in the



Existing WTP influent pipe in December 2010), ARD/ML is treated at a rate of approximately 360 m<sup>3</sup>/hr (HydroGeoLogica, Inc. and Tetra Tech, 2010).

#### 20.1.3 Baseline Studies

Site characterization studies were conducted at the Mt. Todd site in support of the 1992 Draft EIS (Zapopan, 1992). Vista is conducting additional baseline studies as required by the site waste discharge license and to support design, permitting, operations, and closure. Baseline studies currently being conducted or to be implemented include:

- Surface water and groundwater characterization;
- Soils:
- Geochemical characterization;
- Biological resources (aquatic and benthic, vegetation and wildlife);
- Cultural and archaeology; and
- Socio-economics.

These environmental baseline studies can be completed within one year or less.

#### 20.1.4 Reclamation and Closure

The major and immediate environmental challenges for Mt. Todd are the management of ARD/ML currently contained in several water storage facilities and the management of precipitation and surface water runoff reporting to mine-related surface disturbance. ARD/ML is currently managed through a combination of practices including evaporation, active water treatment, pumping excess water to the Batman Pit, and controlled and uncontrolled discharges to creeks in the vicinity of Mt. Todd and the Edith River during major flow events. Recent upgrades to the pumping system have reduced the frequency of uncontrolled effluent releases from the ponds to the Edith River and its tributaries.

Throughout the mine-life, Vista should anticipate, plan, design for, and implement effective plans for:

- Year-round collection, containment, and treatment of all ARD/ML prior to effluent release:
- Identification of potentially acid-generating (PAG) and non-PAG materials, as well as materials that have the potential to leach constituents in concentrations above applicable water quality-based effluent standards (metalliferous);
- Selective handling of PAG and non-PAG material and potentially direct treatment of PAG materials throughout the mine-life to prevent or reduce the generation of ARD/ML;
- Separation of unimpacted surface and ground water from PAG and metalliferous materials, and ARD/ML;
- Short- and long-term hydrologic isolation of PAG and metaliferous materials from ground and surface water;
- Facility and site-wide closure; and
- Control of storm-water to prevent excessive erosion and sedimentation.

Specific recommendations related to these and other closure and water treatment needs are provided in Section 21-Recommendations.



The major facilities that currently exist at Mt. Todd, which are included as part of the 10.65 Mtpy mine plan, are as follows:

- Batman Pit;
- Batman Pit Lake (RP3);
- Waste Rock Dump (WRD);
- WRD Pond (RP1) and pumping system;
- TSF:
- TSF Pond (RP7);
- Process Plant and Operations Area;
- Process Plant Runoff Pond (RP5) and pumping system;
- HLP;
- HLP Pond and pumping system;
- Low Grade Ore Stockpile (LGO);
- LGO Pond (RP2) and pumping system;
- Existing Water Treatment Plan (WTP); and
- Mine roads and other ancillary facilities (e.g., pipelines).
- The new facilities proposed for closure and the mine-life water treatment system are as follows:
- Run-on diversions up-gradient of the RP1, TSF1, and WRD;
- New WTP;
- Linear Low Density Polyethylene (LLDPE) (or equivalent)-Lined Equalization Pond;
- LLDPE (or equivalent)-Lined Sludge Disposal Cell;
- TSF1 and TSF2 Closure Spillways;
- Modified TSF1 Decant Ponds;
- Modified TSF2 Sumps;
- LLDPE (or equivalent)-Lined TSF1 Collection Ditch;
- LLDPE (or equivalent)-Lined TSF2 Collection Ditch;
- LLDPE (or equivalent)-Lined LGO2 Collection Ditch;
- LLDPE (or equivalent)-Lined LGO2 Sump;
- Collection Ditch at toe of closed WRD:
- Modified HLP Seepage Collection Pump and Pipeline;
- Pumps and pipelines;
- Clay Borrow Area; and
- Three Anaerobic treatment wetlands (or equivalent passive/semi-passive water treatment system).



A PFS-level Closure Plan (PFCP) is included as an appendix (Appendix J) to the PFS. The PFCP includes descriptions, approximate dimensions, and performance criteria for proposed facilities. Arrangements and design drawings and details for these facilities have not been completed at this stage of the planning process.

The closure and water management goals for Mt. Todd include:

- Control acid-generating conditions;
- Reduce or eliminate the acid and metal loads of seepage and runoff water;
- Minimize adverse impacts to the surface and ground water systems surrounding Mt. Todd;
- Physical and chemical stabilization of mine waste and other mine-related surface disturbances;
- Protect public safety;
- Comply with the WDL and applicable Edith River water quality-based effluent standards; and
- Comply with NT Government regulations governing mine development and closure.

Closure plans and strategies for each major facility at Mt. Todd and the mine-life water treatment system are summarized in Appendix J.

Closure and water treatment costs were estimated at a  $\pm$  25 percent level of accuracy based on the following:

- 10.65 Mtpy mine plan and existing engineering and data presented in the PFS;
- Geochemical testing program and results (Appendix H);
- Mine-life (i.e., pre-production phase of 2 years, production phase of 15 years, closure phase of 3 years, post-closure phase of 6 years) water balance simulations, water quality estimates, and water management plans (Appendix I);
- Use of existing and new water management systems and infrastructure;
- Estimates of environmental conditions throughout the mine-life;
- NT Government mine closure and environmental protection regulations and guidelines;
- Published unit costing references;
- Tetra Tech's recent mine closure and water treatment costing experience; and
- Best professional judgment.

As summarized in TABLE 20-1 the PFS-level cost estimates for implementing the closure and mine-life water treatment plans are \$67,864,000 and \$36,590,000, respectively.



TABLE 20-1: Prefeasibility-Level Closure and Mine-Life Water Treatment Cost Estimate

VISTA GOLD CORP. – Mt TODD GOLD PROJECT

January 2011

January 2011	
Area	Cost <sup>1</sup>
Tailings Storage Facility 1 (TSF1)	\$ 9,101,000
Tailings Storage Facility 2 (TSF2)	\$ 19,018,000
Неар	\$ 2,585,000
Process Plant And Pad Area	\$ 11,280,000
Batman Pit	\$ 205,000
Waste Rock Dump	\$ 8,620,000
WRD Retention Pond	\$ 1,709,000
Low Grade Ore Stockpile 1 (LGO1)	\$ 128,000
Low Grade Ore Stockpile 2 (LGO2)	\$ 244,000
Mine Roads	\$ 3,786,000
Clay Borrow Area	\$ 135,000
Sludge And Equalization Pond Closure	\$ 273,000
Total Direct Closure Cost	\$ 57,084,000
Mobilization/Demobilization (Assume On-Site Mining Equipment Fleet Used)	\$ 0-
Incidentals (Communication, Misc. Supplies, Etc.) = 0.5 % Of Total Direct Cost	\$ 385,000
Haul Road Maintenance During Closure = 0.5 % Of Total Direct Cost	\$ 385,000
Engineering Re-Design = 2 % Of Total Direct Cost	\$ 1,540,000
Contingency = 8 % Of Total Direct Cost	\$ 6,160,000
Total Indirect Cost <sup>2</sup>	\$ 8,470,000
Annual Site Maintenance and Monitoring For 6 Years Post Closure	\$ 2,310,000
Total Closure Cost	\$ 67,864,000
Water Treatment System Facility/Component	
Active Water Treatment And Sludge Disposal System Construction	\$ 4,169,000
Passive Water Treatment System #1, #2 & #3	\$ 15,314,000
Total Direct Water Treatment Construction Cost	\$ 19,483,000
Pre-Production Period (Years -2 and -1) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 5,545,000
Production Period (Years 1 through 15) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 6,125,000
Closure Period (Years 16 through 18) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 2,612,000
Post-Closure Production Period (Years 19 through 24) Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$2,825,000
Total Mine-Life Water Treatment O&M, Reagent and Pumping <sup>3</sup>	\$ 17,107,000
Total Mine-Life Water Treatment Costs	\$ 36,590,000

Cost rounded to nearest \$1,000 in current \$.



- <sup>2</sup> Includes indirect costs associated with the construction of Water Treatment System
- <sup>3</sup> Includes Plant O& M, Lime, and Water and Sludge Pumping

The major closure and water treatment assumptions used for the development of the closure plan are provided in Appendix J of the January 28 2011 PFS and summarized in Section 5.4-Environmental Conditions of that report.

The Mt Todd Gold Project is being developed as a drive in/drive out operation (DIDO) and as such, Vista has engaged both local communities and the NT Government in the discussions and planning for the accommodation of the planned work force. Vista has, as part of the planned development, included costs in the cash flow for working with local developers that adequate housing will be available, committed to using local resources, when cost competitive, and an individual employee incentive program for retention of long term workers that are committed to being part of the local communities.



#### 21.0 CAPITAL AND OPERATING COSTS

Capital and operating costs have not been re-estimated for the resource described in the SECTION 14.0 of this report. The following capital and operating costs are transcribed from the summary of January 28 2011 PFS report and are based on the resource quoted in January 28 2011. Capital and operation costs are included here for context.

#### 21.1 Capital Costs

Estimated capital expenditures for the life-of-mine Reserve Case are estimated to be \$851.1 million; this being a combination of \$589.6 million start-up capital and \$261.5 million sustaining capital, both including working capital and contingency. TABLE 20-2 provides a summary of the estimated project capital costs over the life of the proposed operation.

# 21.2 Mine Operating Costs

Mine operating costs have been estimated for each year of operations based on production requirements with the estimates comprising labor, fuel, material, equipment, and maintenance. A summary of the estimated mine operating costs per tonne ore processed are presented in TABLE 20-1 for the 10.65 Mtpy Reserve Case.

# 21.3 Process Operating Costs

The Reserve Case process operating costs are estimated to range from \$6.76 to \$6.79/t ore during the years of operation. Included in these costs are estimated operating expenses for the water treatment and tailings facilities. The estimates for process plant operating costs by year are given in TABLE 20-3.



		TABLE	21-1:	Mine Ope	•			• •	•		re Proce	ssed			
				VIST	A GOLD	CORP. – Janu	MT 1001 lary 2011		PROJEC	;I					
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ore Mined	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775
Total mining costs	50,882	55,947	55,555	55,046	49,107	41,713	59,865	46,330	32,800	58,451	23,991	39,725	29,086	9,747	1,145
Mine Operating Cost / tonne Processed	\$4.78	\$5.25	\$5.22	\$5.17	\$4.61	\$3.92	\$5.62	\$4.35	\$3.08	\$5.49	\$2.25	\$3.73	\$2.73	\$0.92	\$1.48

# TABLE 21-2: Summary of Project Capital Cost Estimates (000) VISTA GOLD CORP. - MT. TODD GOLD PROJECT January 2011

January 2011			
CAPITAL (\$000'S)	LOM	INITIAL	SUSTAINING
MINE CAPITAL			
Primary:			
Open Pit Mine Equipment	98,792	46,483	52,309
Lime Operation Mine Equip	5,617	5,617	0
Sub-Total Primary	104,409	52,100	52,309
Ancillary:			
General Surface Mobil Equipment	18,596	8,404	10,191
Sub-Total Ancillary	18,596	8,404	10,191
Miscellaneous:			
Mine Office, Shop and Warehouse	2,268	2,268	0
Mining Development Supply and Labor Op Costs	9,394	9,394	0
Sub-Total Miscellaneous	11,662	11,662	0
TOTAL MINE CAPITAL (Before Contingency)	134,667	72,166	62,500
Mine Capital Contingency	9,759	5,615	4,144
PLANT CAPITAL			
Process Plant	269,243	269,243	0
Onsite Infrastructure	22,503	22,503	0
Mobile Equipment, Spares, First-Fills	11,223	11,223	0
Power Generating Station	37,678	37,678	0
Site Demolition	3,664	3,664	0
TAILING STORAGE FACILITIES CAPITAL			
Pre-production WTF + Tailings Management	4,777	4,777	0
TSF Fine Grading, Equipment, Piping, Drains	71,304	5,258	66,046
TSF Bulk Earthwork	88,555	4,193	84,362
TOTAL PLANT + TAILINGS STORAGE	508,948	358,539	150,408
INDIRECT PROCESS			
Temporary Construction Facilities	6,999	6,999	0
Commissioning	5,599	5,599	0
Total Indirect Process	12,598	12,598	0
TOTAL PLANT + TAILING + INDIRECT CAPITAL (Before Contingency)	521,546	371,137	150,408
Plant Capital Contingency	60,208	51,202	9,006
EPCM TOTAL (PLANT & TAILING)	73,504	68,600	4,904

OTHER CAPITAL			
Off-site Infrastructure / Accommodation Village	16,268	16,268	0
Excess Water Treatment Facility	17,985	0	17,985
Permitting	2,500	2,500	0
Recruit and Training	1,700	1,500	200
Lime Kiln/Processing	6,158	6,158	0
Total Other Capital	44,611	26,426	18,185
Other Capital Contingency	6,692	3,964	2,728
Total Contingency	76,659	60,781	15,878
TOTAL CAPITAL	850,987	599,111	251,876
TOTAL WORKING CAPITAL CHANGES	102	(9,528)	9,630
TOTAL CAPITAL + WORKING CAPITAL CHANGES	851,088	589,583	261,506

NOTE: Some rounding may occur due to truncation of the numbers.



# TABLE 21-3: Process Operating Cost Estimate Summary (000)\* VISTA GOLD CORP. – MT TODD GOLD PROJECT January 2011

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ore Processed	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775
Total processing costs	72,159	72,109	72,120	72,080	72,169	72,200	72,366	72,286	72,277	72,213	72,213	72,201	72,019	72,068	5,535
Ore Processing Cost / tonne	\$6.78	\$6.77	\$6.77	\$6.77	\$6.78	\$6.78	\$6.79	\$6.79	\$6.79	\$6.78	\$6.78	\$6.78	\$6.76	\$6.77	\$7.14

<sup>\*</sup>Note: Gold doré refining, transport and treatment charges are estimated to be \$4.50/toz Au, but are included separately in the cash flow analyses.

#### 22.0 ECONOMIC ANALYSIS

Economics have not been re-analyzed for the resource described in the SECTION 14.0 of this report. The following economic analysis is transcribed from the summary of January 28 2011 PFS report and are based on the resource quoted in January 28 2011. Economic Analysis is included here for context.

The financial results presented herein have been developed co-operatively between Vista, Tetra Tech, and other consultants. The financial results are presented in constant dollars with the mine and mill capital having been estimated in the second and fourth quarters of 2010, respectively. A five percent discount rate has been applied to the financial analysis. Besides the Reserve case, sensitively analyses were completed using varying gold prices, currency exchange rates, capital cost estimates and operating cost estimates. Unless otherwise noted, an US/AUD conversion rate of 0.85 was used. Unless specifically noted, all monetary values in the entire document are in US dollars.

#### 22.1 Reserve Case

The Reserve Case project entails mining 149,875,000 ore tonnes over a 15-year period. The scenario requires that 10.65 Mtpy ore be mined and processed assuming \$1,000/toz Au, an exchange rate of 0.85 US/AUD dollars, and metallurgical recoveries of 82 percent. Note that the actual 3-year average gold price is \$1,023/toz Au; however, both Tetra Tech and Vista agreed to use \$1,000/toz Au for the Reserve Case analysis.

#### 22.2 Cash Flow Analyses

The cash flow analysis developed for the Reserve Case includes all mining, processing, tails disposal, and reclamation.

Cash flow analyses at \$1,000/toz Au and a US/AUD exchange rate of 0.85 results in an estimated project pretax NPV of \$385.336 million and an estimated pre-tax IRR of 13.9 percent and a post-tax IRR of 10.7 percent, all evaluated at a 5 percent discount rate. Note that an estimated 3,371,914 toz Au are recovered during the operating life. TABLE 22-1 is the cash flow forecast associated with the Reserve Case scenario.

# 22.3 Sensitivity Gold Price Sensitivities

Gold Price sensitivity analyses were performed on the Reserve Case reflecting Au prices from \$850 to \$1,150 in increments of \$50. A graph showing the results of these sensitivities is shown in FIGURE 22-1.

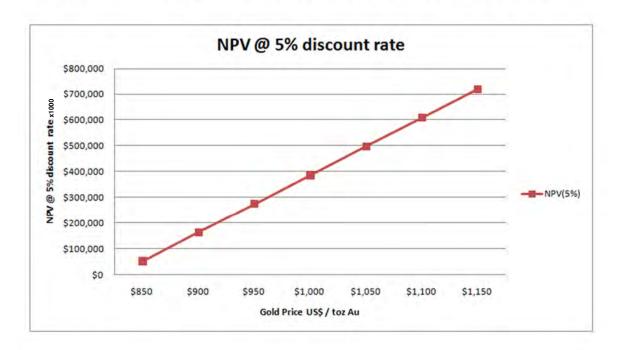


#### Mt. Todd - 10.65Mtpa (28 January 2011)

PRETAX:  IRR  NPV0 (000'S)  NPV5 (000'S)  AVG ANNUAL CF (000'S) PRODUCTION YEARS  AVG ANNUAL CF (000'S) LIFE OF MINE  STRIPPING RATIO (WST:ORE)	13.9% \$964.514 \$385,336 \$97,094 \$56,016	A A P	IRR NPV0 (000'S) NPV5 (000'S) AVG ANNUAL CF AVG ANNUAL CF PAYBACK PERIOI ST POST CLOSURE N	s) F (000's) PRODU F (000's) LIFE OF DD (YRS) FROM TART OF PROD	OF MINE  1: DUCTION	10.7% \$584,562 \$184,312 \$71,764 \$41,403 7.2 \$92,460		CAPITAL INITIAL CAPITAL CONTINGENCY SUB-TOTAL WORKING CAPI INITIAL CAP, PRE  SUSTAINING CA CONTINGENCY TOTAL SUSTAIN WORKING CAPI TOTAL MINE LIF	ITAL - YR -2 TO E-PROD DEV & W  APITAL (000'S)  NING CAPITAL ITAL - YR 2 TO	ORKING CAP	\$538,330 \$60,781 599,111 (9,528) \$589,583 235,998 15,878 251,876 9,630		TOTAL CASH OF CAPITAL COST OF CAPITAL PRODU  UNIT COSTS  MINING COST ( MINING COST ( PROCESSING OF CAPITAL PRO	\$/TONNE MINED \$/TONNE ORE) COST (\$/TONNE	R OUNCE  ORE)		\$520 \$530 \$231 \$761 \$1.68 \$4.07 \$6.847 \$0.55 \$11.47												
PROJECT PRODUCTION SCHEDULE / GOLD G	RADES AND CO											•					•												
MINE		Total P LOM	Project Year -2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
ORE TONNAGE TO CRUSHER (000's) ORE GRADE	ore tonnes g Au/tonne	149,875 0.853			10,650 0.93	10,650 1.02	10,650 0.95	10,650 0.95	10,650 0.61	10,650 0.62	10,650 0.87	10,650 0.77	10,650 0.63	10,650 0.86	10,650 0.92	10,650 1.04	10,650 1.13	10,650 0.66	775 0.47										
CONTAINED GOLD	toz Au/tonne g Au toz Au	0.027 127,900,394 4,112,090			0.030 9,950,173 319,905	0.033 10,876,180 349,677	0.031 10,118,272 325,310	0.031 10,143,927 326,135	0.020 6,472,261 208,088	0.020 6,611,008 212,549	0.028 9,267,222 297,948	0.025 8,213,125 264,058	0.020 6,701,086 215,445	0.028 9,193,713 295,585	0.030 9,779,633 314,422	0.034 11,127,334 357,752	0.036 12,003,292 385,914	0.021 7,081,749 227,683	0.015 361,418 11,620										
WASTE TONNAGE MINED (000's)	waste tonnes			6,287	22,965	25,048	24,400	25,578	27,824	25,041	24,662	24,710	22,655	20,386	14,158	5,940	1,805	22	. 1,020										
CAPITALIZED TONS (included in total material mined) TOTAL MATERIAL MINED	kt total tonnes	57,954 421,354		6,287 6,287	33,615	700 35,698	340 35,050	360 36,228	5,795 38,474	10,200 35,691	35,312	6,972 35,360	13,200 33,304	31,036	13,833 24,808	267 16,590	12,455	10,672	775										
STRIPPING RATIO	waste : ore	1.8			2.16	2.35	2.29	2.40	2.61	2.35	2.32	2.32	2.13	1.91	1.33	0.56	0.17	0.00											
MILL ORE TONNAGE TO MILL (000's)	ore tonnes	149.875			10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	10,650	775										
MILL FEED GRADE	g Au/tonne toz Au/tonne	0.853 0.027			0.93 0.030	1.02	0.95 0.031	0.95 0.031	0.61 0.020	0.62 0.020	0.87 0.028	0.77 0.025	0.63 0.020	0.86 0.028	0.92 0.030	1.04	1.13 0.036	0.66 0.021	0.47 0.015										
CONTAINED GOLD	g Au toz Au	127,900,394 4,112,090			9,950,173 319,905	10,876,180 349,677	10,118,272 325,310	10,143,927 326,135	6,472,261 208,088	6,611,008 212,549	9,267,222 297,948	8,213,125 264,058	6,701,086 215,445	9,193,713 295,585	9,779,633 314,422	11,127,334 357,752	12,003,292 385,914	7,081,749 227,683	361,418 11,620										
MILL RECOVERY @ 82%	% recovery of Au	82%			82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%										
GOLD RECOVERED	g Au toz Au	104,878,323 3,371,914			8,159,142 262,322	8,918,467 286,735	8,296,983 266,754	8,318,020 267,430	5,307,254 170,632	5,421,027 174,290	7,599,122 244,317	6,734,763 216,527	5,494,890 176,665	7,538,845 242,379	8,019,299 257,826	9,124,414 293,357	9,842,699 316,450	5,807,034 186,700	296,362 9,528										
REFINERY	toz Au	3,371,314			202,022	200,100	200,134	201,400	110,032	114,230	£-14,017	210,021	170,000	£7£,313	201,020	200,001	510, <del>4</del> 50	100,100	J,J20										
PAYABLE GOLD TO REFINERY	g Au toz Au	104,878,323 3,371,914			8,159,142 262,322	8,918,467 286,735	8,296,983 266,754	8,318,020 267,430	5,307,254 170,632	5,421,027 174,290	7,599,122 244,317	6,734,763 216,527	5,494,890 176,665	7,538,845 242,379	8,019,299 257,826	9,124,414 293,357	9,842,699 316,450	5,807,034 186,700	296,362 9,528										
																													_
		LOM P	Project Year -2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
GOLD PRICE	\$/oz	\$1,000			\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000										
WASTE TONNES TONNES ORE TO MILL	000's 000's	271,480 149,875		6,287	22,965 10,650	25,048 10,650	24,400 10,650		27,824 10,650	25,041 10,650	24,662 10,650	24,710 10,650	22,655 10,650	20,386 10,650	14,158 10,650	5,940 10,650	1,805 10,650	22 10,650	775										
STRIPPING RATIO	waste:ore	1.81			2.16	2.35	2.29	2.40	2.61	2.35	2.32	2.32	2.13	1.91	1.33	0.56	0.17	0.00											
OUNCES PAYABLE GOLD GRADE	toz Au. g/tonne	3,371,914 0.853			262,322 0.934	286,735 1.021	266,754 0.950	267,430 0.952	170,632 0.608	174,290 0.621	244,317 0.870	216,527 0.771	176,665 0.629	242,379 0.863	257,826 0.918	293,357 1.045	316,450 1.127	186,700 0.665	9,528 0.466				_	-	_	-	-	-	
GROSS GOLD SALES	\$000's	\$3,371,914			\$262,322	\$286,735	\$266.754	\$267,430	\$170,632	\$174,290	\$244,317	\$216,527	\$176,665	\$242,379	\$257,826	\$293,357	\$316,450	\$186,700	\$9.528										
RENTAL INCOME/POWER INCOME GROSS REVENUE	\$000's \$000's	\$208,312 \$3,580,225			\$5,145 \$267,467	\$5,145 \$291,880	\$5,145 \$271,899	\$5,145		\$5,145 \$179,435		\$5,145 \$221,672	\$5,145 \$181,810	\$5,145 \$247,524	\$5,145 \$262,971	\$5,145 \$298,501	\$5,145 \$321,595	\$5,145 \$191,845	\$5,145 \$14,673	\$16,159 \$16,159	\$16,256 \$16,256	\$16,265 \$16,265	\$16,478 \$16,478	\$16,478 \$16,478	\$16,478 \$16,478	\$16,490 \$16,490	\$16,531 \$16,531		
LESS REFINING, TRANS. & TREATMENT	\$000's	15,174			1,180	1,290	1,200	1,203	768	784	1,099	974	795	1,091	1,160	1,320	1,424	840	43										
REVENUE FROM SALES	\$000's	3,565,052			266,287	290,590	270,698	271,372	175,009	178,650	248,363	220,698	181,015	246,433	261,811	297,181	320,171	191,005	14,630	16,159	16,256	16,265	16,478	16,478	16,478	16,490	16,531		
LESS ROYALTY JAAC	\$000's	33,719			2,623	2,867	2,668	2,674	1,706	1,743	2,443	2,165	1,767	2,424	2,578	2,934	3,164	1,867	95										
NET REVENUE  NET REVENUE AFTER PRODUCT	ION \$131,138	\$3,531,333			\$263,664	\$287,722	\$268,031	\$268,697	\$173,303	\$176,908	\$245,920	\$218,533	\$179,248	\$244,010	\$259,233	\$294,248	\$317,006	\$189,138	\$14,535	\$16,159	\$16,256	\$16,265	\$16,478	\$16,478	\$16,478	\$16,490	\$16,531		
			Project Year			_					_										.=								
OPERATING COSTS MINE	\$000's	LOM 609,389	-2	-1	50,882	<b>2</b> 55.947	<b>3</b> 55,555	55,046	<b>5</b> 49,107	41,713	59,865	46,330	32,800	<b>10</b> 58,451	23,991	12 39,725	29,086	9,747	15 1,145	16	17	18	19	20	21	22	23	24	25
MILL G&A	\$000's \$000's \$000's	1,026,251 82,786	2,291	3,254 5,483	72,159 5,483	72,109 5,483	72,120 5,483	72,080	72,169 5,483	72,200 5,483	72,366 5,483	72,286 5,483	72,277 5,483	72,213 5,483	72,213 5,483	72,201 5,483	72,019 5,483	72,068 5,483	5,535 548	944	838	830	377	377	377	364	317	268	
RECLAMATION TOTAL OPERATING COSTS	\$000's	67,864 \$1,786,290	\$2,291	\$8,737	2,560 \$131,084	161 \$133,699	526 \$133,683	124	511 \$127,268	393 \$119,788	4,114 \$141,827	17,190 \$141,289	3,406 \$113,966	1,149 \$137,295	1,378 \$103,064	\$117,408	278 \$106,866	34 \$87,331	2,056 \$9,284	10,478 \$11,423	10,166 \$11,004	10,755 \$11,585	385 \$763	385 \$763	385 \$763	385 \$749	385 \$702	658 \$927	
MILL OPERATING COSTS AFTER PRODUCT RECLAMATION COSTS AFTER PRODUCT		, l																											
OPERATING MARGIN	\$000's	\$1,745,043	(\$2,291)	(\$8,737)	\$132,579	\$154,023	\$134,348	\$135,966	\$46,034	\$57,119	\$104,092	\$77,244	\$65,282	\$106,714	\$156,169	\$176,839	\$210,140	\$101,807	\$5,251	\$4,737	\$5,253	\$4,681	\$15,716	\$15,716	\$15,716	\$15,741	\$15,829	(\$927)	
CAPITAL COSTS MINE EQUIPMENT	\$000's	134,667		72,166	21,930	4,933		3,249	15,932	2,863		413	2,836	7,482	2,836	27													
PLANT EQUIPMENT & CONSTRUCTION TSF Fine Grading, Equipment, Piping, Drains	\$000's \$000's	361,686 71,304	30,779	330,906 5,258		505	0 247	(0) 267	252	192	34,980	23,192		4,940			1,472												
	\$000's \$000's	88,555 194,774 \$850,987	15,279	4,193 140,528	1,942	1,057 376	496 62	270	9,485 1,322	17,240 194	8,745	3,259	24,818 779	2,074	30,127 142	614 4	7,620			133	426	1,260	555					9,804	
TSF Bulk Earthwork OTHER/CONTINGENCY/EPCM			\$46,059	\$553,052 \$553,052	\$23,872 \$23,872	\$6,871 \$6.871	\$804 \$804	\$4,312 \$4,312	\$26,991 \$26,991	\$20,488 \$20,488	\$43,725 \$43,725	\$26,864 \$26,864	\$28,433 \$28,433	\$14,496 \$14,496	\$33,104 \$33,104	\$645 \$645	\$9,091 \$9.091		(57,372) (\$57,372)	\$133 \$133	\$426 \$426	\$1,260 \$1,260	\$555 \$555					\$9,804 (13,187) (\$3,383)	
TSF Bulk Earthwork OTHER/CONTINGENCY/EPCM SUB-TOTAL SALVAGE VALUE	\$000's \$000's	(70,559)	\$46,050		φ20,012	φυ,ο / Ι		عاد, <del>بد</del> ي 94	\$26,991	\$20,488 578	\$43,725 (840)	\$26,864 810	\$28,433 787	(1,685)	\$33,104 122	(1,215)	1,177	291	(\$57,372)	\$133 585	\$426 15	φ1,200 7	\$555 (9)	(4)		(0)	(0)	(\$3,383)	
TSF Bulk Earthwork OTHER/CONTINGENCY/EPCM SUB-TOTAL	\$000's		\$46,059 2	3,635	(13,164)	2,533	(148)		()		()				\$122,943	\$177,410	\$199,872	\$101,516	\$56,071	\$4,019	\$4,812	\$3,413	\$15,169	\$15,719	\$15,716	\$15,741		\$2.388	
TSF Bulk Earthwork OTHER/CONTINGENCY/EPCM SUB-TOTAL SALVAGE VALUE TOTAL CAPITAL CHANGES TO WORKING CAPITAL PRE-TAX CASH FLOWS	\$000's \$000's \$000's \$000's \$000's	(70,559) \$780,427 102 \$964,514	2 (\$48,352)	3,635 (\$565,423)	\$121,872	\$144,620	\$133,692		\$19,132	\$36,053	\$61,208	\$49,570	\$36,062	\$93,903													\$15,830		
TSF BUIK Earthwork OTHER/CONTINGENCY/EPCM SUB-TOTAL SALVAGE VALUE TOTAL CAPITAL CHANGES TO WORKING CAPITAL PRE-TAX CASH FLOWS CUMM. PRE-TAX CASH FLOWS	\$000's \$000's \$000's \$000's \$000's	(70,559) \$780,427 102 \$964,514 \$964,514	2 (\$48,352) (\$48,352)	3,635 (\$565,423) (\$613,775)	\$121,872 (\$491,903)	\$144,620 (\$347,283)	\$133,692 (\$213,591)	(\$82,031)	(\$62,899)	(\$26,846)	\$34,362	\$83,931	\$119,993	\$213,896	\$336,839	\$514,249	\$714,121	\$815,637	\$871,707	\$875,726	\$880,538	\$883,951	\$899,120	\$914,839	\$930,555	\$946,296	\$962,126	\$964,514	
TSF Bulk Earthwork OTHER/CONTINGENCY/EPCM SUB-TOTAL SALVAGE VALUE TOTAL CAPITAL CHANGES TO WORKING CAPITAL PRE-TAX CASH FLOWS CUMM. PRE-TAX CASH FLOWS DD&A	\$000's \$000's \$000's \$000's \$000's \$000's \$000's	(70,559) \$780,427 102 \$964,514 \$964,514 850,987	2 (\$48,352) (\$48,352) 9,212	3,635 (\$565,423) (\$613,775) 117,199	\$121,872 (\$491,903) 121,974	\$144,620 (\$347,283) 123,348	\$133,692 (\$213,591) 123,509	(\$82,031) 115,159	(\$62,899) 14,071	(\$26,846) 13,394	\$34,362 20,765	\$83,931 25,977	\$119,993 30,801	\$213,896 27,362	\$336,839 29,886	\$514,249 21,270	\$714,121 17,715	12,028	9,129	2,535	2,491	\$883,951 1,486	\$899,120 475	\$914,839 475	\$930,555 448	\$946,296 363	\$962,126 111	\$964,514 9,804	
TSF Bulk Earthwork OTHERICONTINGENCY/EPCM SUB-TOTAL SALVAGE VALUE TOTAL CAPITAL CHANGES TO WORKING CAPITAL PRE-TAX CASH FLOWS CUMM. PRE-TAX CASH FLOWS DD&A PROFIT BEFORE TAX INCOME TAX - Australian & Northern Territories	\$000's \$000's \$000's \$000's \$000's \$000's \$000's \$000's	(70,559) \$780,427 102 \$964,514 \$964,514 850,987 894,056 379,952	2 (\$48,352) (\$48,352) 9,212 (11,503)	3,635 (\$565,423) (\$613,775) 117,199 (126,949)	\$121,872 (\$491,903) 121,974 7,752	\$144,620 (\$347,283) 123,348 25,087	\$133,692 (\$213,591) 123,509 5,720	(\$82,031) 115,159 15,095	(\$62,899) 14,071 26,278	(\$26,846) 13,394 38,370 4,163	\$34,362 20,765 81,754 35,909	\$83,931 25,977 62,763 21,802	\$119,993 30,801 32,524 14,417	\$213,896 27,362 75,502 34,160	\$336,839 29,886 123,665 54,809	\$514,249 21,270 152,898 67,695	\$714,121 17,715 190,697 83,912	12,028 88,094 38,747	9,129 (1,947)	2,535 12,680	2,491 12,927 326	\$883,951 1,486 13,949 958	\$899,120 475 15,626 4,572	\$914,839 475 15,626 4,572	\$930,555 448 15,653 4,580	\$946,296 363 15,763 4,613	\$962,126 111 16,104 4,715	\$964,514 9,804 (10,073)	
TSF BUIK Earthwork OTHER/CONTINGENCY/EPCM SUB-TOTAL SALVAGE VALUE TOTAL CAPITAL CHANGES TO WORKING CAPITAL PRE-TAX CASH FLOWS CUMM. PRE-TAX CASH FLOWS DD&A PROFIT BEFORE TAX	\$000's \$000's \$000's \$000's \$000's \$000's \$000's	(70,559) \$780,427 102 \$964,514 \$964,514 850,987 894,056	2 (\$48,352) (\$48,352) 9,212 (11,503) (\$11,503)	3,635 (\$565,423) (\$613,775) 117,199	\$121,872 (\$491,903) 121,974	\$144,620 (\$347,283) 123,348	\$133,692 (\$213,591) 123,509	(\$82,031) 115,159 15,095 \$15,095	(\$62,899) 14,071	(\$26,846) 13,394 38,370	\$34,362 20,765 81,754	\$83,931 25,977 62,763	\$119,993 30,801 32,524	\$213,896 27,362 75,502	\$336,839 29,886 123,665	\$514,249 21,270 152,898	\$714,121 17,715 190,697	12,028 88,094	9,129	2,535	2,491 12,927	\$883,951 1,486 13,949	\$899,120 475 15,626	\$914,839 475 15,626	\$930,555 448 15,653	\$946,296 363 15,763	\$962,126 111 16,104	\$964,514 9,804	

FIGURE 22-1: Sensitivity of Pretax Net Present Value Estimate to Gold Price @ 5 % Discount Rate (000's)

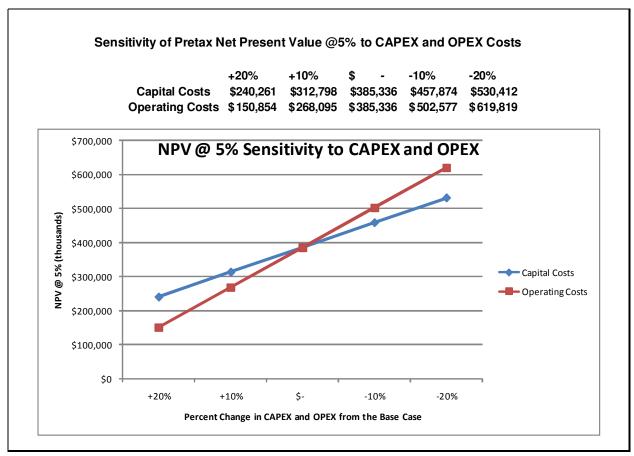
PRICE (\$/oz) \$ 850 \$ 900 \$ 950 \$ 1,000 \$ 1,050 \$ 1,100 \$ 1,150 NPV(5%) \$51,470 \$162,759 \$274,047 \$385,336 \$496,625 \$607,914 \$719,202



Capital and Operating Cost sensitivity analyses were performed on the pre-tax Reserve Case reflecting mutually exclusive increases and decreases of 10 percent and 20 percent for both. A graph showing the results of these sensitivities is shown in FIGURE 22-2.

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FIGURE 22-2: Sensitivity of Pretax Net Present Value Estimate to CAPEX and OPEX @ 5% Discount Rate (000's)



# 22.4 Sensitivities Deviating from the Reserve Case

Sensitivity analysis performed on the Reserve Case scenario at an Au price of \$1,350/toz Au and 1.00 US/AUD exchange rate yielded an after tax NPV of \$944.470 million at a five percent discount rate (note that this sensitivity is outside the range of those shown in Figure 22-1).

A second sensitivity considered an Au price of \$950/toz Au and 0.85 US/AUD exchange rate. The analysis resulted in an after tax NPV of \$274.047 million at a five percent discount rate.

#### 23.0 ADJACENT PROPERTIES

There are two major structural trends in the area (see FIGURE 15-1) that control most of the mineralization in the district. The northeast trending Cullen-Australus Corridor extends northeast and controls the deposits in the Pine Creek area including East Brilliant (Au), Saunders Rush (Au), Aston Hill (Au), etc. The Batman-Driffield trend within the tenements is northeast and is clearly defined by combined Landsat-Spot-aeromagnetic linear zones. There is a flexure in this trend around the Mountain View area that is associated with the Granitic Intrusive. The linear trends swing northwest in this area and define another mineralized linear zone linking Wandie-Moline and which is sub parallel to the Pine Creek linear.

Mineralization in the tenement blocks consists mainly of gold, tin, tungsten, with minor copper, lead, and zinc shows at Mountain View, Silver Spray, Tableland and Mt Diamond. Gold is usually associated with quartz veins and with chalcopyrite, arsenopyrite, pyrite, pyrrhotite and at Batman, minor bismuth and bismuthinite. At Batman, mineralization occurs as stockworks and sheeted quartz-sulfide veins. In other areas such as Quigleys, better grade mineralization is related to distinct shear zones that can have surrounding stockworks.

Below is a summary of certain exploration licenses which are adjacent or in the vicinity of the Project. Information on adjacent properties/tenements described in this section has not been verified by the qualified persons of this technical report. The information concerning adjacent properties/tenements disclosed herein is not necessarily indicative of the mineralization on the Mt. Todd property that is the subject of this technical report.

#### 23.1 Yinberrie-EL 9733

Previous work on EL 9733 defined two gold prospects. At Anomaly One, RC drilling by Billiton returned peak gold intercepts of 5 m of 2.93 g Au/t and 33 m of 1.21 g Au/t (including 6 m @ 2.54 g Au/t). Pegasus drill tested Anomaly One with 16 RC holes, for 1599 m on four sections between 10200N to 10700N. Intersections were from 2 to 8 m wide, grades from 1.05 to 3.14 g Au/t in strongly hornfelsed metasediments.

#### 23.2 Horseshoe - EL 9735

This area was previously held as EL 7635 and Mineral Claims N1918 to N1923 and N3676 to N3683 (inclusive). Billiton work defined two significant gold anomalies: Central, at the northern end, now held under BJV tenement SEL9679, and Horseshoe at the south. At Central the best RC drill result was 9 m @ 4.2 g Au/t while 15 m @ 1.8 g Au/t gold at Horseshoe was drilled. The Pegasus work performed over 5 years downgraded the Central Prospect. RC drilling at Horseshoe, based on detailed mapping, indicates the prospect consists of a number of thin high-grade shears with minimal stockwork mineralization in foot and hanging wall.

#### 23.3 Driffield-EL 9734

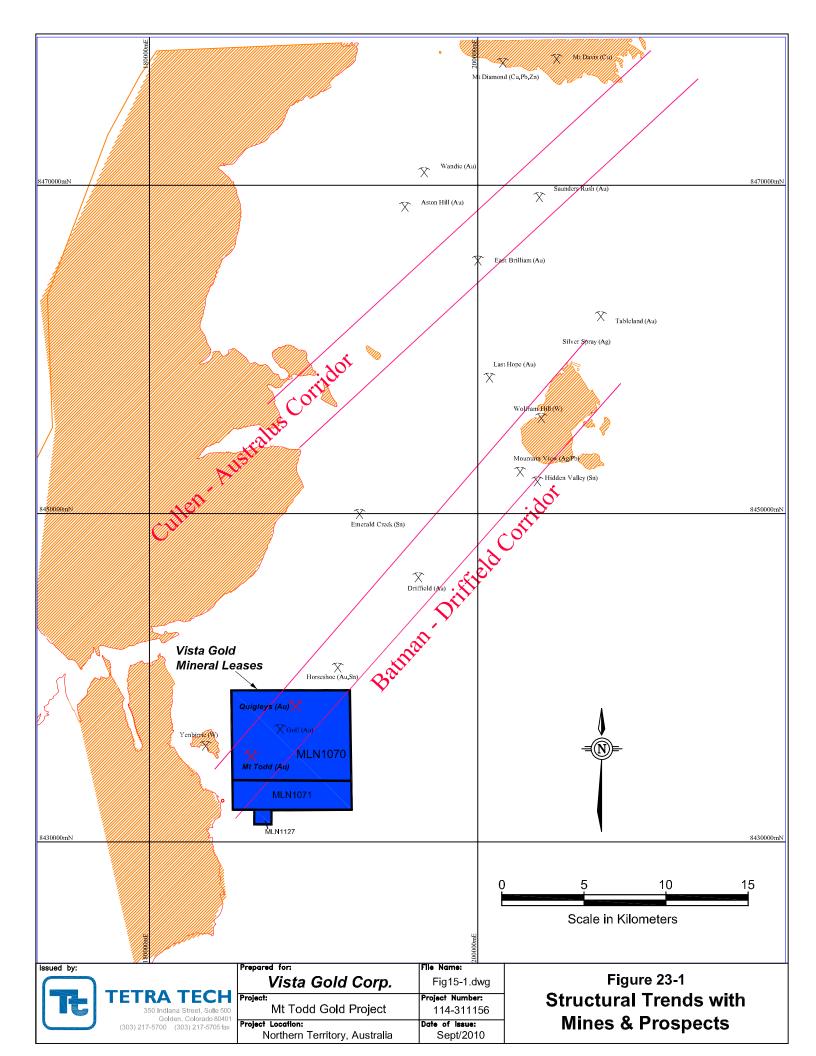
Previous mining at Driffield produced about 5,300toz of gold. Alluvial gold has also been worked on the EL and there are numerous small tin workings. Systematic exploration work carried out over previous years was collated, assessed and followed up. One diamond and sixty-six RC holes at six prospects were drilled by Pegasus for 4794 m at the Driffield Mining Center. Results indicated narrow lodes are only present. A further eleven RC holes were drilled at the Emerald Creek Prospect (670 m). No significant results were recorded.

Other prospects tested included Driffield North, Driffield West, Golden Slipper, and Driffield South. Results of five drillholes at Driffield North were disappointing. At Driffield West, nine RC holes were weakly anomalous, the best being DWRC 001 from 12 m, a length of 21 m @ 0.46 g Au/t; and from 45 m, 6 m @ 0.62 g Au/t. RAB drilling at Golden Slipper returned poor results



and, while the bulk of rock chips at Driffield South were disappointing, some significant anomalies (+100 g Au/t) were recorded.





While 1997 results failed to locate a significant deposit, exploration is incomplete and other anomalies remain to be evaluated and drill tested.

## 23.4 Barnjarn - SEL 9679

This tenement is a large block of ground (353 sub-blocks totaling 1,136 sq.km). Compilation of previous exploration data defined targets at Australis (flanks Mt Davis), Wandie/Saunders Rush/Brilliant, Everest, and Triple Bull. Further anomalies were defined at six other areas. Rock chip sampling by Pegasus at eight areas returned results from 0.76 to 24.3 g Au/t gold in fourteen samples. Soil sampling at nine prospects outlined anomalous zones. Preliminary RAB drilling was carried out at Everest, RKD extensions and GT prospects with inconclusive results. At RKD, 38 RC holes were drilled which intersected 1 to 4 m of mineralization, grading between 1.3 and 14.3 g Au/t. An airborne magnetic survey at 100 m spacing at 60 m mean terrain clearance was flown, and GLS and remote sensing studies completed. A total of 65 anomalies were defined by geochemical and/or structural means. A small resource has been interpreted at RKD and drilling at Mountain View, Cullen and Highway was proposed.

#### 23.5 Summary

The Mt. Todd region, and particularly the Batman style of mineralization, is one of sheeted veins that develop into a broad two-to-three dimensional stockwork. The grade of the > 200 million mineralized tonnes averages a little less than 1 g Au/t (Historical Pegasus estimate, not NI43-101 compliant (circa 1997)), and is associated with low grade copper, mostly as chalcopyrite.

At Cadia Hill in New South Wales, the mineralization is similarly a sheeted vein, two to three dimensional stockwork grading around 0.9 g Au/t, associated with chalcopyrite grading < 0.2% copper. Exploration at Cadia was vigorously prosecuted and extremely persistent in testing of deeper combined magnetic/geochemical anomalies. This ultimately resulted in discovery, at depth, of the Ridgeway deposit (over 26 million tonnes at > 3 g Au/t and > 1% copper) (Historical estimate, not NI43-101 compliant).

Ridgeway is hosted by rocks similar to Cadia Hill, but there is a distinct increase in the quantity of mineralizing fluid. Quartz veining with chalcopyrite-gold mineralization increases very significantly in proportion to the hosting altered, but unmineralized granitioid. It indicates an area of more forceful injection of fluids and an area of greater structural preparation. The Mt. Todd region has a large endowment of gold.



# 24.0 OTHER RELEVANT DATA AND INFORMATION

All relevant data and information has been included in this report. Past issued reports regarding the Mt. Todd Gold Project can accessed through www.sedar.com.



#### 25.0 INTERPRETATIONS AND CONCLUSIONS

### 25.1 Interpretation

It is Tetra Tech's opinion that all of the current Vista work meets and/or exceeds the current CIM Standards for reporting of mineral resources. Any historic work that does not meet current standards has either been replaced with new data by Vista as part of their ongoing exploration program and/or has been identified within the body of this report. The work completed prior to Vista, was been completed by well-qualified technical professionals, reputable mining companies, and independent third-party contractors and laboratories according to standards that meet most of today's requirements; however, all of the Vista work completed meets and/or exceeds all of the current requirements.

The results of the 2010 and 2011 Vista exploration and development programs continue to provide strong support that the current geologic model and resource estimates are indicative of the mineralization present at Mt. Todd. The objective set forth and completed for the 2008 drilling program facilitated the completion of two prefeasibility studies. It is Tt's opinion, that like the successful 2008 drilling program, the 2010 and 2011 drill programs indicate Vista should advance toward full feasibility.

#### 25.2 Conclusions

Vista's exploration and development work on the Mt. Todd Gold Project and specifically the Batman and Quigleys Deposits continue to provide strong justification for additional expenditures and efforts to develop a new mine at this site. Vista is unaware of any current environmental, cultural, and/or permitting issues which would materially change any of the information presented or the planned development.

#### **Exploration Licenses**

A significant portion of the exploration licenses have yet to be systematically explored and evaluated. The broad structural and geologic trends that host the Batman, Quigleys, and Golf Tollis Deposits may well host other deposits. Much of what Vista has learned from more detailed exploration of the Batman Deposit has yet to be applied to these other areas and therefore, these areas remain highly prospective.



#### 26.0 RECOMMENDATIONS

Based on Tetra Tech's review of the database, previous studies and work products, and as an outgrowth of the recent mineral resource modeling, PEA, and the PFS, Tt recommends that the resources updated in this report be included as the project advances to a Feasibility Study and detailed engineering in support of the construction of a mine and process facility at the Project. The work programs suggested below involve optimizations typical of a project at this stage of development and in no way reflect material issues to the Project. **Recommendations from the January 28, 2011 report made by Tt that Vista has completed prior to the issuing of this report have been removed.** 

# **26.1 Recommended Work Programs**

#### 26.1.1 Resources

#### Quigleys and Golf-Tollis Deposits

The Quigleys and Golf-Tollis deposits appear to be more structurally controlled than Batman with the mineralization occurring in narrower bands. Because of this, additional work will need to be undertaken in order to develop a more accurate geologic model and mineralization controls. Tetra Tech proposes that the following items be considered when preparing the work plan:

- Surface mapping and subsequent re-interpretation of the footwall contact to the shear zone mineralization are recommended. Any additional structural complexity that results should, where appropriate, be used to refine the mineralized envelope upon which modeling updates are based.
- Optimization of the resource provides a focus to define areas requiring further investigation or infill drilling. Due to the high degree of variability in the deposit, infill drilling is best targeted at key areas of geological complexity.
- A model should be developed for the area outside the shear zone. This will require separation of areas of mineralization from unmineralized areas using suitable envelope constraints.
- The cause of an apparent bias between some of the old and new RC drilling should be confirmed to validate the inclusion of all samples in resource calculations.

#### Additional Closure Recommendations

The following information is needed to progress closure planning to the full feasibility level. The recommended work should be performed strategically so that decisions about closure can be made sequentially and at the appropriate phase of the project. The work items that are recommended for completion as part of the feasibility study are as follows:

- Waste and cover material hydraulic properties characterization and analysis;
- Improvement of the watershed hydrologic data collection system to enable an update of precipitation-yield characteristics of the site;
- Site-wide soils, closure cover, and reclamation material inventory and characterization to identify material sources, properties and balance; and
- Erosion and sediment control analysis.



#### Reclamation Material Inventory and Characterization

Tetra Tech recommends that site-wide inventories be conducted to identify reclamation materials. We recommend inventories of the following materials:

- Non-PAG waste rock and other waste materials on site:
- Clay and low-permeability soils;
- Undisturbed or slightly disturbed soils, stockpiled soils, and regolith;
- Durable rock rip rap and gravels;
- Acid-resistant drain rock; and
- Organic wastes and amendments, etc.

These inventories should be followed by field-tests to determine the materials suitability for the anticipated uses. The potential sources of closure materials a Mt. Todd include, but are not limited to:

- Production of waste covers, riprap, drain and low-permeability clay materials excavated from the pit during mining;
- Production of waste covers, riprap, drain and low-permeability clay materials excavated from the borrow areas;
- Production of organic soil amendments developed by composting organic waste such as feedlot manure, crop stubble, biosolids, wood waste from logging operations, etc.;
- Uncontaminated fill material in materials storage yards, roads, and ancillary facilities;
- Uncontaminated material excavated for creation of the WRD, RP1 and TSF diversions;
   and
- Soil salvage from the footprint of TSF2 (and the expansion of the WRD and Batman Pit).

Inventories should define the location, volume, properties, uniformity, retrievability, and where necessary, acid-resistance of all potential sources of reclamation materials on or immediately adjacent to the site. Due to the significant cost associated with the excavation, processing (if necessary), transportation and distribution of these reclamation materials, Vista should evaluate approximate haul distance and road grades between each potential closure material source and major closure areas. This process will eliminate some potential sources from further consideration.

When the properties, volume and viability of closure material sources are determined based on site inventories, material balance and costs should be developed and the results be integrated into the closure planning process. The suitability of many of the existing on-site sources of durable rock riprap and gravels, acid-resistant drain rock, low-permeability clays, and other material have already been evaluated by Vista and others. However, the size of these inventories will likely need to be expanded to address the volumes of materials needed for closure.

Standard test references should be used to guide the analysis to assess the suitability of potential sources of durable rock riprap and gravels, acid-resistant drain rock, low-permeability clays, and other materials (e.g., ASTM). Based on an initial assessment of materials contained in each potential cover source, representative material samples should be collected and the following material properties should be determined as appropriate for the intend use of the material.

#### Physical Parameters

- Particle size distribution (dry sieve and hydrometer for < 2mm fraction);</li>
- Atterberg limits;
- Specific gravity;
- Compaction curve (i.e. Proctor curve);
- Saturated hydraulic conductivity;
- Consolidation saturated hydraulic conductivity tests; and,
- Soil water characteristic curve (moisture release curves) tests.

#### Chemical Parameters

- pH (saturated paste and KCI);
- Electrical Conductivity (saturated paste extract);
- Bulk Density;
- Organic Carbon;
- Sodium absorption ratio;
- Cation (Anion) Exchange Capacity;
- Total Nitrogen;
- Nitrate-Nitrogen;
- Available Phosphorus;
- Soluble cations (K, Ca, Mg, Na);
- Exchangeable Bases (K, Ca, Mg, Na Fe, Mn, and Ti) and Aluminum; and
- Acid Base Accounting (additional analysis may be necessary if NNP < + 20 Tons CaCO3 equivalent/1000 tonne material or a neutralization potential ratio (NPR < 2).</li>

Inventories and chemical and physical characterization can be completed relatively quickly (i.e., ~6 months) at an estimated cost of \$50,000 to \$60,000.

#### Waste and Cover Material Erosion and Sedimentation Analysis

The erosion from tailings, waste rock, ancillary facility and closure covers should be evaluated to:

- Predict soil loss from facilities during operations and following closure;
- Develop and evaluate erosion and sediment control options; and,
- Predict the rate and magnitude of sediment loads to operational and closure storm water drainage systems (ponds, channels, sumps, etc.).

Vegetation monitoring data should be collected for the existing (and future) reclamation test plots. These data, and data from the characterization of waste and cover hydraulic properties should be used as inputs to empirical or process-based erosion and sedimentation prediction models (RUSLE, Water Erosion Prediction Project – WEPP, Erodibility Index Method, SEDCAD, and others) for the evaluation of facility drainage designs, sediment management plans and erosions and sediment control alternatives.



The estimated cost for these studies is between \$50,000 and 100,000.

# 26.2 Planned Work Commitments

The following planned work commitment was developed for the January 28 2011 PFS report. The timeline for completion was determined 12 to 18 months; at the time of this report approximately 18 months have lapsed. Tt would like to note that much of the proposed work plan from the January 28, 2011 report is either completed and/or ongoing as part of the Definitive Feasibility Study that Vista is in the process of completing

Vista, based on the above recommendations and their own work commitments, have developed a proposed work program to be completed during the next 12 to 18 months in order to advance the Batman Deposit through completion of a feasibility study. This program is detailed in TABLE 21-1. As with these types of programs, some of the specific work items are dependent on the results of earlier items, and it is expected that some adjustments to the program will be made based on initial results. It is Tetra Tech's opinion that the proposed program is designed to address the most significant issues detailed in the recommendations above, is logical in its approach and well thought out, and is representative of the level of financial commitment necessary to complete the proposed work.

TABLE 26-1: Proposed Work Plan and Budget VISTA GOLD CORP. – MT TODD GOLD PROJECT October 2012										
Description	Estimated Cost (Millions of \$)									
Batman Deposit Development Drilling	1.75 to 3.0									
Exploration on Exploration Licenses	0.75 to 1.25									
Permitting and Baseline Studies	2.5 to 3.0									
Metallurgical Testing	0.75 to 1.25									
Feasibility Study	4.8 to 5.2									
Water Treatment	7.0 to 9.0									
TOTAL	17.55 to 22.7									

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# **APPENDIX**

There are no appendices for this report.

