

## MANDALAY RESOURCES CORPORATION

# TECHNICAL REPORT ON THE CHALLACOLLO SILVER-GOLD PROJECT, REGION 1, CHILE

NI 43-101 Report

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## 1 SUMMARY

#### **EXECUTIVE SUMMARY**

Roscoe Postle Associates Inc. (RPA) was retained by Mandalay Resources Corporation (Mandalay) to prepare an independent Mineral Resource estimate and accompanying Technical Report on the Challacollo silver project (the Project or the Property), located in northern Chile. The purpose of this report is to support the acquisition of the Project from Silver Standard Resources Inc. (Silver Standard). On December 20, 2013, Mandalay announced the purchase of the Project from Silver Standard for a mix of cash, shares of Mandalay, deferred metal-denominated payments, and royalty payments. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA visited the Property on November 29, 2013. RPA previously visited the Property on June 26 to 28, 2002 in relation to the preparation of a Technical Report for Silver Standard.

The Challacollo silver project is an exploration-stage venture located in Region I, Northern Chile, which was controlled by Silver Standard through its 100% wholly-owned subsidiary Minera Silver Standard Chile S.A (MSSC). Under the terms of the agreement, Mandalay purchased all of the issued and outstanding shares of MSSC to acquire the Project. The transaction is expected to close in the first quarter of 2014.

#### CONCLUSIONS

RPA offers the following conclusions regarding the Project:

- The Project hosts a significant silver and gold mineralized system and there is good potential to further increase the resource.
- RPA is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other factors that could materially affect this resource estimate.
- Mineral Resources were estimated according to the Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves dated November 27, 2010 (CIM, 2010), and, in RPA's opinion, are compliant with NI 43-101.
- The Mineral Resources are reported at a silver equivalent (AgEq) cut-off value of 110 g/t AgEq based on a silver price of US\$24/oz and a gold price of US\$1,400 per ounce. RPA is of the opinion that these gold and silver metal prices are reasonable.



- Indicated Mineral Resources total 1.0 million tonnes averaging 242 g/t Ag and 0.40 g/t Au and contain 8.0 million ounces of silver. Inferred Mineral Resources total 3.9 million tonnes averaging 193 g/t Ag and 0.32 g/t Au and contain 24.3 million ounces of silver.
- The differences between RPA's 2002 and 2013 estimates are mostly due to the change in density, the change in cut-off grades, adding the 2003 drilling results, and the change from a 2D to 3D estimation approach.
- The grade tonnage curves for the combined Indicated and Inferred categories show that the Mineral Resources are sensitive to cut-off grades in the 50 g/t AgEq to 150 g/t AgEq range.
- The work done by Silver Standard during its underground sampling and drilling programs was satisfactory and the results generated are acceptable for use in the estimation of Mineral Resources. The quality assurance/quality control (QA/QC) procedures, however, need to be upgraded to meet current industry standards and more rigorous collar and down hole survey procedures should be implemented in the future.
- None of the Silver Standard drill holes from 2007 influence the resource estimate.
- More density test work should be carried out.

#### **RECOMMENDATIONS**

The Challacollo property hosts a significant silver resource and there is good potential to increase the resource. In RPA's opinion, the Challacollo property merits considerable more work to advance this Project. RPA makes the following recommendations and concurs with Mandalay's US\$6 million Phase 1 work program planned for 2014 (Table 1-1).

- Establish a QA/QC program for future drilling and underground sampling programs.
- Try to find and re-survey the 20 drill hole collars that were not re-surveyed in 2013.
- Survey the underground openings.
- Build a 3D wireframe of the underground openings.
- Build 3D lithology and structural wireframes.
- Build preliminary 3D wireframes for the other known veins on the Property to help guide future exploration drilling programs.
- Drill more holes to convert Inferred to Indicated, to expand the resource, and explore the Property.
- Do down hole surveys.



- Carry out additional density measurements.
- Re-assay the rejects or pulps for the five overlimit samples in hole CHAG-012.
- Investigate if it is possible to build separate wireframes for the veins and brecciated wallrock in the future with more drilling and underground mapping and sampling information.
- Start environmental and community baseline studies.
- Do more metallurgical testwork.
- Start mine design, costing, and engineering studies.

TABLE 1-1 2014 WORK PROGRAM BUDGET
Mandalay Resources Corporation – Challacollo Project

Item	US\$
Drilling (8,000 m to 10,000 m)	3,000,000
Surveying	100,000
Environmental, Social and Other Studies	300,000
Metallurgical Testwork	200,000
Engineering and Other Work	1,000,000
Operating costs/office	400,000
Sub-total	5,000,000
Contingency	1,000,000
Total	6,000,000

#### METALLURGICAL TESTWORK

Metallurgical testwork was done by Process Research Associates Ltd. (PRA) of Vancouver in 2004 as part of a scoping study by Kappes, Cassidy & Associates (KCA). The work included bottle roll tests to determine the appropriate grind, leach time, and sodium cyanide requirements. The work was done to inform the design of an agitated leach plant.

Based on the 2004 metallurgical testwork, RPA has assumed an 86% silver recovery and a 91% gold recovery to estimate the cut-off grade and silver equivalent (AgEq) equation.

#### MINERAL RESOURCES

The current Mineral Resource estimated by RPA for the Challacollo Project is summarized in Table 1-2. The Mineral Resources are reported at a cut-off value of 110 g/t AgEq. Indicated Mineral Resources total 1.0 million tonnes averaging 242 g/t Ag and 0.40 g/t Au and contain



8.0 million ounces of silver. Inferred Mineral Resources total 3.9 million tonnes averaging 193 g/t Ag and 0.32 g/t Au and contain 24.3 million ounces of silver. The effective date of the Challacollo Mineral Resource estimate is December 13, 2013.

TABLE 1-2 MINERAL RESOURCE ESTIMATE – DECEMBER 13, 2013
Mandalay Resources Corporation – Challacollo Project

Classification	Mt	Ag (g/t)	Au (g/t)	AgEq (g/t)	Ag (Moz)	Au (Koz)
Indicated	1.03	242	0.40	267	8.0	13.4
Inferred	3.9	193	0.32	214	24.3	40.1

#### Notes:

- 1. CIM definitions were followed for classification of Mineral Resources.
- 2. Mineral Resources are estimated at a silver equivalent (AgEq) cut-off grade of 110 g/t.
- Mineral Resources are estimated using a silver price of US\$24/oz and a gold price of US\$1,400 per ounce.
- 4. High silver and gold assay values were capped to 700 g/t Ag and 3.0 g/t Au, respectively.
- 5. A density value of 2.4 g/cm³ was used.
- 6. The silver equivalent equation was AgEq = g/t Ag + 63.97 \* g/t Au.

The estimated Mineral Resources are all contained in the Lolon Vein system. A nominal minimum grade of 50 g/t Ag and a minimum horizontal thickness of approximately two metres were used to constrain the resource wireframes.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors that could materially affect this resource estimate.

#### TECHNICAL SUMMARY

#### PROPERTY DESCRIPTION AND LOCATION

The Project is located in Region I (Tarapaca), Chile, and is centred about 130 km southeast of the major port city of Iquique, Chile, at 20° 57'10" S latitude, 69° 21'20" W longitude. The Project comprises 98 individual mining exploitation concessions (*mensuras*), which grant the owner the right to mine. The 98 concessions cover approximately 20,803 ha.

#### **HISTORY**

Work in the historical record of the Challacollo mining district dates back to the eighteenth century.



In 1896, the Gildemeister firm acquired all the known claims. During its production tenure between 1896 and 1931, Gildemeister built over 30 combined kilometres of infrastructure including a cable car and railway line to the Cerro Gordo railway station. Gildemeister worked at the mine sporadically until 1931 developing the Lolon Vein underground workings down to the 1,250 m level.

With silver prices relatively low, the main zone of mineralization was mined by artisanal miners (*pirquineros*) with no legal title between 1932 and 1980.

Gildemeister, as Minera Challacollo, returned in 1980 and exploited the existing dumps until early 1981. Production records to the end of December 1980 indicate that 250,000 t grading 660 g/t Ag and 1.43 g/t Au were extracted to that point.

In 1988, Minera Challacollo installed a 100 tpd pilot plant to produce silver "cement" for European export and to sell to Empresa Nacional de Mineria's (ENAMI) H. Videla Lira smelter in Copiapó, Chile. Within a year, the operation was self-sustaining but a drop in worldwide metal prices by early 1990 made the operation unprofitable. The use of trackless mining equipment necessitated the mine openings expand to four metres by four metres from two metres by two metres. Approximately 70,000 t was extracted and processed by flotation and agitation leaching. Higher grade ore (greater than 400 g/t Ag) was shipped directly to ENAMI's Pozo Almonte plant and lower grade material (approximately 250 g/t Ag) was processed on-site according to the former mine manager.

Empressa Minera Mantos Blancos (Minera Blancos) subsequently entered into its own Option to Purchase with Minera Challacollo from 1995 to 1996. Minera Blancos carried out exploration and drilling and in December 1996 terminated its option with Minera Challacollo.

In 1998, Minera Challacollo sold its rights to Minera Septentrion (Septentrion), which divided the Property into two claim groups. The larger of the two blocks lies to the southeast and was optioned by BHP in 1999 to explore its copper porphyry potential. Drilling was reported to have been done by BHP, but the Property was returned to Septentrion. In 2001, CODELCO optioned the southeast block and drilled over 20 reverse circulation (RC) drill holes in 2002 before terminating its option later that year.



The smaller block, which hosts silver and gold potential, was optioned to Silver Standard in November 2001. Silver Standard carried out drill programs on the Property in 2002, 2003, and 2007. RPA prepared a resource estimate technical report for Silver Standard in 2002.

#### **GEOLOGY AND MINERALIZATION**

The Property covers the entire Challacollo mountain range, which is an easterly-rotated structural block, bounded to the west by a north-south normal range-front fault. The Property is located at the south end of the Paleocene porphyry copper belt of northern Chile.

The Paleozoic and Mesozoic felsic volcanic and sedimentary rocks within the Challacollo Range dip approximately 25° to the southeast and strike approximately N30°E. The beds steepen locally near vein-faults such as the Lolon Vein (LV) where dips increase to as much as 50°. These vein-fault structures generally parallel the north-south trending normal faults, which bracket the Challacollo Range.

The Lolon Vein, which hosts all of the current resource, occupies a normal fault, now rotated to the east, which trends to the north-northeast and dips an average of 70° to 85° to the west. The east side of the Lolon fault is downcast with offsets of approximately 50 m to 60 m. The principal LV structure is intersected by several northwest-trending, west-dipping splay faults. Other veins on the Property were drilled by Mantos Blancos in 1996 and have some minor historical production.

The LV has been exploited to a depth of 230 m from the Lolon shaft. The LV system is hosted in various rock types along its more than three kilometre strike length. The most productive parts of the vein are hosted in latite-rhyolite and andesite rocks. The LV system is best described as a complex zone of silicified breccia cut by multiple quartz veins and surrounded by quartz stockwork veining. In many areas, the LV system comprises several veins. Where this occurs, stockwork can be found in the septum between veins. At the edges of the vein, there is generally more intense brecciation with a matrix of chalcedonic quartz followed outwards by a rapidly decreasing zone of quartz stockwork. The LV system averages approximately 20 m in width but can reach up to 40 m wide in some areas, narrowing to about 2 meters at depth.

The LV is composed of white to grey silica with massive white quartz and is locally opalinechalcedonic. There is evidence of repeated explosive brecciation and multiple phases of



veining. Locally, the vein is crushed and fragmented to the point it resembles gravel with partially rounded fragments. Other gangue minerals consist of amethyst, barite, calcite, clay, with minor sericite and fluorite. The LV system is oxidized down to about 180 m with complete leaching for tens of meters near the surface. The principal ore minerals are a complex suite of base and precious metal oxides (principally chlorargyrite), including native silver and gold. Where present, the sulphide content is estimated to be 1% to 2%, consisting of galena, sphalerite, chalcopyrite, and acanthite. There is a positive correlation between the value of the base metals (lead, zinc, and copper) and the precious metal content. Very little pyrite occurs within the vein system.

#### **EXPLORATION STATUS**

Exploration work completed by Silver Standard since optioning the Project in 2001 includes geological mapping, bulk density measurements, a Controlled Source Audio-frequency Magnetotelluric (CSAMT) geophysical survey, surveying, underground and surface sampling, and diamond and reverse circulation (RC) drilling.

The database for the Challacollo Project contains 133 drill holes from 1995, 1996, 2002, 2003, and 2007 with 7,586 samples and 105 underground channel traverses from 2002 with 528 samples.

RPA is of the opinion that there is good exploration potential on the Property to expand the current resource.



## **2 INTRODUCTION**

Roscoe Postle Associates Inc. (RPA) was retained by Mandalay Resources Corporation (Mandalay) to prepare an independent Mineral Resource estimate and accompanying Technical Report on the Challacollo silver project (the Project or the Property), located in northern Chile. The purpose of this report is to support the acquisition of the Project from Silver Standard Resources Inc. (Silver Standard). On December 20, 2013, Mandalay announced the purchase of the Project from Silver Standard for a mix of cash, shares of Mandalay, deferred metal-denominated payments, and royalty payments. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA visited the Property on November 29, 2013. RPA previously visited the Property on June 26 to 28, 2002 in relation to the preparation of a Technical Report for Silver Standard (RPA, 2002).

Mandalay is a Canadian-based mining and exploration company with producing assets in Australia and producing and exploration projects in Chile. Mandalay's business mandate is to discover, develop, and produce mineral commodities with a current emphasis on gold, silver, antimony, and copper. Mandalay is a listed and publicly traded company on the Toronto Stock Exchange (TSX) trading under the symbol MND. The Challacollo silver project is an exploration-stage venture located in Region I, Northern Chile, which was controlled by Silver Standard through its 100% wholly-owned subsidiary Minera Silver Standard Chile S.A (MSSC). Under the terms of the agreement, Mandalay purchased all of the issued and outstanding shares of MSSC to acquire the Project. The transaction is expected to close in the first quarter of 2014.

#### SOURCES OF INFORMATION

A site visit was undertaken by Luke Evans, M.Sc., P.Eng., RPA Principal Geologist on November 29, 2013. Mr. Evans was accompanied by Ronald Luethe, P.Geo., Mandalay General Manager, Juan Carlos Fernandez, Mandalay Geologist, John J. Selters, P.Eng., Silver Standard General Manager, and Guillermo Platt Zamora, Platt & Cía. Environmental Consultant. While on the site, RPA viewed the core and reject storage facilities, the historical infrastructure, and the underground channel sampling on a number of the underground levels.



The report was prepared by RPA Principal Geologist Luke Evans, M.Sc., P.Eng. Mr. Evans is an independent Qualified Person (QP) and is responsible for the entire report.

Discussions were held with the following personnel:

- Mr. Dominic Duffy, P.Eng., Mandalay Chief Operating Officer
- Mr. Ronald Luethe, P.Geo., Mandalay General Manager, Chile
- Mr. Juan Pablo Ulla, Mandalay Cerro Bayo Mine Geologist, Chile
- Mr. Juan Carlos Fernandez, Mandalay Exploration Geologist, Chile
- Mr. John J. Selters, P.Eng., Silver Standard General Manager, Chile
- Mr. Guillermo Platt Zamora, Platt & Cía. Environmental Consultant, Chile

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References.



#### LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the metric system. All currency in this report is US dollars (US\$) unless otherwise noted.

_		1.1.1.7.1.	Lilewett base
a	annum	kWh	kilowatt-hour
A	ampere	L	Litre
bbl	barrels	lb	pound
btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	$m_{2}^{2}$	square metre
cm	centimetre	m <sup>3</sup>	cubic metre
cm <sup>2</sup>	square centimetre	μ	micron
d	day	MASL	metres above sea level
dia	diameter	μg	microgram
dmt	dry metric tonne	μg m³/h	cubic metres per hour
dwt	dead-weight ton	mi	mile
°F	degree Fahrenheit	min	minute
g	gram	μ <b>m</b>	micrometre
Ğ	giga (billion)	mm	millimetre
gal	Imperial gallon	mph	miles per hour
g/L	gram per litre	MVA	megavolt-amperes
Ğpm	Imperial gallons per minute	MW	megawatt .
g/t	gram per tonne	MWh	megawatt-hour
ha	hectare	oz	Troy ounce (31.1035g)
hp	horsepower	oz/st, opt	ounce per short ton
hr	hour	ppb	part per billion
Hz	hertz	ppm	part per million
J	joule	RL	relative elevation
k	kilo (thousand)	s	second
kcal	kilocalorie	t	metric tonne
kg	kilogram	tpa	metric tonne per year
km	kilometre	tpd	metric tonne per day
km <sup>2</sup>	square kilometre	US\$	United States dollar
km/h	kilometre per hour	V	volt
kPa	kilopascal	w	watt
kVA	kilovolt-amperes	wt%	weight percent
kW	kilowatt	yr	year
	Tallo Tract	1 3.	, 500.



## 3 RELIANCE ON OTHER EXPERTS

This report has been prepared by Roscoe Postle Associates Inc. (RPA) for Mandalay Resources Corporation (Mandalay). The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this report,
- · Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Mandalay and other third party sources.

For the purpose of this report, RPA has relied on ownership information provided by Silver Standard, Mandalay, and a legal opinion by Philippi et al. (2014) dated January 2014. RPA has not researched property title or mineral rights for the Challacollo Project and expresses no opinion as to the ownership status of the Property.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.



## 4 PROPERTY DESCRIPTION AND LOCATION

The Project is located in Region I (Tarapaca), Chile, and is centred about 130 km southeast of the major port city of Iquique, Chile, at 20° 57'10" S latitude, 69° 21'20" W longitude (Figure 4-1).

#### LAND TENURE

The Project comprises 98 individual mining exploitation concessions (*mensuras*), which grant the owner the right to mine. The 98 concessions cover approximately 20,803 ha. The concessions cover one area that is prospective for precious metals (Codigo 32) and a second area that is prospective for copper mineralization (Codigo 83). As exploitation concessions, all concessions have indefinite duration. Mandalay is only required to pay an annual licence fee to keep them valid and in force. The Property list is provided in Table 4-1.

The Property boundaries form a roughly rectangular block which is aligned approximately north-south (Figures 4-2 and 4-3) and defined by the Universal Transverse Mercator (UTM) coordinates of the corners:

northwest corner 7,687,940 N, 461,380 E northeast corner 7,687,820 N, 466,375 E southeast corner 7,679,800 N, 466,280 E southwest corner 7,679,940 N, 461,275 E

Until the time of the Mandalay purchase, Silver Standard controlled the Project through its 100% wholly-owned subsidiary, MSSC, which acquired the Project from Mineral Septentrion of Chile (Septentrion) in 2003 under terms of an agreement dated November 16, 2001. A payment of US\$1.5 million was made to complete the option, however Septentrion retained a 2% Net Smelter Return (NSR) royalty, which can be purchased any time for US\$1,500,000 (adjusted for United States Consumer Price Index from 2001), on all concessions listed in the Option Agreement. This royalty increases to 3% after full payment of the NSR royalty obligations established in the Purchase Agreement of December 31, 1997 and due to Sociedad Contractual Minera Challacollo, now Finning. Finning holds an underlying 2% NSR (capped at an adjusted US\$850,000) for production on the Codigo 32 concessions (shown in



red on Figure 4-2) and 2% NSR (capped at an adjusted US\$850,000) for production on the Codigo 83 concessions (shown in blue on Figure 4-2).

TABLE 4-1 LIST OF CONCESSIONS

Mandalay Resources Corporation – Challacollo Silver Project

		Area		
N	Name	(ha)	National Role #	Year
1	CHALLA SUR 3, 1/40	200	01204-4206-6	2008
2	CHALLA SUR 4, 1/36	180	01204-4207-4	2008
3	CHALLA SUR 5, 1/60	300	01204-4208-2	2008
4	CHALLA SUR 10, 1/20	100	01204-4209-0	2008
5	CHALLA SUR 12, 1/4	4	01204-4210-4	2008
6	CHALLA SUR 13, 1/60	300	01204-4211-2	2008
7	CHALLA SUR 14, 1/60	300	01204-4212-0	2008
8	CHALLA SUR 15, 1/60	300	01204-4213-9	2008
9	CHALLA SUR 16, 1/60	300	01204-4214-7	2008
10	CHALLA SUR 17, 1/60	300	01204-4215-5	2008
11	CHALLA SUR 18, 1/60	300	01204-4216-3	2008
12	PANCHITA	5	01203-0067-9	2003
13	COMETA I	5	01203-0053-9	2003
14	COMETA II	5	01203-0053-9	2003
15	COMETA III	5	01203-0053-9	2003
16	SAN FÉLIX I	5	01203-0070-9	2003
17	SAN FÉLIX II	5	01203-0070-9	2003
18	SAN FRANCISCO	5	01203-0069-5	2003
19	ROSARIO	3	01203-0068-7	2003
20	PUNTA	5	01203-0065-2	2003
21	PALERMO	5	01203-0066-0	2003
22	MARINA	5	01203-0064-4	2003
23	LOLON	3	01203-0063-6	2003
24	HOSPITAL	4	01203-0062-8	2003
25	FROILANA	4	01203-0060-1	2003
26	ÉXITO	3	01203-0058-K	2003
27	ERNA	3	01203-0059-8	2003
28	CORNETA I	5	01203-0054-7	2003
29	CORNETA III	5	01203-0054-7	2003
30	CORNETA IV	5	01203-0054-7	2003
31	CARMELA	5	01203-0057-1	2003
32	CARMELITA	5	01203-0056-3	2003
33	CARLA	5	01203-0055-5	2003
34	CONSTANCIA	3	01203-0052-0	2003
35	BUENA ESPERANZA	3	01203-0050-4	2003
36	BELLAVISTA	5	01203-0051-2	2003
37	BELLAVISTA II	5	01203-0051-2	2003
38	ARENA	5	01203-0048-2	2003



		Area		
N	Name	(ha)	National Role #	Year
39	ALIDA	3	01203-0049-0	2003
40	HILDA	5	01203-0061-K	2003
41	PLOMO RONCO 1/98	490	01203-0122-5	2003
42	PLOMO RONCO 99/100	10	01203-0122-5	2003
43	ROSICLER DE PLATA 1/98	490	01203-0123-3	2003
44	SAN ENRIQUE 1/300	1500	01203-0124-1	2003
45	PANCHO 1/300	1500	01203-0121-7	2003
46	CALIXTO	50	01203-0072-5	2003
47	CALIXENA	50	01203-0071-7	2003
48	ESTRELLA 1 1-30	300	01204-2823-3	2007
49 50	ESTRELLA 2 1-30	300	01204-2824-1	2007
	ESTRELLA 3 1-30 ESTRELLA 4 1-30	300	01204-2825-K	2007
51 52	ESTRELLA 4 1-30 ESTRELLA 5 1-30	300 300	01204-2826-8 01204-2827-6	2007 2007
52 53	ESTRELLA 6 1-30		01204-2828-4	
53 54	ESTRELLA 7 1-30	300 300	01204-2829-2	2007 2007
54 55	ESTRELLA 7 1-30	300	01204-2829-2	2007
56	ESTRELLA 9 1-30	300	01204-2831-4	2007
56 57	ESTRELLA 9 1-30	300	01204-2832-2	2007
5 <i>1</i>	ESTRELLA 10 1-30	300	01204-2833-0	2007
59	ESTRELLA 11 1-30	300	01204-2834-9	2007
60	ESTRELLA 12 1-30	300	01204-2835-7	2007
61	ESTRELLA 14 1-30	300	01204-2836-5	2007
62	ESTRELLA 15 1-30	300	01204-2837-3	2007
63	ESTRELLA 16 1-30	300	01204-2838-1	2007
64	ESTRELLA 17 1-30	300	01204-2839-K	2007
65	ESTRELLA 18 1-30	300	01204-2840-3	2007
66	ESTRELLA 19 1-30	300	01204-2841-1	2007
67	ESTRELLA 20 1-30	300	01204-2842-K	2007
68	ESTRELLA 21 1-30	300	01204-2843-8	2007
69	ESTRELLA 22 1-30	300	01204-2844-6	2007
70	ESTRELLA 23 1-30	300	01204-2845-4	2007
71	ESTRELLA 24 1-30	300	01204-2846-2	2007
72	ESTRELLA 25 1-30	300	01204-2847-0	2007
73	ESTRELLA 26 1-30	300	01204-2848-9	2007
74	ESTRELLA 27 1-30	300	01204-2849-7	2007
75	ESTRELLA 28 1-30	300	01204-2850-0	2007
76	ESTRELLA 29 1-30	300	01204-2851-9	2007
77	ESTRELLA 31 1-30	300	01204-2853-5	2008
78	ESTRELLA 34 1-30	300	01204-2856-K	2007
79	ESTRELLA 35 1-30	300	01204-2857-8	2007
80	ESTRELLA 36 1-30	300	01204-2858-6	2007
81	ESTRELLA 37 1-30	300	01204-2859-4	2007
82	ESTRELLA 38 1-30	300	01204-2860-8	2007
83	ESTRELLA 39 1-30	300	01204-2861-6	2007



		Area		
N	Name	(ha)	National Role #	Year
84	ESTRELLA 40 1-30	300	01204-2862-4	2007
85	ESTRELLA 41 1-30	300	01204-2863-2	2007
86	ESTRELLA 42 1-30	300	01204-2864-0	2007
87	ESTRELLA 43 1-30	300	01204-2865-9	2007
88	JULIET PRIMERA 1-30	300	01204-2335-5	2007
89	JULIET SEGUNDA 1-80	800	01204-2336-3	2007
90	KILO PRIMERA 1-80	800	01204-2338-K	2007
91	ROSA UNO	5	01204-2413-0	2007
92	ROSA DOS	5	01204-2414-9	2007
93	ROSA TRES	5	01204-2415-7	2007
94	ROSA CUATRO	5	01204-2416-5	2007
95	ROSA CINCO Y SEIS	20	01204-2417-3	2007
96	ROSA SIETE Y OCHO	20	01204-2418-1	2007
97	ROSA NUEVE Y DIEZ	20	01204-2419-K	2007
98	ROSA ONCE Y DOCE	20	01204-2420-3	2007

Total area 20,803





#### 

Railroad





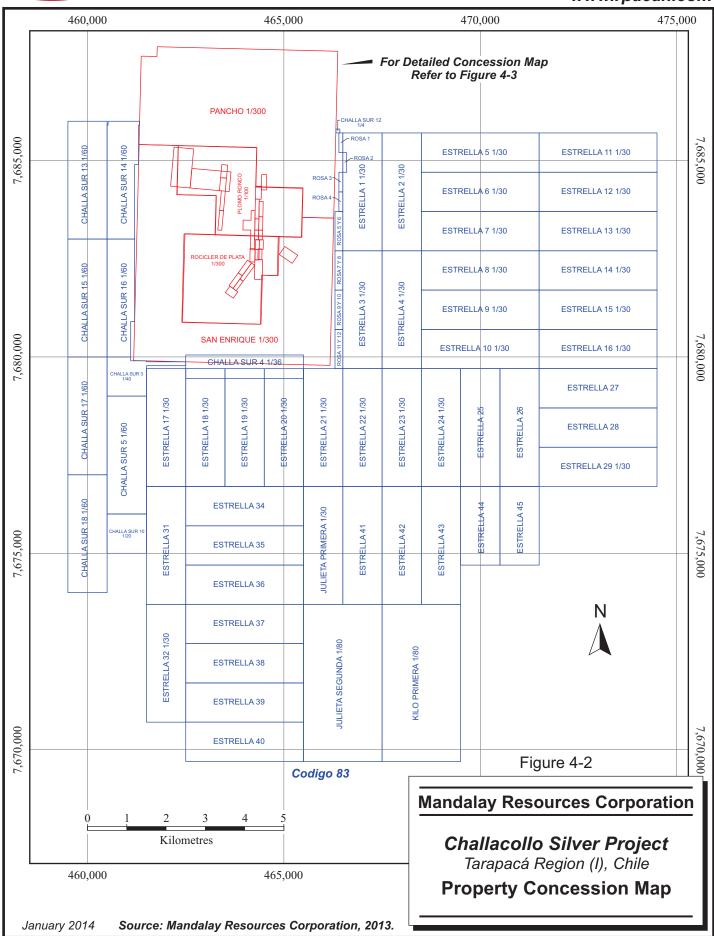
Source: Map No. 4395, UNITED NATIONS, 2010.

Figure 4-1

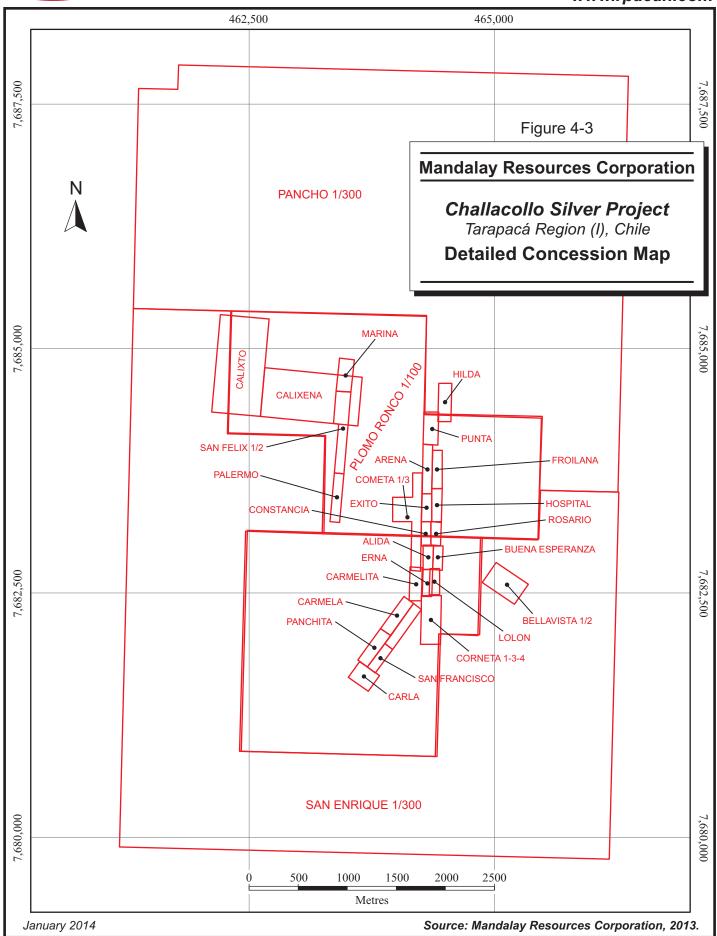
### **Mandalay Resources Corporation**

Challacollo Silver Project
Tarapacá Region (I), Chile
Location Map











The purchase agreement between Mandalay and Silver Standard, subject to regulatory approval, provides that Mandalay will acquire all the issued and outstanding shares of MSSC in exchange for consideration of:

- a cash payment of US\$7.5 million, payable on closing
- the issuing of 12 million common shares of Mandalay to Silver Standard on closing valued at US\$8.3 million (based on the Mandalay share price at the close of trading on December 19, 2013 and the Bank of Canada exchange rate on that same day of C\$1 = US\$0.9367)
- the issuing of five million common shares of Mandalay to Silver Standard at the end of the first quarter after commercial production starts on the Project
- an aggregate cash payment equal to the equivalent of 240,000 ounces of refined silver (payable in eight installments equal to the cash equivalent of 30,000 ounces of refined silver per guarter)
- a 2% NSR royalty on silver sold from the Project in excess of 36 million ounces with a cap or buyout of US\$5 million

Taxes are paid to Chilean government annually each March to maintain the mining concessions in good standing. The annual tax requirement is approximately US\$173,000. Mandalay has indicated to RPA that the subject concessions are currently in good standing and that all required payments to the Chilean government have been made.

RPA is not aware of any other obligations, royalties, back-in rights, payments, or other encumbrances.

#### **ENVIRONMENTAL LIABILITIES**

On November 29, 2013, Guillermo Platt Zamora, Environmental Consultant with Platt & Cía Consultores of Santiago, Chile (Platt & Cía) visited the Property to conduct an inspection. Platt & Cía reviewed the available literature on the Project and noted that the Project was not listed as a historical site. The Project is listed, however, in the Servicio Nacional de Geología y Minería (SERNAGEOMIN) Register of Environmental Liabilities based on the hazards associated with open cuts, potential for wall collapse in the workings, and potential accidents from abandoned material. SERNAGEOMIN does not list any liabilities associated with water pollution, dust generation, dam rupture, or collapse of waste dumps.



Platt & Cía concluded, based on its review of documents and its site inspection, that there is no evidence that the Project may be impacting on the soil, air, or water resources. Platt & Cía also observed that the Project area is devoid of woody vegetation and fauna.

Platt & Cía noted the presence of a graveyard on the Property. It was recommended that efforts be made to secure and protect the cemetery and that fences be erected around the open stopes to remove the hazards documented by SERNAGEOMIN (Platt & Cía, 2013).

RPA is not aware of any additional environmental liabilities on the Property. RPA is not aware of any significant factors and risks that may affect access, title, or the right or ability to perform exploration work on the Property.



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

The Project is located in the Atacama Desert plateau which is a long, narrow strip of land along the Pacific coast west of the Andes Mountains and is over 100,000 km<sup>2</sup> in area. The Challacollo Project lies at the base of the Andes Mountains at an elevation of 1,450 m.

#### **ACCESSIBILITY**

The Project can be accessed from the port city Iquique, Chile, which is the largest population centre in the vicinity and lies approximately 130 linear kilometres to the northwest of Challacollo. Iquique has, according to the 2012 census, approximately 182,000 inhabitants (<a href="https://www.data.un.org">www.data.un.org</a>). It is served by daily flights from Chile's capital Santiago and is the regional centre for supplies and services.

The Project is accessible by road from Iquique. Travelling east via Ruta 16 approximately 50 km is the intersection with the Pan American Highway (Ruta 5) approximately four kilometres north of the town of Pozo Almonte, Chile. Bearing south along the Pan American Highway, through Pozo Almonte, for approximately 30 km is the intersection with the paved Quebrada Blanca road near the town of Las Pintadas, Chile, which is approximately 15 km north of the town of Victoria, Chile. Thirty kilometres along this paved road is a turnoff onto a south-bearing unpaved historical oil exploration road which provides four-wheel drive access to the Project. The road crosses the Collahuasi Mine power and concentrate slurry lines and bears east. In approximately seven kilometres, turning south where the road splits leads to the Challacollo mill site. Due to the sand, which continually shifts and covers the roads in the area, a four-wheel drive vehicle is required if roads are not maintained.

#### **CLIMATE**

The Project is located in the Atacama Desert ecoregion, which is sparsely populated and one of the driest places on earth, with total annual precipitation of one millimetre (expressed in millimetres of water). Rain does fall during a period known as *Invierno Boliviano*, which occurs when thunderclouds accumulate over Bolivia and the Altiplano of Chile. Rarely precipitation in the form of snow occurs.



The Challacollo area has Normal Desert Type climate following the Koeppen classification, which is characterized by few clouds, relatively low humidity (an annual average of 39%), large diurnal-nocturnal temperature fluctuations, and almost complete lack of precipitation. Seasonal average temperatures range from 5°C to 20°C.

Strong convection currents are created during the day due to the heating of the desert and local salars causing the influx of cool coastal air. These conditions cause sand and dust storms to blow from the west and southwest but the activity dies down overnight as the desert cools. The sand blows up the western slopes of the Challacollo range and deposits on the lee slopes forming dunes and filling the drainages with metres of sand, which negatively impacts on road construction and exploration. Surface water is unknown except for rare flash floods.

#### LOCAL RESOURCES

The Guatacondo Ravine lies south of the Project and has flowing water in its upper reaches but dries up before reaching the Challacollo Range. Groundwater is prevalent in the vicinity, with the water table approximately four metres below the surface of the Salar de Pintadas. A well near the historical mill site intersected the water table but can be pumped dry within minutes. Silver Standard, however, holds water rights in two drill holes located near the Guatacondo Ravine, which intersected water at about 80 m depths. Water for drilling is normally accessed from shallow wells ten kilometres to the west at Cerro Gordo.

The Pan American Highway (Ruta 5) lies approximately 30 km to the west of the Project and provides a convenient means of conveyance for supplies and personnel. A high voltage electrical transmission line leading from the coast at Punta Pitache to the Collahuasi porphyry copper mine crosses the access road to the Project about 15 km to the north. A second high voltage power line originating at the electrical plant at Tocopilla, Chile, passes approximately 30 km to the west.

Skilled and unskilled labour is available in northern Chile and small population centres within one hour travel time could house these personnel.

#### INFRASTRUCTURE

There is no current infrastructure on the Property with the exception of the road network.



Power for the Project may be available from the transmission line 15 km to the north which services the Collahuasi Mine. Access to water resources is discussed below.

#### **PHYSIOGRAPHY**

The Atacama Desert has an average elevation of approximately 1,000 MASL. The rugged Challacollo Mountains are oriented north-south and rise about 500 m above the surrounding terrain to an elevation at the Property of approximately 1,500 MASL (RPA, 2002). Northern Chile is a seismically active area due to the interaction between the Nazca plate and the overlying South American plate. This interaction can lead to seismic events of substantial magnitude (KCA, 2004).

Despite the arid environment of the Atacama Desert, some cacti (Eulychnia), perennials (Nolana), and mesquite (Prosopis) occur in basins where occasional water accumulates. Faunal diversity and density is extremely low due to the harsh conditions. The few scorpions and insects are prey for lizards and passerine birds of the genus Geositta. The occasional raptor or vulture is encountered scavenging on carrion. Mammal species are rare with some mice and foxes found occasionally (World Wild Life Fund, 2013).

The climate, while harsh, will have little impact on exploration activities and eventually production. The Project has ample area for mining operations and potential tailings. The surface rights on the Project are adequate for the work proposed and grid power is available in relatively close proximity. An adequate amount of water for exploration and operations can be accessed from subsurface aquifers, principally Quebrada Guatacondo situated approximately 5 km south of the Project, and pumped to the site. In RPA's opinion, historical activities in the area demonstrate that work can be conducted year-round.



## **6 HISTORY**

This section was adapted from Henricksen and Smith (2002) and RPA (2002).

#### PRIOR OWNERSHIP

Work in the historical record of the Challacollo mining district dates back to the eighteenth century when Enrique Espinoza recognized the largest silver deposit found in Chile in 1770 (Geografia Descriptiva de la Republica de Chile, 4a Edicion, 1897). The first mining claim was recorded in the vicinity of the Project in 1772 (ownership unknown) and the San Gabriel vein was exploited that same year (Henricksen and Russell, 2002).

In 1896, the Gildemeister firm acquired all the known claims and commenced industrial-scale mining until 1931, albeit sporadically at times.

With silver prices relatively low, the main zone of mineralization was mined by artisanal miners (*pirquineros*) with no legal title between 1932 and 1980.

In 1980, Gildemeister, as Minera Challacollo, reasserted its legal claim and conducted work, as described in the next section, until the early 1990s.

Canada Tungsten Ltd. entered into an Option to Purchase agreement on the 34 *mensuras* in 1993 but allowed the option to lapse a year later.

Empressa Minera Mantos Blancos (Minera Blancos) subsequently entered into its own Option to Purchase with Minera Challacollo from 1995 to 1996. Minera Blancos carried out exploration and drilling as detailed in the next section and in December 1996 terminated its option with Minera Challacollo.

In 1998, Minera Challacollo sold its rights to Minera Septentrion (Septentrion), which divided the Property into two claim groups. The larger of the two blocks lies to the southeast and was optioned by BHP in 1999 to explore its copper porphyry potential. BHP drilled 21 RC holes, but the Property was returned to Septentrion. In 2001, CODELCO optioned the southeast block and drilled over 20 reverse circulation (RC) drill holes in 2002 before terminating its option later that year.



The smaller block, which hosts silver and gold potential, was optioned to Silver Standard in November 2001. Work done by Silver Standard is discussed in Sections 9 and 10 of the Report.

#### **EXPLORATION, DEVELOPMENT HISTORY, AND PAST PRODUCTION**

During its production tenure between 1896 and 1931, Gildemeister built over 30 combined kilometres of infrastructure including a cable car and railway line to the Cerro Gordo railway station. Gildemeister worked at the mine sporadically until 1931 developing the Lolon Vein underground workings down to the 1,250 m level (Clavo Rajo 2) at Challacollo Sur.

The amount of work done by the artisanal miners is unknown and no production records exist for the amount of ore extracted by them.

Gildemeister, as Minera Challacollo, returned in 1980 and exploited the existing dumps until early 1981. Production records to the end of December 1980 indicate 250,000 t grading 660 g/t Ag and 1.43 g/t Au were extracted to that point. Concurrent exploration work included an air magnetometer survey by the SERNAGEOMIN in 1982 which identified a strong magnetic anomaly over Cerro Challacollo (RPA, 2002).

In 1988, Minera Challacollo installed a 100 tpd pilot plant to produce silver "cement" for European export and to sell to Empresa Nacional de Mineria's (ENAMI) H. Videla Lira smelter in Copiapó, Chile. Within a year, the operation was self-sustaining but a drop in worldwide metal prices by early 1990 made the operation unprofitable. The use of trackless mining equipment necessitated the mine openings expand to four metres by four metres from two metres by two metres. Approximately 70,000 t was extracted and processed by flotation and agitation leaching. Higher grade ore (greater than 400 g/t Ag) was shipped directly to ENAMI's Pozo Almonte plant and lower grade material (approximately 250 g/t Ag) was processed on-site according to the former mine manager (RPA, 2002).

A ground magnetometer survey was conducted by Servicios Geológicos Geodatos S.A.I.C (GEODATOS) in 1992, which confirmed the magnetic anomaly identified by SERNAGEOMIN ten years earlier. A Controlled Source Audio-frequency Magnetotelluric (CSAMT) survey was also carried out by GEODATOS in 1992 and identified the Lolon structure and three main veins later extensively explored.



After optioning the exploration rights from Minera Challacollo in 1995, Minera Blancos conducted geological and geophysical studies and drilled approximately 3,000 m in 22 widely spaced RC holes in the northwest part of the Property. Ten of these tested the Lolon Vein, of which five were drilled in the central part of the vein between the Challacollo Sur portal and the Walkiria area. Three of these holes were used in a later resource estimate produced by Silver Standard (RPA, 2002).

After Minera Challacollo's sale to Septentrion, and Septentrion's subsequent division of the land package into two blocks, BHP optioned and later drilled 21 RC holes on the southeast block in 2000. The ground was eventually returned to Septentrion.

This same block was later optioned by CODELCO in late 2001 and 20 RC holes were drilled. CODELCO dropped the Property in March 2002.

#### HISTORICAL RESOURCE ESTIMATE

In 2002, RPA prepared a NI 43-101 compliant estimate of Mineral Resources by the polygonal method using a longitudinal section for polygon compilation (Table 6-1). A total of 123 polygons were constructed around each underground sample station and drill hole intercept on the Lolon Vein system. Mined out areas were excluded from the resource estimate. Each portion of the polygon within 25 m of a sample was classified as an Indicated Resource and a 50 m radius defined an Inferred Resource. Exceptions were made in the shaft area and along two mineralized shoots, which were projected to the depth of the workings at 1,250 m elevation (RPA, 2002). The resources were estimated based on assay values that were capped at 826 g/t Ag and a density of 2.7 g/cm³.

TABLE 6-1 HISTORICAL RESOURCE ESTIMATE PRODUCED BY RPA, 2002

Mandalay Resources Corporation – Challacollo Silver Project

Category	Mt	Silver Grade (g/t Ag)	Contained Silver (Moz)
Indicated	2.21	202	14.4
Inferred	4.2	182	24.4

Source: RPA, 2002

Note. CIM definitions were followed for Mineral Resources.



This historical estimate is superseded by the current Mineral Resource estimate in Section 14 of this report.



## 7 GEOLOGICAL SETTING AND MINERALIZATION

This section is derived from RPA (2002), Henricksen and Smith (2002) and Mine Development Associates (MDA) which evaluated resource information provided by Silver Standard as a component of the Kappes, Cassidy & Associates (KCA) Scoping Study (KCA, 2004).

#### REGIONAL GEOLOGY

The Property covers the entire Challacollo Range of mountains. The eastward-shifting Pacific (Nazca) Plate is subducting the more rapidly westward-shifting South American Plate. The Challacollo Range is a block tilted and uplifted by this process on the eastern edge of the Intermediate Depression de Tarapaca (IDT). The IDT is a topographic low at the base of the Andean Mountain east of the steeply rising Coast Range which peaks about 1,000 m above the coastline (RPA, 2002).

The Salar de Pintadas and the Salar de Belleviste lie along the western edge of relatively flat planar surface west of the Challacollo Range. These salars were formed by water trapped behind the uplifted Coastal Range. East of the Project, the topography steps up in faulted blocks topped by pediment eventually meeting the steep rising mountains of the Andes. Tertiary age ignimbrites have been deposited on much of the western slopes of the Andes covering the underlying older volcanics and intrusives (Henricksen and Smith, 2002). The Challacollo Range is bounded to the west by a north-south normal range-front fault (KCA, 2004).

The Property is located on the south end of a strong north-south lineament that intersects the Cerro Colorado porphyry copper deposit (owned by BHP Billiton Limited (BHP Billiton)), the Sagasca copper mine (owned by Haldeman Mining Company S.A. (HMC)), and the Mocha porphyry copper prospect. The Project also lies to the west along another cross-cutting east-west lineament, which can be postulated between Collahuasi (dominantly owned by Anglo American PLC and Xstrata PLC), Quebrada Blanca (owned by Teck Resources Ltd.), and the Copaquire copper-molybdenum prospect (jointly owned by International PBX Ventures



Ltd. and OZ Exploration Chile Limitada). Strong east-west fracturing along this lineament is noted on all the properties. In addition, a northwest-trending transcurrent fault lying approximately 60 km to the south of the Project, which passes through the Chuquicamata porphyry copper deposit, may be the cause of the prominent northwest-trending fracture pattern observed at Challacollo (RPA, 2002).

#### PROPERTY GEOLOGY

The rocks within the Challacollo Range dip approximately 25° to the southeast and strike approximately N30°E. The beds steepen locally near vein-faults such as the Lolon Vein (LV) where dips increase to as much as 50°. These vein-fault structures generally parallel the north-south trending normal faults which bracket the Challacollo Range (KCA, 2004).

Three main rock units are found at Challacollo:

- the Challacollo Volcanic Complex (CVC)
- the Challacollo Strata (CS)
- the Challacollo Intrusive Group (CIG)

The CVC unit hosts the majority of the mineralized veins on the Property and consists of a Lower Member (which hosts the LV) and an Upper Member. Layered latite-rhyolite, dacite, and andesite rocks comprise the Lower Member, which has local intercalations of conglomerate, andesitic wackes, sandstones, and fissile shale rocks up to two metres thick. The Upper Member consists of a thinly to thickly bedded sequence of alternating rocks of conglomerate, sandstone, and shale composition. Within this sedimentary pile, thin layers of rhyolite and dacite volcanic flow rocks occur locally. The Upper Member represents a continental sedimentary domain.

The CVC rocks dip to the southeast at approximately 20° and are cut by hypabyssal diorite to granodiorite rocks of the CIG and by dikes and sills of microdiorite to microgranite composition.

The latite-rhyolite Lower Member rocks exhibit local flow banding and eutaxitic textures with flattened pumice indicating at least a partial pyroclastic origin. These are locally silicified west of Cerro Challacollo indicating silica-bearing fluids moved up dip along the tuffs away from the LV. Outcroppings of bedrock dacite occur east of the LV near Cerro Challacollo and sit stratigraphically above the latite rocks which are cut by the Lolon structure. Evidence



from drilling suggests that the Lower Member contains a thicker sedimentary component consisting of fine-grained siltstone with minor sandstone units up to 25 m in thickness, which sits above a thin basal andesitic unit (RPA, 2002). This sedimentary unit acts as a useful stratigraphic marker that can be traced across the Property (KCA, 2004).

The CS unit outcrops in the northwest and north-central part of the Property. Previous workers have divided it into three members (Lower Member, Middle Member, and Upper Member). Its contact relationship with the CVC is uncertain, but the presence of ammonoid fossils indicates that the unit is Upper to Middle Jurassic in age. Calcareous sandstone and shale sedimentary rocks with rare limestone intercalations comprise the Lower Member. The Middle Member is composed of shales and concretion-bearing limestones with intercalated calcareous fossiliferous sandstone rocks. The Upper Member consists of sedimentary rocks of sandstone and calcareous shale with intercalated limestone including a contact metamorphosed zone adjacent to the hypabyssal CIG composed of diorite and granodiorite rocks. The rocks are dipping to the southeast at 10° to 60° with a north to northeast strike of 20° to 60°. Based on recent age-dating, the deposition of these rocks is Jurassic (Oxfordian-Titonian) and they are now designated Challacollo Formation (Blanco et al., 2012).

The CIG outcrops in the southern and western aspects of the Property and cuts both the CVC and the CS units. It consists of fine- to medium-grained porphyritic to phaneritic textured diorite and granodiorite rocks. These rocks have been dated by Neimey and Veliz (1996) as Upper Cretaceous in age (RPA, 2002).

#### ALTERATION

Silicic volcanic rocks in the southeast part of the Challacollo Range are argillically altered as has been observed from remote satellite imaging. Hydrothermal alteration associated with the epithermal silver vein at Challacollo is weak. Silicification occurs locally and is only observed within the andesitic tuffs and wackes north of Cerro Challacollo. This is evident from erosion resistant silicified beds protruding from the hill slopes (RPA, 2002). In many cases, zones of quartz stockwork surround quartz veins which contain precious metal mineralization. Higher silver grades are associated with zones of more abundant quartz stockwork and silicification (KCA, 2004). Only minor alteration and mineralization occur in footwall rocks lying east of the LV (Smith, 2003). The alteration has been dated at 68±3 Ma (Blanco et al., 2012).



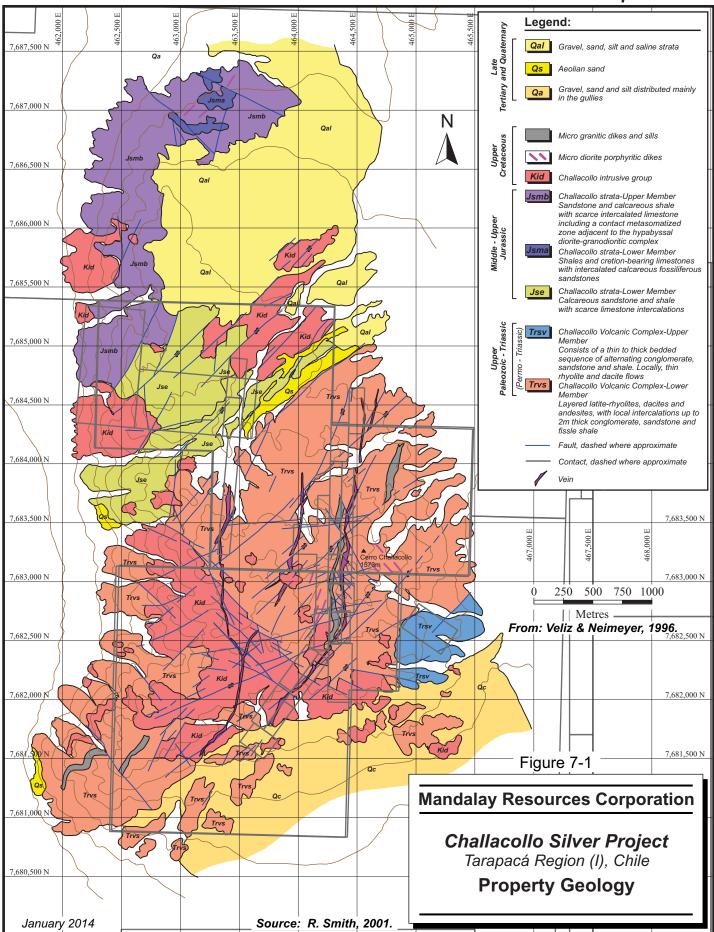
Alteration within the CIG is propylitic with chlorite-epidote and magnetite mineralization observed. Host rocks intruded by the CIG display contact metasomatism in the northwest part of the Property.

#### STRUCTURE

There are two main structural elements which have influenced mineralization at Challacollo, one trending to the northwest and the other to the northeast. Both are regional-scale strike-slip (shear) faults. The stresses created by these structures have resulted in local stresses which have caused fracturing. One set strikes preferentially N30°E and is related to the Late Cretaceous-Early Tertiary Andean tectonic cycle. This set is associated with Oligocene-age mineralization and is subvertical. The other set of shear-faults trends to the northwest, is subordinate to the northeast-trending structures, and is Triassic in age. The latter structures appear to be associated with the stresses which accompanied the emplacement of the granodiorite-diorite intrusives into the rocks underlying the south-central part of the Property. Where the two structural sets intersect a subordinate north-south-trending dilational (extensional) faults developed which were later in-filled by mineralization.

The LV, which hosts the main mineralization, occupies a tilted normal fault which trends to the north-northeast and dips an average of 70° to 85° to the west. The east side of the normal fault is downcast and the LV is intersected by northwest-trending, west-dipping faults. The offset on the Lolon structure is approximately 50 m to 60 m.







## **MINERALIZATION**

Four principal veins (LV, Palermo, Gladys 1, and Gladys 4) are present on the Property. The LV is the most significantly mineralized and has been exploited to a depth of 230 m from the Lolon shaft on the Challacollo Sur workings. This same structure has been mined to shallower depths in the Buenaventura, Catalina, Walkiria, San Francisco, and Humberto workings. The other veins on the Property were drilled by Mantos Blancos in 1996 and have some minor historical production.

The LV generally trends north-south to northeast-southwest from the San Francisco working at the southern end of the Property to the Humberto workings to the north. The section of the LV between the Challacollo Sur and the Humberto workings pinches and swells and trends generally north-south to north-northeast (RPA, 2002). The LV splits into two at locations along the structure and cuts the Lower Member of the CVC (KCA, 2004).

The LV system was mined more extensively between the Challacollo Sur portal and the Catalina area and stoped from the surface down to approximately 40 m depth for almost this entire length. South of the Challacollo Sur portal the Lolon structure swings more westerly toward the San Francisco workings. Little or no mining and exploration was done along this segment of vein except in the immediate area surrounding the San Francisco workings.

The LV system (Figure 7-2) is hosted in various rock types along its more than three kilometre strike length. The most productive parts of the vein are hosted in latite-rhyolite and andesite rocks. The LV system is best described as a quartz breccia composed of multiphase silica which is surrounded by quartz stockwork. The stockwork, generally, does not extend deeply into the adjacent wall rocks. In many areas, such as Buenaventura and Catalina/Walkiria, the LV system comprises several veins. Where this occurs, stockwork can be found in the septum between veins.

At the edges of the vein there is generally more intense brecciation with a matrix of chalcedonic quartz followed outwards by a rapidly decreasing zone of quartz stockwork. The LV system averages approximately 20 m in width between the north end of the Catalina workings to the Challacollo Sur workings but can extend up to 40 m wide because of crossfaulting.



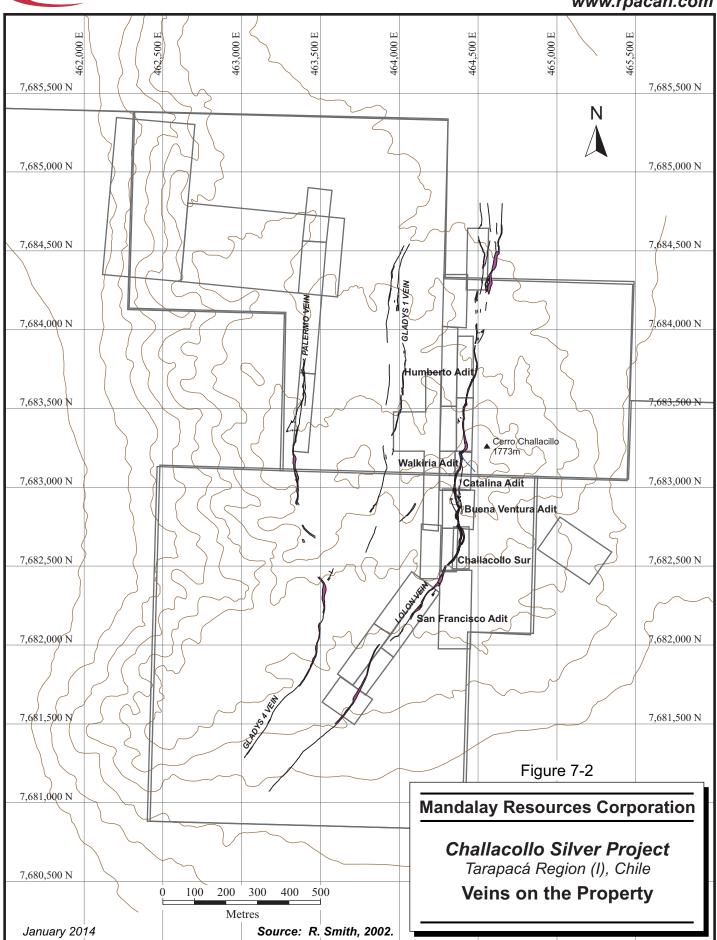
The LV is composed of white to grey silica with massive white quartz and is locally opaline-chalcedonic. There is evidence of repeated explosive brecciation and phases of veining. Locally the vein is crushed and fragmented to the point it resembles grus or gravel with partially rounded fragments. Locally amethyst, barite, calcite, clay, and very minor sericite occur.

Sulphide-rich vein breccia follows the hanging wall and footwall. Sulphide content is estimated to be 1% to 2%. There is a positive correlation between the value of the base metals (lead, zinc, and copper) and the precious metal content. Very little pyrite occurs within the vein system (RPA, 2002). The highest grade mineralization, generally, follows the footwall of the LV. If the vein has split, higher grade silver values are found associated with the rocks proximal to the footwall split, or the vein to the east, rather than those on the hanging wall (western) side of the split (Smith, 2003).

At the Challacollo Sur workings, the LV is oxidized down to approximately 180 m below surface, however, between 40 m and 180 m in depth the vein is secondarily enriched with silver. Within ten metres of surface, there is local intense leaching of the vein. In parts of the vein where the adjacent wall rock is fractured, silver grades are elevated for two metres to four metres into the hanging wall and/or footwall. Gold values decline more dramatically at the edge of the vein than silver values. Silver-gold ratios within the vein relative to the oxidation level remain relatively constant. This ratio, however, is much higher in the surrounding wall rock close to the vein. Gold grades within the LV average approximately 0.3 ppm Au.

The Palermo, Gladys 4, and Gladys 1 veins have been mapped by previous workers and were reconnaissance drilled by Mantos Blancos in 1996. The Lucy Vein was mapped by Silver Standard in 2003. Other minor veins have been observed on the Property but have not been mapped or described.







## **8 DEPOSIT TYPES**

The characteristics of the mineralization displayed at Challacollo are similar to those encountered in low-sulphidation epithermal (LSE) silver-gold vein deposits (RPA, 2002). An illustration of a typical system is shown in Figure 8-1. Most LSE deposits, which include about 60% of the world's bonanza veins, are associated with bimodal (basalt-rhyolite) volcanic suites in a variety of extensional tectonic settings (Sillitoe and Hedenquist, 2003).

Low-sulphidation epithermal deposits are genetically linked to bimodal volcanism and are formed from extremely dilute fluids which are spatially associated with magmas where economic grade gold deposition occurs several kilometres above the site of the intrusion. Geothermal waters with near neutral pH and reduced deep fluids, which are essentially in equilibrium with the altered host rocks, combine and precipitate vein minerals. The slow ascent of the deep fluids in the rock-dominated hydrothermal system allows for this equilibrium to be achieved. The deep fluids are low-salinity and may be rich in gases such as  $CO_2$  and  $H_2S$ . Limited dimension alteration zones formed dominated by minerals produced in neutral pH environments such as quartz, adularia, carbonates, and sericite. These liquids discharged at surface as boiling, neutral pH hot springs which deposited silica sinter (MDA, 2009).

Regional-scale fracture systems related to grabens, (resurgent) calderas, and flow-dome complexes are typical of the depositional environment. Extensional structures such as normal faults, fault splays, ladder veins, and cymoid loops are common. Locally, graben or caldera-fill clastic rocks are present. High-level subvolcanic intrusives in the forms of stocks or dykes are present and pebble diatremes are sometimes present. Underlying intrusive bodies may be related to the presence of resurgent or domal structures (Yukon Geological Survey, 2005).

Hydrothermal alteration typically consists of quartz-adularia ± sericite "silicification" adjacent to veins, grading outward to chlorite-calcite-epidote "propylitic" and/or illite-smectite mixed-layer clay "argillic" alteration. The veins typically exhibit open-space filling textures, crustiform, comb structure, colloform banding, and multiple episodes of brecciation.



A fluid inclusion study by SERNAGEOMIN in March 1997 concluded that the mineralization at Challacollo is part of an epithermal low-sulphidation mineralization system with a filling temperature range from 198° to 298°C and salinity ranging from 1.8 to 3.0 weight percent NaCl (RPA, 2002).

#### **Textures Exploration Model - Epithermal Veins (Deep Heat Source)** Breccia environment - may contain fragments from Bonanza Zone steam carbonate spring Calcite casts and quartz pseudomorphs sinter mound 0 sinter paleosurface Hypogene oxides Carbonate zone Chalcedony Superzone massive to granular calcite with chalcedony silicification "silica cap' 100m Blended zone massive chalcedony with patches of lattice blades Massive chalcedony zone 200m increased banding with depth Elevation below Paleaurface 300m Metals precipitating from boiling fluid stockwork Upper zone chalcedonic to microcrystalline bands ores local to widespread breccias Crustform - Colloform Superzone dominate over crystalline bands with fine-grained banded sulfides Precious metal of mineralized horizon 500m (up to 500 m) Lower zone crystalline bands dominant over chalcedonic and 600m microcrystalline bands with associated comb andesite adularia and disseminated crystalline Increasing complexity sulfides and sulfide bands 700m Boiling point Bubble point Crystalline Superzone Base metal (first boil) contained quartz with macular adularia horizon coarse-grained sulfides and carbonate; Pb, Zn, Cu general decrease in sulfides and adularia and increase in crystalline Ag & Au carbonate interstitial to crystalline quartz with depth

Figure 8-1

## **Mandalay Resources Corporation**

Challacollo Silver Project
Tarapacá Region (I), Chile
Epithermal Deposits

Source: Adapted from Bucannan, Holister 1985, Eimon 1983, Anaconda 1983.



## 9 EXPLORATION

Mandalay has not carried out any exploration on the Property, apart from bulk density testwork carried out in 2013 and discussed in Section 14 of this report.

Exploration work done by Silver Standard since optioning the Project in 2001 includes geological mapping, bulk density measurements, geophysical study, surveying, underground and surface sampling, and diamond and reverse circulation (RC) drilling. The current Mineral Resource estimate is based on results of this work.

The sampling and drilling work is detailed in Section 10.

#### GEOLOGICAL MAPPING

Geological mapping was done using a tape measure and Brunton compass on both surface and underground exposures of the LV. Over two kilometres along the vein and 100 m on both sides were mapped along surface. Underground, approximately 4,445 m of workings were mapped (RPA, 2002).

In 2003, Silver Standard conducted another geological mapping program in conjunction with drilling a series of RC holes. Approximately four square kilometres were mapped. The mapping further defined the geology of the rocks underlying the Project. The Lucy Vein was mapped for the first time over a distance of 600 m and was tested as part of the 2003 drilling (Smith, 2003).

#### SPECIFIC GRAVITY/BULK DENSITY

Six core samples from the original Silver Standard drilling and two RC samples from the 2003 drilling comprised the eight samples in the density testwork program. All the samples, with the exception of CHAG-3.3, were mineralized vein and/or quartz stockwork material. The unmineralized sample was typical latite-rhyolite wall rock. The specific gravity and bulk density averages for the eight samples were 2.76 g/cm³ and 2.74 g/cm³, respectively (Smith, 2003). The procedures used for the 2003 density testwork on the core and RC samples are not available. This density data has been superseded by density testwork done in 2004 by



Process Research Associates Ltd. (PRA) as part of the metallurgical testwork (PRA, 2004) and by additional density testwork completed in late 2013 by Mandalay. The PRA and Mandalay density results are discussed under Section 14.

## **GEOPHYSICAL SURVEY**

Quantec Geoscience Chile Ltda. (Quantec) performed a CSAMT Survey along a two kilometre line bearing approximately N70°E. The purpose of the survey was to locate the East Range Front Fault and to investigate for any resistive rock which could be the site of silver-bearing porphyry or epithermal silver-bearing target.

The CSAMT was successful in locating the structure but did not indicate any presence of a large mineralized system. It did, however, indicate possible mineralized structures between the lines of 0 E and 600 E which coincided with mineralization noted in the geological mapping program. A zone of resistivity was identified which might indicate silicification, but no samples were taken to follow up this finding (Smith, 2003).

## **SURVEYING**

JRC Servicio de Ingenieria y Topografia (JRC) of Iquique was engaged to survey the Property including all roads, open cuts, drill sites, and drill hole collars which included many of the Mantos Blancos drill holes. JRC also surveyed the underground workings on the LV and the underground sample stations which allowed for the calculation of the true sample distance.

The surface expression of the LV was surveyed and these data were compiled with the other survey data and topography to produce a base map for geological mapping. All previous maps were redrafted to incorporate the new information and correct to the new survey data (Smith, 2003).

In 2013, Silver Standard re-surveyed most of the drill hole collar positions. Some of the resurveyed holes required position adjustments from six metres to 20 m and some of the holes surveyed had significant differences in collar dips and azimuths.



## **EXPLORATION POTENTIAL**

RPA is of the opinion that there is good exploration potential on the Property to expand the current resource.



## 10 DRILLING

## DRILLING SUMMARY

Overall, 133 diamond and RC drill holes totalling approximately 23,849 m were drilled on the Property from 1995 to 2007 (Table 10-1). In addition, 105 underground channel traverses were taken in 2002. Figures showing the drill holes are included in Section 14.

TABLE 10-1 DRILLING SUMMARY

Mandalay Resources Corporation – Challacollo Silver Project

Year	Number	Туре	<b>Company Name</b>	Length (m)
1995	6	RC	Minera Blancos	1,687
1996	16	RC	Minera Blancos	1,969
2002	7	DDH	Silver Standard	746
2002	16	RC	Codelco	3,985
2002	18	RC	Silver Standard	2,562
2003	32	RC	Silver Standard	5,685
2007	38	RC	Silver Standard	7,215
Total	133			23,849

#### SAMPLING

Sampling work done by Silver Standard in 2001 resulted in over 1,100 samples. These were taken under supervision of a QP as defined by NI 43-101. Each sample was a minimum of five kilograms in mass and was chipped using rock hammers and/or chisels from underground and surface exposures. The methods employed were considered by RPA to be industry standard at the time and representative of mineralization.

Rock chip samples averaged two metres in length and were taken at a mean sample interval of 25 m along the underground workings that resulted in approximately 920 samples being collected. Samples were taken across the back from one wall to the other by a three person crew using ladders and scaffolding. Nylon tarps were laid on the floor of the drift to collect the chip samples. Open cuts, obviously, could not be sampled across the back. Deeper parts of the mine were accessed by lowering personnel down the shaft to using a boom truck and a custom constructed metal cage.



Surface sampling was done in selected areas in order to check the widths of the LV beyond the stoped areas and to investigate mineralization along strike to the north and south. Most surface samples were five metres in length but some were two metres long. More than 200 samples were taken.

The results of the sampling program (from Henricksen and Smith, 2002) included:

- The LV often splits into two or more parallel veins within the Lolon "structure", which is mineralized for more than two kilometres in length
- Silver mineralization continues two to four metres on both sides of the veins into the adjacent host rocks
- Examination of the underground workings revealed that historical miners often drifted through lower grade material to reach higher grade rock at footwall and hanging wall contacts.

The results generated from this work were used in the 2002 Mineral Resource estimate and make up part of the database used for the Mineral Resource estimate that is the subject of this report.

## 2002 DRILLING

Silver Standard contracted Major Drilling Chile S.A. (Major) to conduct the initial 25 hole program which totalled 3,308 m in aggregate length. An initial seven hole 746 m drill core program was drilled early in 2002. The holes were collared with HQ-diameter (63.5 mm), but when ground conditions dictated, the diameter was reduced to NQ-size (47.6 mm). A follow-up RC drilling program totalling 2,562 m in 18 holes was done later that year with the objective of in-filling the widely spaced core holes of the original program (Smith, 2003).

All 2002 holes were drilled at an angle to the east in order to intersect the steep westerly dipping LV. The purpose of the program was to increase the number of, and confidence in, the LV assay values. The holes all targeted the central portion of the vein structure. RPA notes that Silver Standard did not conduct downhole surveys for either the core or RC holes for the first two phases of drilling (RPA, 2002).

Drill core was logged, and mineralized zones sampled, on site. The Silver Standard geologists logged and photographed the drill core. A standardized drill log form was used to record the observed data including collar information, survey data, lithological intervals, rock



type, oxidation state, structure, and alteration type. A column was also dedicated to a graphic depiction of the core. The logging geologist marked out the individual samples, generally at two metre intervals, and the core was cut in half longitudinally with one half placed in a labelled sample bag for shipment and the remaining half-core placed back in the core box for reference. The reference core was stored securely in Pica, Chile, a small community close to the Project. The samples for analysis were stapled and placed into nylon woven bags. Once sufficient samples were collected, the nylon bags were transported by company vehicle to Pozo Almonte where they were shipped to the respective laboratory via independent commercial carriers (Henricksen and Smith, 2002). Significant assays from the program are shown in Table 10-2.

TABLE 10-2 SIGNIFICANT ASSAYS 2002 DRILL PROGRAM Mandalay Resources Corporation – Challacollo Silver Project

Hole Number	From (m)	To (m)	Interval (m)	Horizontal Thickness (m)	Ag (ppm)	Au (ppm)
CHAG-003	84.00	106.00	22.00	18.3	193.4	0.06
CHAG-004	64.00	90.00	26.00	20.0	347.5	0.04
CHAG-005	20.00	36.00	16.00	11.2	131.6	0.03
CHAG-006	32.00	40.00	8.00	5.7	110.2	0.04
CHAG-007	53.00	58.50	5.50	3.9	71.9	0.02
CHAG-008	43.37	47.00	3.63	3.3	82.7	0.44
CHAG-009	65.00	82.11	17.11	8.8	94.0	0.04
CHAG-010	122.00	127.00	5.00	4.2	67.2	0.70
CHAG-011	176.00	180.00	4.00	3.1	100.7	2.18
CHAG-012	136.00	146.00	10.00	8.4	86.7	0.03
CHAG-013	142.07	167.97	25.90	20.4	234.8	0.21
CHAG-014	137.00	146.00	9.00	7.6	128.4	0.25
CHAG-015	128.00	175.00	47.00	31.3	233.3	0.35
CHAG-016	122.00	134.00	12.00	9.5	218.6	0.44
CHAG-017	137.00	142.00	5.00	3.3	369.4	0.89
CHAG-018	171.00	185.00	14.00	7.6	143.4	0.15
CHAG-019A	4.18	12.00	7.82	6.9	442.8	0.72
CHAG-019B	4.00	11.00	7.00	6.6	341.4	0.81
CHAG-021	121.00	143.00	22.00	11.7	145.5	0.20
CHAG-022	117.00	136.00	19.00	12.8	218.3	0.09
CHAG-023	36.00	52.00	16.00	9.6	276.9	0.27
CHAG-024	125.00	137.00	12.00	1.5	39.2	0.28
CHAG-025	98.00	109.00	11.00	9.3	51.7	0.10



## **2003 DRILLING**

Thirty-two RC holes were drilled for an aggregate length of 5,685 m between March and June. The work was done by Major and these holes were designed to in-fill holes from the previous programs as well as test deeper and shallower elevations. The shallow holes were drilled in an effort to decrease the dependency or eliminate the use of the underground channel samples that did not extend across full mineralization widths in the resource estimate. Intermediate holes were drilled to in-fill the longitudinal section. Deeper holes were designed to test the limits of the mineralization at depth. Three holes were also drilled into other targets. Two tested the Gladys 1 Vein and a third hole tested the Lucy Vein.

Sampling of the RC drill chips was done by Major personnel. Samples were taken every metre for holes that were less than 150 m long. For longer holes, a sample was taken every two metres for the first 100 m to 150 m and then every metre after to the end of the hole.

Each sample was split using a splitter and sub-samples were placed in separate bags weighing approximately three to five kilograms. One sample was stored underground in one of the workings while the other was either sent for analysis or discarded based on logging. Samples chosen for assay were sent to ALS Chemex Laboratories Ltd. (ALS) in Antofagasta, Chile.

Many of the shallow holes intersected wide zones of silver mineralization. Encouraging results were encountered at Buenaventura, Cerro Challacollo, and between Cerro Challacollo and Humberto. The deeper holes, however, did not significantly extend the range of the known silver mineralization to depth.

The 2003 program confirmed elevated zinc concentrations throughout the mineralized body and showed that locally both lead and zinc had higher concentrations peripheral to the elevated silver values. This indicates a potential zoning pattern to the mineralization (Smith, 2003). Significant assays are shown in Table 10-3.



TABLE 10-3 SIGNIFICANT ASSAYS 2003 DRILL PROGRAM Mandalay Resources Corporation – Challacollo Silver Project

Hole Number	From (m)	To (m)	Interval (m)	Horizontal Thickness (m)	Ag (ppm)	Au (ppm)
CHAG-026	165.00	172.00	7.00	3.0	4.5	0.02
CHAG-027	54.00	63.00	9.00	6.9	24.7	0.03
CHAG-028	92.00	115.00	23.00	15.4	131.7	0.26
CHAG-029	50.00	66.00	16.00	14.6	274.9	0.36
CHAG-030	44.00	50.00	6.00	4.8	407.2	0.46
CHAG-031	102.00	129.00	27.00	23.2	256.3	0.14
CHAG-032	79.00	83.00	4.00	3.3	15.5	0.13
CHAG-033	11.00	13.00	2.00	1.7	104.0	0.03
CHAG-034	25.00	32.00	7.00	6.1	169.4	0.09
CHAG-035	38.04	51.05	13.01	12.2	393.8	0.33
CHAG-037	72.00	82.00	10.00	7.7	146.2	0.85
CHAG-038	92.00	100.00	8.00	5.7	237.0	0.31
CHAG-039	45.00	68.00	23.00	18.2	214.0	0.23
CHAG-040	34.99	56.99	21.99	16.5	282.5	0.49
CHAG-042	165.00	176.00	11.00	9.1	2.8	0.03
CHAG-042A	155.00	169.00	14.00	12.0	2.8	0.03
CHAG-042A	228.00	248.00	20.00	17.2	140.5	0.18
CHAG-043	164.00	178.00	14.00	9.9	254.1	0.45
CHAG-046	192.92	197.92	5.00	4.1	145.6	0.52
CHAG-047	279.00	284.00	5.00	3.5	201.0	0.34
CHAG-048	263.03	268.03	5.00	3.2	3.0	0.03
CHAG-049	267.00	270.00	3.00	2.5	131.7	0.64
CHAG-050	279.00	292.00	13.00	9.5	10.3	0.04
CHAG-051	260.09	276.03	15.95	13.3	127.9	0.14
CHAG-052	327.00	330.00	3.00	1.6	79.9	0.09
CHAG-053	197.05	205.06	8.01	5.8	83.0	0.12
CHAG-054	193.00	198.00	5.00	2.7	130.8	0.33
CHAG-055	189.00	196.00	7.00	3.6	101.1	0.42

## **2007 DRILLING**

The 2007 program consisted of 38 RC holes for an aggregate length of 7,215 m. RPA notes that none of the 2007 holes drilled contributed to the Mineral Resource estimate that is the subject of this report.



## 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The assay laboratory used by Mantos Blancos is not known. For the 2002 and 2003 programs, Silver Standard employed ALS in Antofagasta, Chile, La Serena, Chile, and Vancouver, British Columbia, and CIMM Technologies and Services S.A. (CIMM) in Antofagasta. It is not known if the ALS laboratories were accredited or certified at the time the work was done, but the Vancouver facility now holds ISO/IEC 17025:2005 accreditation and the Antofagasta location is in compliance with ISO 9001:2008. At the time that the work was done, RPA does not know if CIMM held any independent certification or accreditation.

Most of the samples collected during Silver Standard's 2002 underground sampling and core drilling programs were prepared at the ALS facility in Antofagasta using industry-standard procedures and shipped to Vancouver facility for analysis by 32 element Induced Coupled Plasma with atomic emission spectroscopy final analysis (ICP-AES). Silver and lead, however, had a final analysis from the same digestion using atomic absorption spectroscopy (AAS) to eliminate any possible inter-elemental interference. Ore grade intervals in drill core were re-analyzed by ALS in Vancouver using fire assay fusion (FA) with an AAS final analysis. No external check assaying at a secondary laboratory was carried out on the Silver Standard diamond drill hole and underground samples (Smith and Henricksen, 2002).

All of the Silver Standard samples from the 2002 and 2003 RC drill holes (CHAG-08 to CHAG-55) were sent off for assay to the ALS Chemex Laboratory in Antofagasta where lead, zinc, and copper were assayed using AAS. A portion of the sample was sent to the ALS Chemex Laboratory in La Serena and assayed for silver and gold. The gold and silver assays in La Serena were done by AAS and fire assayed if they exceeded 100 g/t Ag. An extra RC sample was collected every 20 m and sent to ALS Chemex in Vancouver for check assaying. Check assays were also run for the mineralized interval. Check samples of the mineralized interval were taken approximately every four metres depending on the width of the mineralized intercept (Smith, 2003).

In 2007, the samples were analyzed for lead, zinc, and copper by ALS in Antofagasta by AAS. A portion of the sample was sent to La Serena for gold and silver analysis by AAS. If



the silver results exceeded 100 g/t Ag, the samples were assayed by FA with AAS final analysis.

Silver Standard stored all of the exploration samples in secured locations and maintained a secure chain of custody for transporting the samples from the site to the various laboratories.

## QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance (QA) consists of evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used in order to have confidence in future resource estimations. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of sampling, preparing and assaying the exploration drilling samples. In general QA/QC programs are designed to prevent or detect contamination and allow assaying (analytical) precision (repeatability) and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling — assaying variability of the sampling method itself.

It is unknown if Mantos Blancos implemented a QA/QC program for the 1996 drilling program. It is clear that Silver Standard did not have a QA/QC program in place for any of the underground sampling and drilling and RPA views this as poor practice. RPA recommends that future drilling and sampling programs at Challacollo incorporate a QA/QC program that includes the insertion and monitoring of blanks, standards, and duplicates, which is standard industry practice nowadays.

Silver Standard relied mostly on the internal QA/QC protocols carried out by the laboratories, which included the insertion of blanks, certified reference materials (CRM), and duplicate gold assays. Silver Standard also carried out a check assaying program.

Silver Standard selected RC samples for check assaying generally every 20 m and more frequently in mineralized intervals. The RC samples were sent to ALS Chemex in Vancouver. RPA compiled the results for 169 samples from holes CHAG-25 to CHAG -55, which are provided as an appendix in Smith (2003).



The 169 samples averaged 103.9 g/t Ag at ALS Vancouver versus 101.1 g/t Ag, or approximately three percent lower, at ALS Antofagasta. This indicates that there is no significant bias between the two laboratories and that the RC silver assays are reliable and possibly slightly conservative. The 148 samples with silver grades less than 200 g/t average 51.3 g/t Ag at ALS Vancouver versus 47.1 g/t Ag, or approximately nine percent lower, at ALS Antofagasta. This indicates that there could be a low bias for lower grade samples and that the RC silver assays for lower grade samples are slightly conservative.

In RPA's opinion, the work completed by Silver Standard during its underground sampling and drilling programs was satisfactory and the results generated are acceptable for use in the estimation of Mineral Resources.



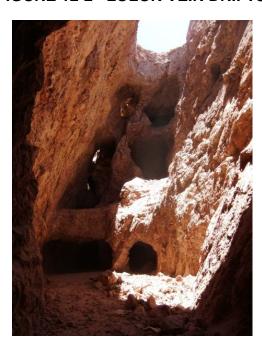
## **12 DATA VERIFICATION**

RPA reviewed drill core from hole CHAG-04 and visually compared the assay results for mineralized intervals (Figure 12-1). RPA viewed the vein and breccia mineralization on a number of the underground levels that were generally very clean, dry, and holding up very well with no ground support. RPA found that the spray painted channel sample intervals and numbers from 2001 were still visible and that a lot of work had been done to get continuous chipped channels up the drift walls and across the backs, which were hard and silicified in most areas. RPA did not collect independent samples because the Property has a history of production with extensive mining evident at surface (Figures 12-2 and 12-3).

272 g/t Ag from 66 m to 68 m in CHAG-04

FIGURE 12-1 LOLON VEIN IN CHAG-04







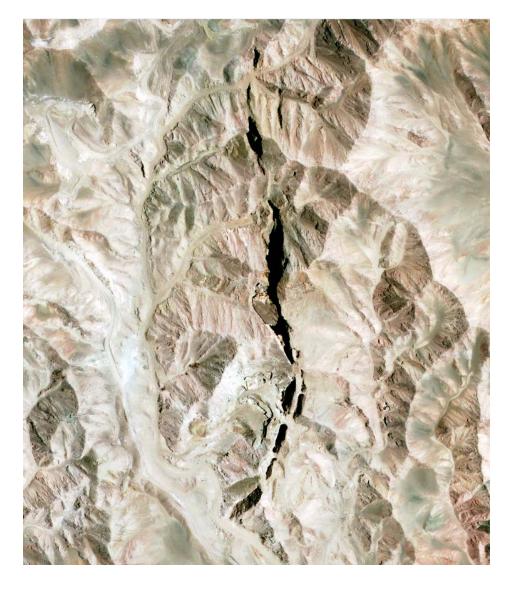


FIGURE 12-3 LOLON VEIN SATELLITE IMAGE FROM 2009

In 2002, RPA used assay certificates to verify the silver grades for 264 samples in five holes. No data entry errors were found (RPA, 2002).

In 2013, RPA flagged 624 samples that were located in the LV resource wireframe and verified the silver assays for 127 samples in the drill hole database, or approximately 20%, with the assay certificates. All of the samples verified were from the Silver Standard core and RC holes ranging from CHAG-04 to CHAG-055. RPA found no data entry errors. RPA did find five LV samples in hole CHAG-012 with 100 g/t Ag grades that represent samples with greater than 100 g/t Ag upper limit ICP values on the assay certificates. The actual grades for these five samples are greater than 100 g/t Ag, so this has added some



conservatism to the resource estimate. RPA recommends that Mandalay re-assay the rejects for these five samples.

In 2003, JRC of Iquique was contracted to survey the Property using the UTM Zone 19S PSAD56 datum. JRC surveyed all the roads, hill tops, drill sites, and collars of all drill holes including many of the Mantos Blancos drill holes. It also surveyed the underground workings on the LV and the underground channel sample stations (Figure 12-4).

#### FIGURE 12-4 SURVEYING UNDERGROUND WORKINGS IN 2003



From Smith (2003)

In May 2013, Silver Standard re-surveyed most of the drill hole collars using the UTM Zone 19S PSAD56 datum. Twenty collars could not be found and were not re-surveyed. Wherever possible, the collar dips and azimuths were surveyed as well. Silver Standard updated the drill hole coordinates for all re-surveyed holes and also corrected some collar dips and azimuths. Most of the holes were relatively short. None of the holes, however, had down hole survey measurements. After completing a detailed review, Mandalay made a small number of additional changes to the drill hole collar coordinates and the collar dips and azimuths in the 2013 Silver Standard drill hole database. RPA excluded holes CHAG-01 and CHAG-02 from the resource estimate because of collar location concerns and because they were not re-surveyed or were inconsistent with the underground sampling. RPA also shifted the location of holes CHAG-042 and CHAG-042A to fit the geology better. These two holes intersected barren and low grade mineralization, respectively.

In RPA's opinion, the drilling and underground sampling data is reasonable and acceptable to support the resource estimate.



# 13 MINERAL PROCESSING AND METALLURGICAL TESTING

## **EARLY TESTWORK**

Four underground samples were submitted to Process Research Associates Ltd. (PRA) of Vancouver. These samples corresponded to areas that had been sampled by Silver Standard in 2001. The samples ranged in values from 168 g/t Ag to 571 g/t Ag and 0.36 g/t Au and 2.10 g/t Au.

Each sample was crushed to smaller than 0.25 in. and tested for silver solubility, which indicated that no significant silver dissolved in water within 24 hours. Two sets of cyanidation tests were carried on different size fractions. One at the 0.25 in. crush size and the other at a grind size where greater than 83% of the sample passed through a 200 mesh screen (i.e., particle size less than  $75 \, \mu m$ ). The crushed rock samples were leached in 72-hour bottle roll test while ground samples were leached in vertical agitation vessels.

Results indicated that the gold and silver contained in the samples were readily leached by means of cyanidation with gold and silver recoveries of greater than 90%, when optimized, from the finer grind material (RPA, 2002).

## SCOPING STUDY TESTWORK

The following section is derived from KCA (2004) and PRA (2004).

Metallurgical testwork was done by PRA in 2004 and were limited to bottle roll tests to determine the appropriate grind, leach time, and sodium cyanide requirements. The work was done to inform the design of an agitated leach plant.

PRA conducted the following testwork on high- and low-grade mineralized samples from Challacollo:

- Ball mill grindability tests to determine Bond Work Index (BWI)
- Specific gravity determinations



- Baseline cyanide leach tests on samples reduced to 80% passing 200 mesh (i.e., 80% of particles less than 75  $\mu$ m)
- Diagnostic leach tests of residues
- Cyanide leach tests of composites reduced to 80% passing 325 mesh (i.e., 80% of particles less than 45 µm)
- Tests to determine filtering, and settling/thickening characteristics

Tests were conducted on different Challacollo rock types contained in twelve samples supplied by Silver Standard that possessed a range of silver values from low to high grade. The samples were analyzed and tested individually and then combined specifically to create high-grade and low-grade composites for further analysis.

The samples were crushed and pulverized in a laboratory ball mill and then subjected to cyanidation in bottle roll tests to determine the amount of silver and gold extraction. No carbon-in-leach (CIL) testing was done due to the high silver to gold ratio of the mineralized material at Challacollo. The CIL technique is not considered to be economic compared to a continuous countercurrent decantation (CCD) circuit.

The high-grade composite had an average grade of 474 g/t Ag and 0.60 g/t Au, while the low-grade composite averaged 183 g/t Ag and 0.15 g/t Au. The testwork indicated that, for both low- and high-grade composites, no increase in recovery was achieved after 72 hours of leaching. The average leach residue for both grades of composites was approximately 40 g/t Ag. Using this value as a constant tailing, the projected silver recovery in leach was 86.3% with 91.0% gold recovery based on an average expected head grade of 291 g/t Ag and 0.3 g/t Au.

Tests were done to determine the effects of grind size on gold and silver recovery. Bottle roll leach tests were conducted on approximate  $P_{80}$  of 75  $\mu$ m on individual samples. Selected leach residues from these tests were reground to an approximate  $P_{80}$  of 45  $\mu$ m and leached. This testing resulted in a  $P_{80}$  of 45  $\mu$ m to be chosen for the plant design.

Using a  $P_{80}$  of 45  $\mu$ m bottle roll leach tests were completed on composite samples at three levels of sodium cyanide (NaCN). It was determined that concentrations of NaCN greater than 1,000 mg/L had little or no effect on final silver and gold leaching beyond 48 to 72 hours.



Bond Work Index tests were done on the high- and low-grade composites to inform the design of the crushing and grinding systems. There was no semi-autogenous grinding (SAG) mill index data so KCA assigned a SAG Work Index of 9.0 kWh/t. The Bond ball mill Work Index was determined to be 23.2 kWh/t. Bond Abrasion Index tests were not performed, but an estimated value corresponding to an above average hard, abrasive material was used (0.45).

Filtering rate and slurry settling rate tests were done. The slurry settling test was done on a high-grade composite which had been freshly prepared, ground to 80% passing 325 mesh, and leached. The unit thickener area was calculated to be 0.07 m²/tpd solids. One filter test was performed on the same leached slurry used in the settle test. Cake capacity was determined to be 827 kg/m²/hr and Filtrate capacity was 752 L/m²/hr.

The metallurgical testwork to date has not identified any significant potential issues related to the presence of deleterious elements. RPA recommends that Mandalay carry out more metallurgical testwork.

Based on the 2004 metallurgical testwork, RPA has assumed an 86% silver recovery and a 91% gold recovery to estimate the cut-off grade and silver equivalent (AgEq) equation discussed under Section 14.



## 14 MINERAL RESOURCE ESTIMATE

## SUMMARY

The current Mineral Resource estimated by RPA for the Challacollo Project is summarized in Table 14-1. The Mineral Resources are reported at a cut-off value of 110 g/t AgEq. Indicated Mineral Resources total 1.0 million tonnes averaging 242 g/t Ag and 0.40 g/t Au and contain 8.0 million ounces of silver. Inferred Mineral Resources total 3.9 million tonnes averaging 193 g/t Ag and 0.32 g/t Au and contain 24.3 million ounces of silver. The effective date of the Challacollo Mineral Resource estimate is December 13, 2013.

TABLE 14-1 MINERAL RESOURCE ESTIMATE – DECEMBER 13, 2013
Mandalay Resources Corporation – Challacollo Project

Classification	Mt	Ag (g/t)	Au (g/t)	AgEq (g/t)	Ag (Moz)	Au (oz)	_
Indicated	1.03	242	0.40	267	8.0	13,400	
Inferred	3.9	193	0.32	214	24.3	40,100	

#### Notes:

- 1. CIM definitions were followed for classification of Mineral Resources.
- 2. Mineral Resources are estimated at a silver equivalent (AgEq) cut-off grade of 110 g/t.
- Mineral Resources are estimated using a silver price of US\$24/oz and a gold price of US\$1,400 per ounce.
- 4. High silver and gold assay values were capped to 700 g/t Ag and 3.0 g/t Au, respectively.
- 5. A density value of 2.4 g/cm³ was used.
- 6. The silver equivalent equation was AgEq = g/t Ag + 63.97 \* g/t Au.

The estimated Mineral Resources are all contained in the Lolon Vein system. A nominal minimum grade of 50 g/t Ag and a minimum horizontal thickness of approximately two metres were used to constrain the resource wireframes.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors that could materially affect this resource estimate.

#### MINERAL RESOURCE DATABASE

The database for the Challacollo Project contains 133 drill holes with 7,586 samples and 105 channel traverses with 528 samples (Table 14-2).



TABLE 14-2 SAMPLE DATABASE

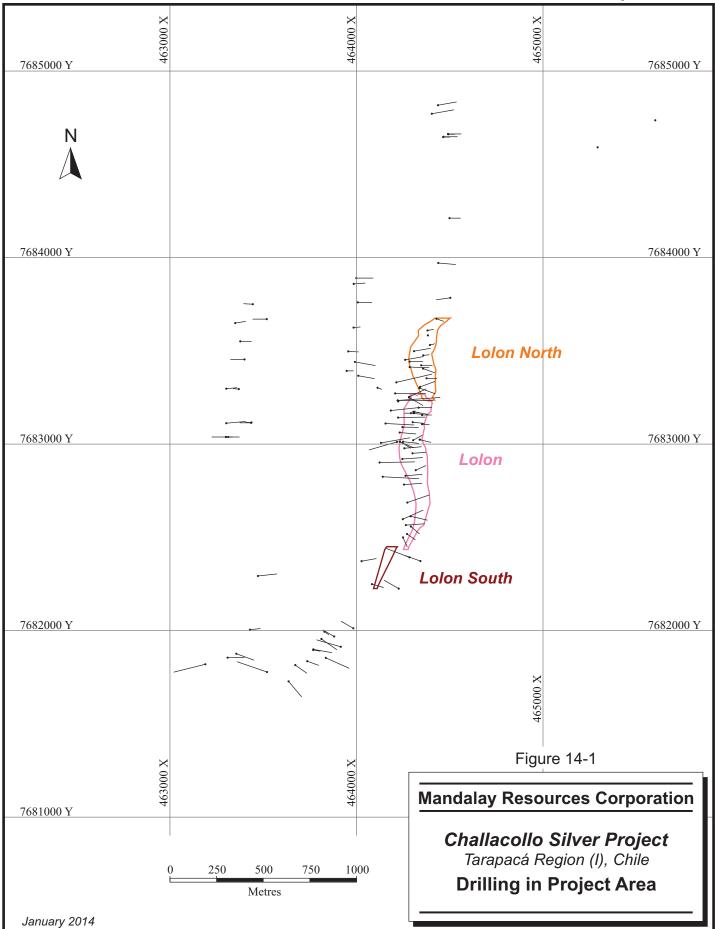
Mandalay Resources Corporation – Challacollo Project

Туре	Subtype	Collars	Samples
Drill Holes	RC	126	7,478
	Core	7	108
Total Drilling		133	7,586
Channels		105	528

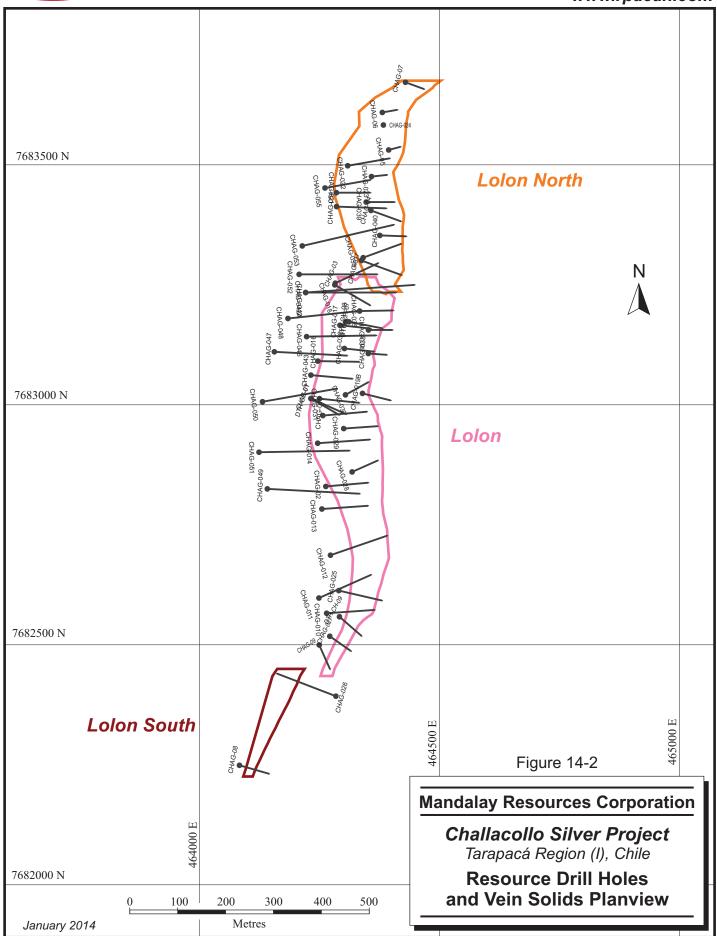
The modelled Lolon vein wireframes are snapped to 40 underground channel traverses, five diamond drill holes, and 50 RC drill holes. The resource samples, those situated in the LV wireframes, consist of 38 core samples, 586 RC samples, and 260 channel samples. The LV has been sub-divided into three wireframes, which are referred to as Lolon S, Lolon, and Lolon N.

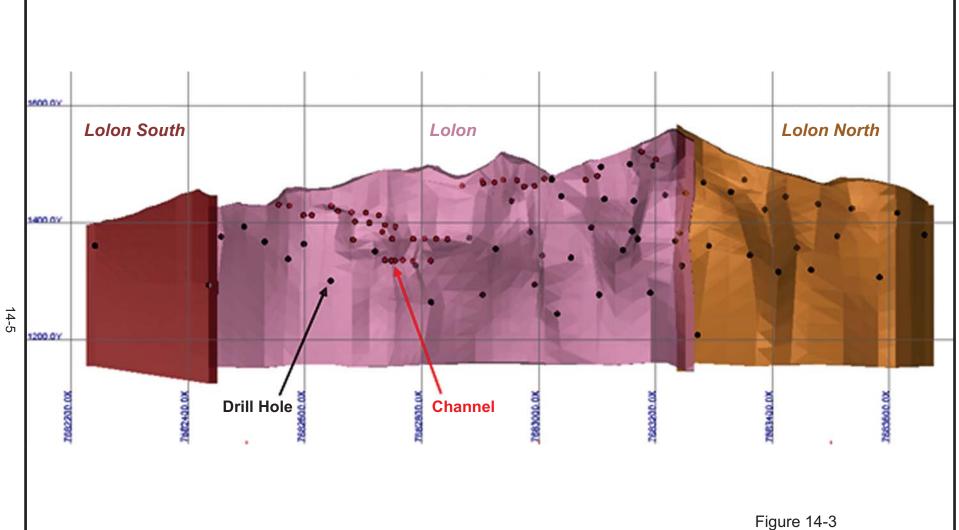
The Challacollo Project drilling is shown in Figure 14-1. Drill holes intersecting the Lolon S, Lolon, and Lolon N wireframes are shown in Figure 14-2. A longitudinal section with the locations of the drill hole and channel intercepts is presented in Figure 14-3.











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Mandalay Resources Corporation
Challacollo Silver Project

Tarapacá Region (I), Chile
Drill Holes and Channels on
Longitudinal Section
Looking West

0 100 200 300 Metres

January 2014



## **GEOLOGICAL INTERPRETATION AND 3D SOLIDS**

The wireframes for the LV system were modelled based on intersecting drill holes and channel traverses. Three wireframes were modelled with an overall azimuth of 005°, and dips towards west of approximately -70° for Lolon S, - 75° for Lolon, and -83° for Lolon N.

The historical mine workings and stope outlines were used by RPA to generate a mined-out solid used to constrain the mineralized volume.

The veins were modelled on cross sections with 3D rings that were snapped to the drill hole and channel data and that were subsequently combined into valid 3D wireframe solids. The underground levels were used as a guide. The vein wireframes are based on approximately a 50 g/t Ag cut-off grade and a two metre minimum horizontal thickness. The wireframes were clipped with the topographic surface and projected down to approximately the 1,150 m elevation.



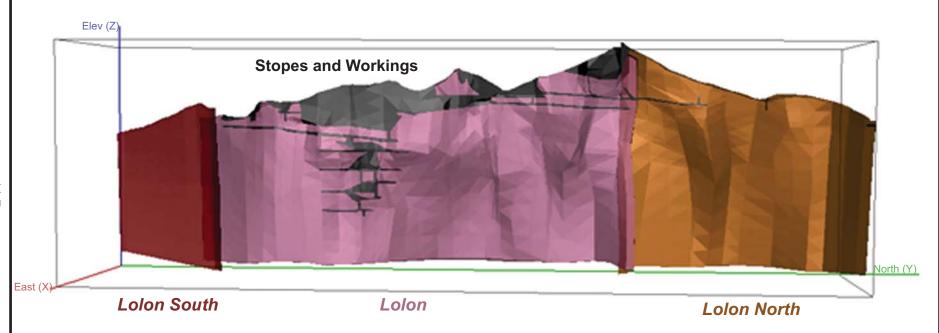


Figure 14-4

## **Mandalay Resources Corporation**

Challacollo Silver Project Tarapacá Region (I), Chile

Vein Solids and Mine Workings Looking West



## BASIC STATISTICS AND CAPPING OF HIGH ASSAYS

The December 2013 resource estimate for the Challacollo Project is based on 55 drill holes and 40 channel traverses. Samples located inside the resource wireframes were flagged and exported for statistical description and capping analysis.

Erratic high-grade assay values in populations with a positively skewed distribution can have a disproportionate effect on the average grade of a deposit. Capping of the high grade outliers at specific levels is an effective method of limiting their influence. In the absence of production data to calibrate the capping level, inspection of the assay distribution can be used to estimate a preliminary capping level.

Table 14-3 presents descriptive statistics for capped and uncapped gold and silver assays. Assay histograms, top decile analysis, and probability plots were used to determine the capping levels.

Figures 14-5 and 14-6 present histograms for gold and silver, respectively. A capping level of 700 g/t was selected for silver. Some 25 samples representing less than 3% of the samples were capped, resulting in approximately a 6% reduction in the silver grade. For gold, the capping level was established at 3 g/t, with 15 samples affected representing less than 2% of the samples, resulting in approximately an 11% reduction in the gold grade. High assays were capped prior to compositing.

TABLE 14-3 RESOURCE ASSAY DESCRIPTIVE STATISTICS

Mandalay Resources Corporation – Challacollo Project

	Uncapped		Сар	ped	
	Ag g/t	Au g/t	CAg g/t	CAu g/t	
Mean	198.3	0.36	186.3	0.32	
Median	124.0	0.11	124.0	0.11	
Std. Dev.	236.6	1.04	179.9	0.55	
Minimum	0.10	0.00	0.10	0.00	
Maximum	2,668.6	24.40	700.00	3.00	
Coefficient of Variation	1.19	2.87	0.97	1.73	
Count	884	868	884	868	



FIGURE 14-5 RESOURCE ASSAY AG HISTOGRAM

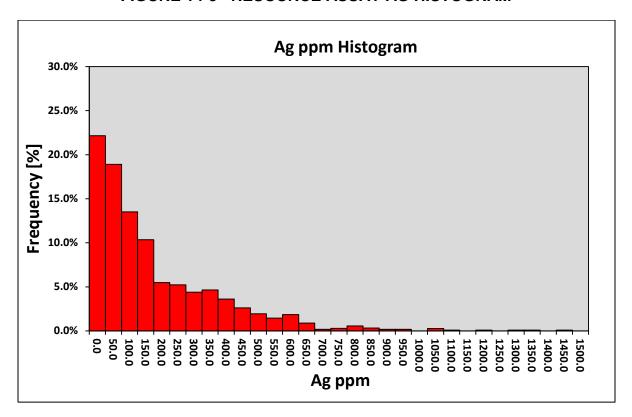
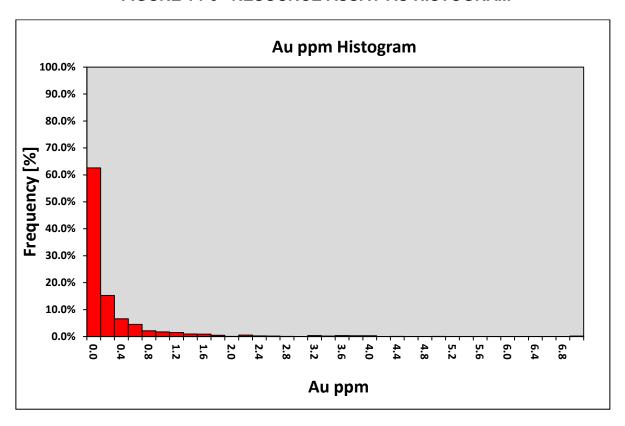


FIGURE 14-6 RESOURCE ASSAY AU HISTOGRAM





### **COMPOSITES**

RPA composited the assays to two metre fixed intervals inside vein intercepts, preserving the orphans. Most of the samples have one metre lengths. The composites were used to estimate block grades. High grade assays were capped prior to compositing. Descriptive statistics of the resource composites for silver and gold are shown in Table 14-4.

TABLE 14-4 RESOURCE COMPOSITE DESCRIPTIVE STATISTICS
Mandalay Resources Corporation – Challacollo Project

	Uncapped		Capped	
	Ag g/t	Au g/t	CAg g/t	CAu g/t
Mean	206.1	0.37	193.7	0.32
Median	143.4	0.13	141.9	0.13
Std. Dev.	217.1	1.07	169.4	0.48
Minimum	0.00	0.00	0.00	0.00
Maximum	2,417.1	22.01	699.9	2.75
Coefficient of variation	1.05	2.87	0.87	1.51
Count	567	567	567	567

## **CUT-OFF GRADE**

RPA's assumptions used to estimate the silver cut-off grade for Mineral Resources based on an underground production scenario include the following:

- Silver price of US\$24/oz
- Gold price of US\$1,400/oz
- Recovery 86% for silver and 91% for gold
- Operating costs of US\$68 per tonne milled
- Refining charges of US\$1.00/oz for silver and US\$5.00/oz for gold

A silver equivalent was determined for reporting purposes. The silver equivalent was calculated with the formula: AgEq = g/t Ag + 63.97 \* g/t Au.

A break-even cut-off of 108 g/t AgEq was calculated from the above inputs. A 110 g/t AgEq threshold was used as cut-off grade for the Mineral Resource.



## SPECIFIC GRAVITY

As described in Section 9 Exploration of this report, Silver Standard completed a density testwork program on eight samples in 2003, which resulted in specific gravity and bulk density averages of 2.76 g/cm³ and 2.74 g/cm³, respectively (Smith, 2003). This density data has been superseded by density testwork done in 2004 by PRA as part of the metallurgical testwork (PRA, 2004) and by additional density testwork completed in late 2013 by Mandalay.

In 2004, PRA conducted pycnometer specific gravity tests on metallurgical pulp samples (Table 14-5). The 11 samples averaged 358 g/t Ag, 0.37 g/t Au, and 2.67 g/cm<sup>3</sup>. The pycnometer results do not account for voids. Based on reviewing the core and samples from stockpiles near the old mill foundation, RPA has applied a 10% void factor to these results and this reduces the specific gravity to 2.43 g/cm<sup>3</sup>.

TABLE 14-5 SPECIFIC GRAVITY RESULTS IN 2004 Mandalay Resources Corporation – Challacollo Project

Sample	g/cm³	g/t Au	g/t Ag
29HG	2.78	0.83	698
31HG	2.49	0.19	482
34HG	2.7	0.14	269
35HG	2.75	0.63	648
39HG	2.76	0.35	416
43HG	2.82	1.07	433
31LG	2.28	0.14	208
38LG	2.81	0.27	289
39LG	2.9	0.21	155
43LG	2.74	0.06	143
51LG	2.37	0.23	195
Average All	2.67	0.37	358
Average if 10% voids	2.43		

In 2013, Mandalay took nine large grab samples from the mill stockpiles and used a water immersion procedure to generate some new specific gravity data (Table 14-6). Overall, the nine samples averaged 2.46 g/cm³ and the average weight was 6.27 kg. The average without the quartz-barite sample is 2.38 g/cm³.



TABLE 14-6 SPECIFIC GRAVITY RESULTS IN 2013 Mandalay Resources Corporation – Challacollo Project

Sample Description	kg	g/cm³
Altered volcanic, stockwork quartz	4.66	2.53
Silicified volcanic	4.74	2.39
Altered volcanic, stockwork quartz	8.48	2.42
Altered volcanic, stockwork quartz	6.89	2.00
Quartz breccia	5.62	2.38
Volcanic breccia	2.73	2.39
Quartz breccia	11.11	2.54
Quartz-goethite breccia	8.21	2.39
Vuggy quartz-barite	4.01	3.11
Average All	6.27	2.46
Average Without Barite Vein	6.56	2.38

Based on the new specific gravity data available, RPA has used a 2.4 g/cm³ density value for the 2013 resource estimate and notes that this is significantly lower than the 2.7 g/cm³ value used in previous estimates, including RPA's 2002 resource estimate (RPA, 2002). RPA recommends that Mandalay carry out more density testwork in the future.

## VARIOGRAPHY AND TREND ANALYSIS

Variographic analysis was performed on full vein intercept composites for uncapped silver and gold with limited success. The omni-directional variogram was inconclusive, while directional variograms for both metals indicated ranges of up to approximately 120 m; however, slight modifications of the input parameters affected negatively the variogram ranges, suggesting multiple trends within the vein.

For trend analysis, contours were drawn on longitudinal sections for uncapped full vein intercepts grades for accumulated silver (grade\*horizontal thickness) in Figure 14-7, silver grades in Figure 14-8, and gold grades in Figure 14-9. Accumulated silver contours suggest a vertical to sub-vertical trend in multiple shoots that may be related to sub-vertical dilation zones, whereas the silver grade contours show multiple areas with higher grades that tend to have a more horizontal grade continuity. The contours of gold grades for full vein intercepts indicate a localize zone with grades higher than one gram per tonne and suggest possible vertical grade trends.

It appears that the Lolon N block may have been faulted upwards and may be more limited at depth relative to the main Lolon block, which appears to be open at depth.



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#### **BLOCK MODEL AND GRADE ESTIMATION**

A block model was set up in Gemcom GEMS 6.5 for resource estimation purposes. The block model fully enclosed the modelled resource wireframes. Table 14-7 presents the origin (top left front corner) and parameters of the block model. The block model had no rotation.

TABLE 14-7 BLOCK MODEL DEFINITION

Mandalay Resources Corporation – Challacollo Project

Element	X	Υ	Z
Origin (m)	464,000	7,682,110	1,165
Block size (m)	5	5	5
Block count	120	330	110

#### INTERPOLATION AND SEARCH STRATEGY

The interpolation method used for the resource estimate was inverse distance cubed (ID<sup>3</sup>) with anisotropic weighting, performed in one pass. The search ellipse geometry had major and intermediate radii of 120 m and minor radius of 30 m. The search ellipse was rotated to align with each of the modelled vein wireframes as shown in Table 14-8.

For interpolation, a minimum of four and a maximum of 12 composites were imposed, with a maximum limit of three composites per drill hole. This results in a minimum of two and a maximum of four drill holes required for block grade interpolation.

The mineralized volume was converted to tonnage using a density value of 2.4 t/m<sup>3</sup>.

TABLE 14-8 ORIENTATIONS OF SEARCH ELLIPSE Mandalay Resources Corporation – Challacollo Project

Ellipse	Principal azimuth	Principal dip	Intermediate azimuth
Lolon S	30°	45°	200°
Lolon	5°	45°	150°
Lolon N	20°	40°	160°

Note: Gemcom Azimuth-Dip-Azimuth Rotation Convention



#### **BLOCK MODEL VALIDATION**

The interpolated block grades were visually compared with the grades of the composites, in plan and vertical section. The percent of mined out material in blocks was also visually checked. The calculation of AgEq was manually confirmed in a number of mineralized blocks. A swath plot by northing was used to compare the average grades of composites versus interpolated blocks.

It is the opinion of RPA that the block model represents reasonably the tonnage and grade of the silver and gold mineralization for the Project.

#### RESOURCE CLASSIFICATION

Classification of the resources was based on manually digitized contours. Areas with drill holes or channels spaced at up to approximately 50 m were classified as Indicated. The rest of the blocks, delimited by a manually drawn outline at a nominal distance of 50 m away from the outermost intercepts, were classified as Inferred (Figure 14-10). No blocks from Lolon S were included in the resource.





#### SENSITIVITY ANALYSIS

The Mineral Resources are sensitive to cut-off grades in the 50 g/t AgEq to 150 g/t AgEq range. The grade tonnage curves for the combined Indicated and Inferred categories are shown in Figure 14-11.

**Grade-tonnage curves for Ag at various AgEq cut-off levels** 600.00 7,000,000 6,000,000 500.00 5,000,000 400.00 4,000,000 300.00 3,000,000 200.00 2,000,000 100.00 1,000,000 0 0.00 0 50 100 150 200 250 300 350 400 450 500 AgEq cut-off grade 

FIGURE 14-11 SILVER GRADE-TONNAGE CURVES FOR COMBINED INDICATED AND INFERRED RESOURCES

# COMPARISON WITH PREVIOUS MINERAL RESOURCE ESTIMATE

The December 2013 estimate is compared with the 2002 estimate in Table 14-7. The 2002 estimate used a 2D polygonal method and a density of 2.7 g/cm³, while the current estimate uses a 3D block model based on a 2.4 g/cm³ density.



The 2002 estimate is based on a cut-off grade of approximately 60 g/t Ag and gold was not estimated. The 2013 estimate is based on a 110 g/t AgEq cut-off grade.

The 2002 estimate resource classification was based mostly on polygons with radii up to 25 m for Indicated and up to 50 m radii for Inferred versus a more manual, hands-on 3D approach for the 2013 estimate, which resulted in a lower proportion of Indicated.

TABLE 14-9 COMPARISON WITH PREVIOUS RESOURCE ESTIMATE
Mandalay Resources Corporation – Challacollo Project

Year	Classification	Mt	Capped Ag (g/t)	Ag (Moz)
2002	Indicated	2.21	202	14.4
	Inferred	4.2	182	24.4
2013	Indicated	1.03	242	8.0
	Inferred	3.9	193	24.3

In RPA's opinion, the differences between the 2002 and 2013 estimates are mostly due to the change in density, the change in cut-off grades, adding the 2003 drilling results, and the change from a 2D to 3D estimation approach.



# 15 MINERAL RESERVE ESTIMATE



# **16 MINING METHODS**



# 17 RECOVERY METHODS



# **18 PROJECT INFRASTRUCTURE**



### 19 MARKET STUDIES AND CONTRACTS



# 20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT



### 21 CAPITAL AND OPERATING COSTS



# **22 ECONOMIC ANALYSIS**



### 23 ADJACENT PROPERTIES

There are no adjacent properties with types of mineralization similar to those seen at Challacollo. Properties in the immediate vicinity of the Project host, generally, porphyry-related copper mineralization.



# 24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.



#### 25 INTERPRETATION AND CONCLUSIONS

RPA offers the following conclusions regarding the Project:

- The Project hosts a significant silver and gold mineralized system and there is good potential to further increase the resource.
- RPA is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other factors that could materially affect this resource estimate.
- Mineral Resources were estimated according to the Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves dated November 27, 2010 (CIM, 2010), and, in RPA's opinion, are compliant with NI 43-101.
- The Mineral Resources are reported at a silver equivalent (AgEq) cut-off value of 110 g/t AgEq based on a silver price of US\$24/oz and a gold price of US\$1,400 per ounce. RPA is of the opinion that these gold and silver metal prices are reasonable.
- Indicated Mineral Resources total 1.0 million tonnes averaging 242 g/t Ag and 0.40 g/t Au and contain 8.0 million ounces of silver. Inferred Mineral Resources total 3.9 million tonnes averaging 193 g/t Ag and 0.32 g/t Au and contain 24.3 million ounces of silver.
- The differences between RPA's 2002 and 2013 estimates are mostly due to the change in density, the change in cut-off grades, adding the 2003 drilling results, and the change from a 2D to 3D estimation approach.
- The grade tonnage curves for the combined Indicated and Inferred categories show that the Mineral Resources are sensitive to cut-off grades in the 50 g/t AgEq to 150 g/t AgEq range.
- The work done by Silver Standard during its underground sampling and drilling programs was satisfactory and the results generated are acceptable for use in the estimation of Mineral Resources. The QA/QC procedures, however, need to be upgraded to meet current industry standards and more rigorous collar and down hole survey procedures should be implemented in the future.
- None of the Silver Standard drill holes from 2007 influence the resource estimate.
- More density test work should be carried out.



#### **26 RECOMMENDATIONS**

The Challacollo property hosts a significant silver resource and there is good potential to increase the resource. In RPA's opinion, the Challacollo property merits considerable more work to advance this Project. RPA makes the following recommendations and concurs with Mandalay's US\$6 million Phase 1 work program planned for 2014 (Table 26-1).

- Establish a QA/QC program for future drilling and underground sampling programs.
- Try to find and re-survey the 20 drill hole collars that were not re-surveyed in 2013.
- Survey the underground openings.
- Build a 3D wireframe of the underground openings.
- Build 3D lithology and structural wireframes.
- Build preliminary 3D wireframes for the other known veins on the Property to help guide future exploration drilling programs.
- Drill more holes to convert Inferred to Indicated, to expand the resource, and explore the Property.
- Do down hole surveys.
- Carry out additional density measurements.
- Re-assay the rejects or pulps for the five overlimit samples in hole CHAG-012.
- Investigate if it is possible to build separate wireframes for the veins and brecciated wallrock in the future with more drilling and underground mapping and sampling information.
- Start environmental and community baseline studies.
- Do more metallurgical testwork.
- Start mine design, costing, and engineering studies.



# TABLE 26-1 2014 WORK PROGRAM BUDGET Mandalay Resources Corporation – Challacollo Project

ltem	US\$
Drilling (8,000 m to 10,000 m)	3,000,000
Surveying	100,000
Environmental, Social and Other Studies	300,000
Metallurgical Testwork	200,000
Engineering and Other Work	1,000,000
Operating costs/office	400,000
Sub-total	5,000,000
Contingency	1,000,000
Total	6,000,000



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### 28 DATE AND SIGNATURE PAGE

This report titled "Technical Report on the Challacollo Silver-Gold Project, Region I, Chile" and dated January 30, 2014, was prepared and signed by the following author:

(Signed & Sealed) "Luke Evans"

Dated at Toronto, ON January 30, 2014

Luke Evans, M.Sc., P.Eng.
Executive VP, Geology and Resource
Estimation
Principal Geologist



#### 29 CERTIFICATE OF QUALIFIED PERSON

#### **LUKE EVANS**

I, Luke Evans, M.Sc., P.Eng., as the author of this report titled "Technical Report on the Challacollo Silver-Gold Project, Region I, Chile", prepared for Mandalay Resources Corporation and dated January 30, 2014, do hereby certify that:

- 1. I am Executive Vice President, Geology and Resource Estimation and a Principal Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
- I am a graduate of University of Toronto, Ontario, Canada, in 1983 with a Bachelor of Science (Applied) degree in Geological Engineering and Queen's University, Kingston, Ontario, Canada, in 1986 with a Master of Science degree in Mineral Exploration.
- 3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 90345885). I have worked as a professional geological engineer for over 30 years since my graduation. My relevant experience for the purpose of the Technical Report is:
  - Consulting Geological Engineer specializing in resource and reserve estimates, audits, technical assistance, and training since 1995.
  - Review and report as a consultant on numerous exploration and mining projects around the world for due diligence and regulatory requirements.
  - Senior Project Geologist in charge of exploration programs at several gold and base metal mines in Quebec.
- 4. 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.
- 5. I visited the Challacollo Project on November 29, 2013.
- 6. I am responsible for the preparation of the entire Technical Report.
- 7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
- 8. I have had no prior involvement with the property that is the subject of the Technical Report.
- 9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.



10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 30<sup>th</sup> day of January, 2014.

(Signed & Sealed) "Luke Evans"

Luke Evans, M.Sc., P.Eng.