



# LAGUNA RESOURCES NL

ASX Release

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LAGUNA RESOURCES NL

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## DECEMBER 2009 QUARTERLY REPORT

### HIGHLIGHTS:

➤ Announcement of a maiden JORC Inferred Resource of 783,000 gold equivalent ounces at 1.5 g/t gold equivalent for Arqueros Gold Project, calculated from the compilation and re-modelling of historical assay data.

➤ 10,000 metre drilling programme commenced at Arqueros, with approximately 6,500 metres completed to date.

➤ Exceptional drill intersect of:

**111 metres at 1.23 g/t gold equivalent from 67 metres in AR09-09**

➤ Highlighted intercepts include:

**AR09-03 12 metres at 2.7 g/t gold equivalent**

**AR09-05 13 metres at 3.5 g/t gold equivalent**

**including 4 metres at 7.1 g/t gold equivalent**

**AR09-06 3 metres at 3.9 g/t gold equivalent**

**AR09-07 6 metres at 3.1 g/t gold equivalent**

**AR09-10 6 metres at 3.8 g/t gold equivalent**

**AR09-12 2 metres at 6.6 g/t gold equivalent**

**AR09-16 3 metres at 7.3 g/t gold equivalent**

**AR09-24 5 metres at 4.9 g/t gold equivalent**

➤ Mine studies, including mine design, resource-reserve modelling, environmental, geotechnical, hydrological and mine permitting have commenced and are progressing well at Arqueros.

➤ Acquisition of the Cachitos Gold Project announced as extension of the Maricunga gold exploration programme.

➤ Entitlement offer to shareholders successfully raised \$5,503,406 to advance the Arqueros Gold Project and exploration in the World Class Maricunga Gold Belt.

The mineralisation at Arqueros comprises distinct but overlapping gold and silver epithermal mineralisation zones, hosted in flat-lying Tertiary dacite volcanics. It is located 20 kilometres north of Kinross Gold Corporation's La Coipa Gold Mine (225,000 oz pa gold equivalent in 2008) in the World Class Maricunga Gold Belt of the Atacama Region of Northern Chile.



Location of Arqueros and Cachitos Gold Projects in Northern Chile

Arqueros was mined underground from 2000 to 2004 with approximately 288,820 ounces of gold equivalent extracted at an average grade of 7.4 g/t gold equivalent.

The Company optioned the property from Anglo American plc in June 2009, and is developing an open cut "Base Case" for the recommencement of mining at a rate of 100,000 to 120,000 ounces per annum of gold equivalent. This is based on an exploration target for the project of between 20 to 40 million tonnes at a grade of between 1.5 and 2.0 g/t gold equivalent, for between one and two million gold equivalent ounces

## ARQUEROS GOLD PROJECT

### JORC RESOURCE

The Company was delighted to announce a maiden Inferred JORC Resource estimate for the Arqueros Gold Project.

### 0.78 MILLION OUNCES OF GOLD EQUIVALENT

This represents a significant milestone in the exploration of Arqueros Gold Project and provides the Company with a solid foundation to aggressively advance exploration towards a two million ounce target and future development of an open cut mine.

The Inferred Mineral Resource (Table 1) of the Arqueros Deposit, prior to historical underground mining, has been estimated **at 1,071,520 gold equivalent ounces at an average grade of 1.9 g/t Au eq. (0.5 g/t gold equivalent cut off grade)**. This was estimated by modelling of historical assay data from 135,000 metres of surface exploration and underground production drilling, channel sampling, stope and plant data from operations of the previous miner who exploited the deposit from 2000 to 2004.

**Table 1. Inferred Resource estimate of original pre-mining in situ resource at various gold equivalent cut off grades**

Cut-off grade, g/t	Tonnes	Resource Grade, g/t			Ounces
		Gold	Silver	Gold equivalent	
0.0	21,771	0.42	70	1.59	1,109,440
0.5	17,224	0.51	86	1.93	1,071,520
1.0	10,923	0.68	116	2.62	918,342
1.5	7,003	0.87	151	3.40	763,595



RC drilling at Arqueros Sur

Note: **Gold equivalence (AuEQ)** is estimated as  $AuEQ = Au + (Ag * EQ)$ , where  $Au$  = gold content,  $Ag$  = silver content and  $EQ$  = equivalence factor, which is calculated as the ratio of gold price to silver price \* ratio of gold metallurgical recovery to silver metallurgical recovery.

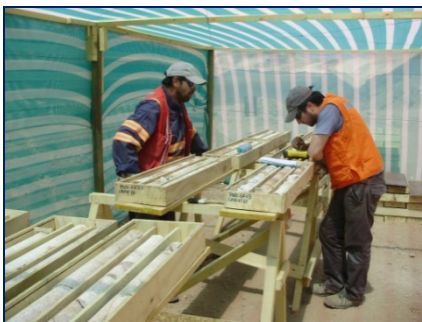
$EQ60 = P_{Au}/P_{Ag} * R_{Au}/R_{Ag} = 60$ , based on long-range prices of gold at US\$800/oz & silver US\$15/oz, and recoveries of gold at 90% and silver at 80% respectively.



Diamond drilling at Arqueros Sur (geotechnical study)



Arqueros camp



Logging diamond drill core at Arqueros

In modelling this estimate, the gold and silver domains were treated as one mineralised body based on common advanced argillic silicified alteration, hosted by NE trending structures and flat lying porous tuff layers respectively. As a result of this approach many gold assay values were not captured in the resource model because they required a greater degree of geological control over historical data than existed at the time. This is being addressed by the current exploration programme.

Production records of material removed from the deposit by underground mining operations from 2000 to 2004 show that 1.2 million tonnes of ore at 1.34 g/t gold and 364 g/t silver, or 288,820 gold equivalent ounces at an average grade of 7.4 g/t gold equivalent was mined and processed. The cut off grade applied for underground mining at the time was 4.5 g/t gold equivalent.

The current JORC Inferred Mineral resource (Table 2) is remnant to the production described above and determined by simple weighted reduction of the production from the total pre-mining in situ mineral resource estimate. At gold equivalent cut-off grade of 0.5g/t, the Inferred Resource is 782,700 gold equivalent ounces at an average grade of 1.5 g/t gold.

**Table 2. Inferred Resource estimate (current)**

Cut-off grade, g/t	Tonnes	Resource Grade, g/t			Ounces
		Gold	Silver	Gold equivalent	
0.5	16,012	0.45	64	1.52	782,700
1.0	9,711	0.60	85	2.02	629,520
1.5	5,791	0.77	107	2.55	474,770

The amount of sample information from surface drilling and underground operations, within the majority of the alteration zone being estimated, is sufficient to generate fairly robust grade continuity models. However because of the historical nature of the information there was uncertainty in the data location, sample collection methods and sample preparation and analytical quality control and this uncertainty did not allow anything other than an Inferred Mineral Resource classification to be applied. These data related uncertainties are being addressed as a priority during current exploration.

Historical underground operations targeted high-grade material in the sub-horizontal silver-rich mantos and a number of the gold rich structures. The 0.78 Million ounce resource is based on a remnant of this mining. Geological controls on historical targeting were minimal and the Company believes that significant further gains can be achieved with further drilling and increased geological

control.



Driller preparing reverse circulation chips

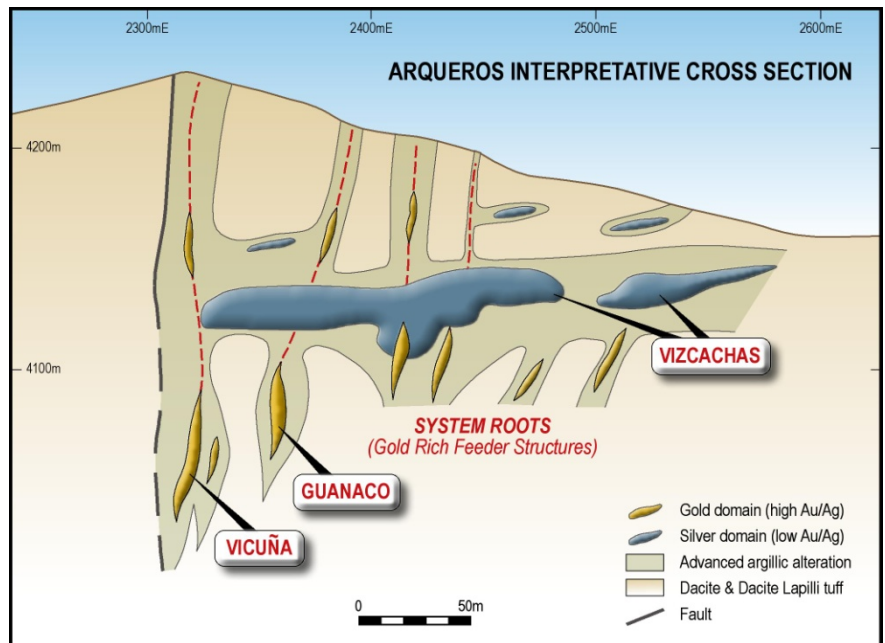
Geological interpretation of the sub-vertical gold-rich domain is dominated by structurally controlled feeder zones as illustrated in Figure 1. The Company is targeting the discovery of additional gold zones where limited mining yielded an average run of mine grade of 5.6 g/t gold and 56 g/t silver over widths of 8 metres and up to 20 metres. Previous exploration drilling exposed the high-grade nature of gold structures, with values of 10 and 20 g/t gold reported over intervals of 8 to 10 metres.

Laguna Resources has identified these high-grade gold domains as the principal exploration target. As such, drilling will continue to expand the resource in the gold and silver domains while targeting high-grade gold structures with the greatest potential to add ounces and grade.



Outcrop mapping

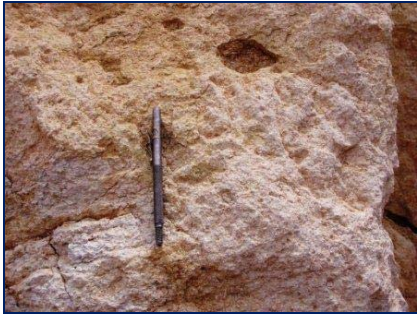
**Figure 1. Exploration model of mineralisation (looking north) showing the gold targets underlying the silver mantos.**



## EXPLORATION PROGRAMME

The drilling programme commenced in late November 2009 and to date has completed approximately 6,500 metres of RC drilling in 30 holes (Figure 2). The Company currently has two drilling rigs operating on site. This programme is designed to delineate known mineralisation, verify the results of historical underground drilling and extend the current resource base.

Drilling from surface has demonstrated the continuity of grade and extent of the silver domain and reconciliation with the large historical data base has already commenced and is making considerable positive progress.

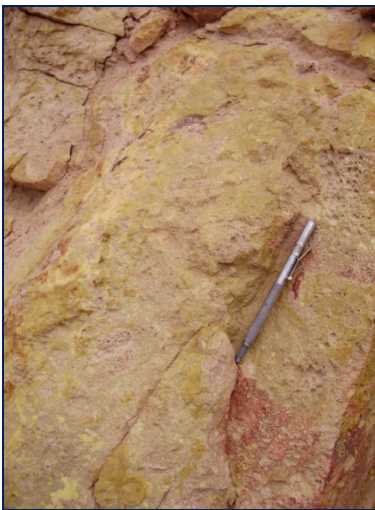
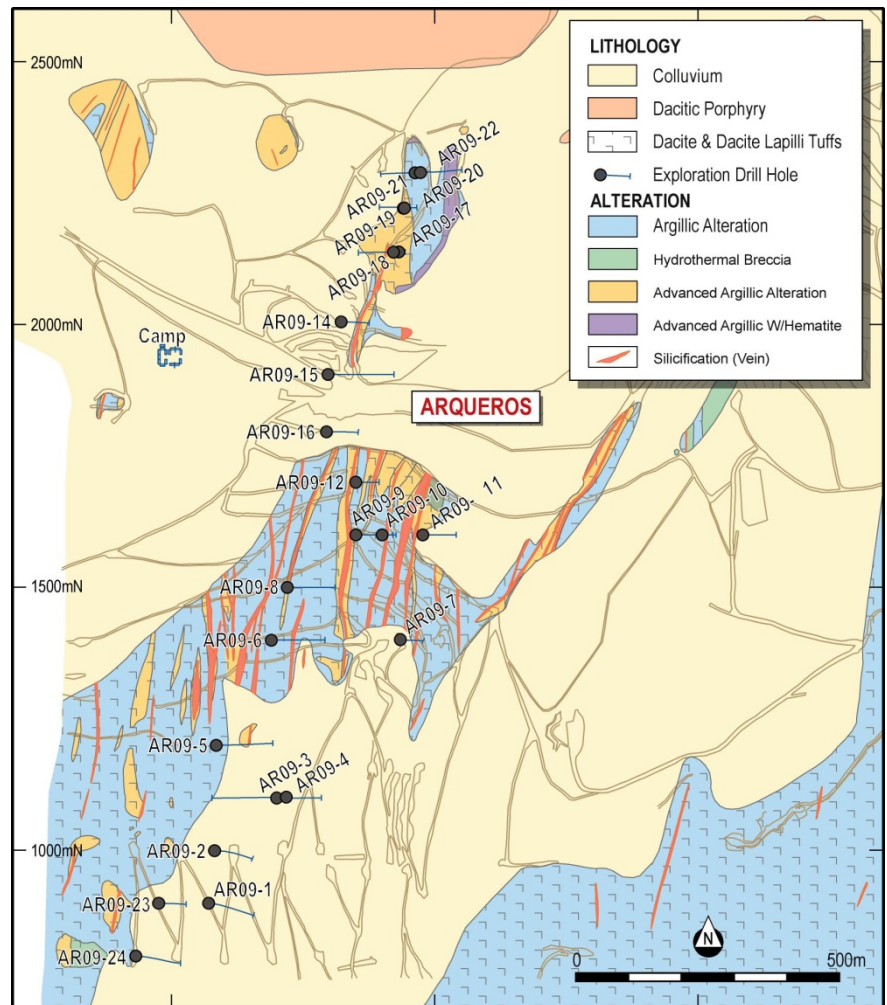


Silver “mantos” leached, silicified dacite lapilli tuff

Gold targets outlined by the Company have not been able to be adequately tested by surface drilling and a programme of underground drilling has been initiated specifically to address these gold targets. Work has commenced on preparing for this 1,500 metre campaign, which will be completed before the onset of winter.

The remaining reverse circulation drilling from surface at the Arqueros Gold Project will continue the focus on testing for extensions of the mineralised zone and the verification of historical data for an upgrade of the current JORC resource. This drilling will also test for a fault offset block to the west of the Arqueros South Deposit at depth.

Figure 2. Reverse circulation drill hole collars



Silicified gold-bearing rock

Initial assay results have been tabulated are shown on Table 2, with details presented on Table 3.

**Table 2. Intersections >0.5 g/t gold equivalent (AuEQ60)**

Drillhole	Intersection, metres			Grade, g/t		
	From	To	Length	Gold	Silver	Gold equivalent
AR09-03	248	285	37	0.13	71	1.31
<i>.. includes</i>	262	274	12	0.20	151	2.71
AR09-05	248	261	13	0.02	206	3.45
<i>.. includes</i>	257	261	4	0.03	422	7.07
AR09-06	159	185	26	0.01	68	1.14
<i>includes</i>	178	181	3	0.01	232	3.88
AR09-07	103	118	15	0	106	1.78
<i>.. includes</i>	103	109	6	0	184	3.09
AR09-08	130	139	9	0.05	37	0.68
AR09-09	67	178	111	0.51	43	1.23
<i>.. includes</i>	96	107	12	2.44	127	4.56
<i>...includes</i>	175	177	2	5.59	41	6.27
AR09-10	54	80	26	0.20	89	1.67
<i>includes</i>	62	68	6	0.80	220	3.84
AR09-11	16	20	4	0.60	1	0.63
	28	59	31	0.03	52	0.91
AR09-12	73	97	24	1.28	22	1.64
<i>...includes</i>	95	97	2	6.34	14	6.56
AR09-16	40	58	18	2.76	4	2.83
<i>...includes</i>	45	49	3	7.12	8	7.26
AR09-20	38	55	17	0.25	42	0.96
<i>...includes</i>	44	49	5	0.76	44	1.50
AR09-21	36	72	36	0.27	55	1.18
AR09-22	34	62	28	0.02	70	1.19
AR09-24	316	347	34	0.15	77	1.43
<i>...includes</i>	339	344	5	0.10	286	4.86

**Exploration Highlights of the Arqueros Gold Project:**

- **Inferred JORC Resource of 783,000 oz gold equivalent at 1.5 g/t gold equivalent. (0.5 g/t gold equivalent cut off grade) announced on 4 November 2009**
- **Drilling well underway with two rigs, generating**

The Maricunga Gold Belt is a 200 km long belt of Early to Middle Tertiary andesite to rhyolite volcanic centres controlled by north-south and northeast trending regional structures, overlying older sedimentary and volcanic rocks of Mesozoic and Paleozoic age. These complexes host a large number of epithermal and porphyry gold deposits, with at least 70 Moz gold equivalent resources of discovered and published since 1980, including two operating mines, Refugio and La Coipa, which produced 450,000 oz gold equivalent in 2008. Laguna Resources NL is developing the Arqueros Gold Project in the northern section of the belt, and has an option over Cachitos in the southern section.

exceptional results, consistent with historical data and showing significant opportunities for growth in the resource base.

- **Company to start underground drilling, targeting gold-bearing structures**
- **Mine studies, including mine design / resource-reserve / environmental / geotechnical / hydrological and mine permitting have all commenced and are progressing well.**

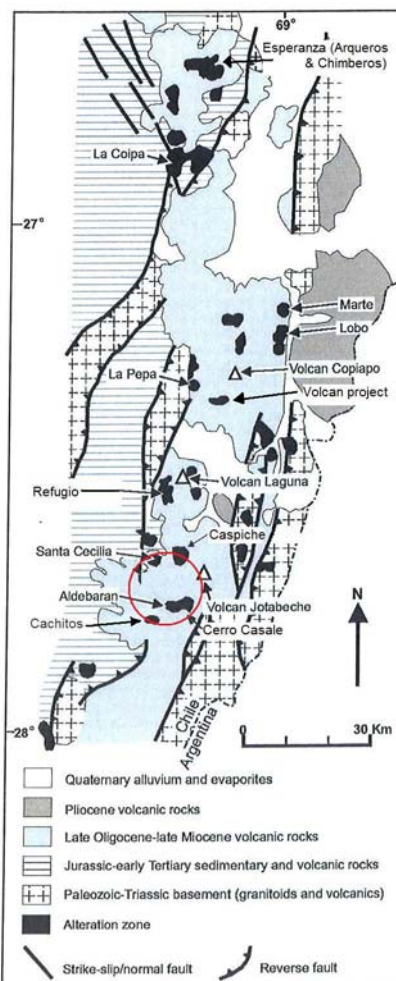
### **CACHITOS GOLD PROJECT**

The Company signed legally binding terms to acquire the Cachitos Gold Project, located in the southern sector of the World Class Maricunga Gold Belt in the Atacama Region of northern Chile. The Company is in the process of doing due diligence on the Project.

The acquisition of the Cachitos Gold Project is an expansion of Company activities in the Maricunga Gold Belt

#### **Highlights of the Cachitos Gold Project:**

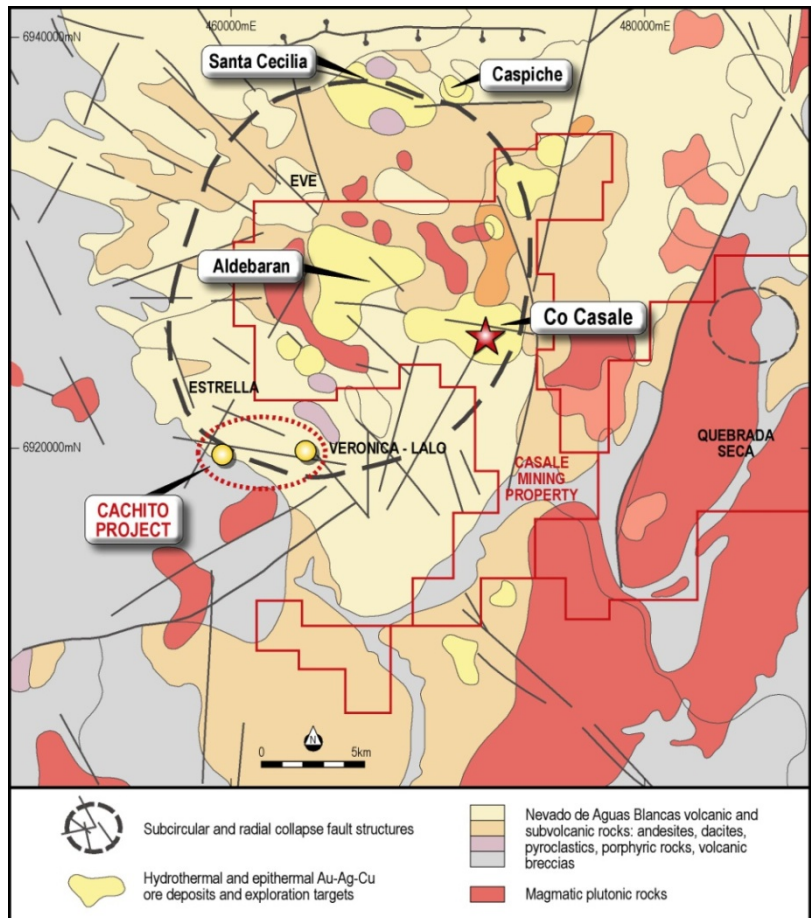
- **The target at Cachitos is multi-million ounce gold mineralisation hosted in hydrothermal breccias pipes, veins and stockworks, related to the Nevado de Aguas Blancas volcanic system.**
- **The Cachitos Gold Project is located within the same volcanic and structural regime as the 26 Million ounce Cerro Casale Gold Project (11 km to north-east) and the 20 Million ounce Caspiche Gold Project (20 km to the north) (Figure 3)**
- **Due diligence commenced to verify geology and gold values already identified within claim areas.**
- **Terms of option agreement for 100% ownership include progress payments of up to US\$5 million over five years plus 1.5% NSR on production.**



Maricunga geology and main deposits (modified from Davidson & Mpodozis 1991). Drawn circle (red) represents apparent collapse structure.

The principal goal of exploration on the Cachitos Gold Project is to establish the presence of a multi-million ounce gold deposit for development. Initial geological mapping, sampling and geophysics will be focused on establishing targets for drilling to test gold mineralisation extent and resource estimation in the summer of 2010.

**Figure 3. Geological context of Cachitos within the collapse fault structures of the Nevado de Aguas Blancas volcanic system.**



## **CORPORATE**

An entitlement offer to shareholders successfully raised \$5,503,406 to advance the Arqueros Gold Project and exploration in the World Class Maricunga Gold Belt of Chile.

Laguna Resources is working to create a strong and sustainable exploration and development business focused on the development of the Arqueros Gold Project. The Company is also assessing additional opportunities for growth in the Maricunga Gold Belt and elsewhere in Chile.

Nick Lindsay  
Managing Director

*Dr Nicholas Lindsay is a Member of the Australian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Lindsay is the Managing Director of Laguna Resources NL and consents to the inclusion in this release of the matters based on his information and information presented to him in the form and context in which it appears.*

#### CONSENT

*The **Mineral Resource** has been estimated by Mr P Ball (Director of DataGeo Geological Consultants) from information provided by Laguna Resources NL and its agents. Mr Ball is a member of the Australian Institute of Mining and Metallurgy and has sufficient experience relevant to the style of mineralisation under consideration to qualify as a competent person as defined in the 2004 edition of the "Australian Code of Reporting of exploration results, mineral resources and ore reserves". Mr Ball consents to the inclusion of the mineral resource estimate in the form and context in which it appears based on the information presented to him.*

#### DISCLAIMER

*This release contains certain **forward-looking statements**. These forward-looking statements are based on management's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, some of which are outside the control of Laguna Resources N, which could cause actual results to differ materially from such statements.*

*The **Exploration Target** presented is 1 to 2 million gold equivalent ounces of potential gold-silver mineralisation grading between 1.5 and 2.0 g/t gold equivalents. The potential quantity and grade is conceptual in nature. There has been insufficient exploration to define a Mineral Resource under the JORC Code and it is uncertain if further exploration will result in the determination of a Mineral Resource.*

***Gold equivalence** (AuEQ60) is estimated as  $AuEQ60 = Au + (Ag * EQ60)$ , where Au = gold content, Ag = silver content and EQ = equivalence factor, which is calculated as the ratio of gold price to silver price \* ratio of gold metallurgical recovery to silver metallurgical recovery. **EQ60** =  $PAu/PAg * RAu/RAg = 60$ , based on long-range prices of gold at US\$800/oz & silver US\$15/oz, and recoveries of gold at 90% and silver at 80% respectively.*

**Table 3. Summary of results from reverse circulation holes drilled and assayed; refer Figure 2.**

Drill Hole	ARQUEROS Sector	Section	Total Metres	Collar coordinates, metres			Azimuth (°)	Dip. (°)	Intersection, metres			Grades, g/t		
				North	East	Elevation			From	To	Length	Gold	Silver	Gold equivalent
AR09-01	SUR	N-900	330	7,050,900	482,070	4377	90	-80	Mineralisation absent or less than 0.5 g/t Au equivalent					
AR09-02	SUR	N-1000	317	7,051,000	482,082	4365	90	-80	Mineralisation absent or less than 0.5 g/t Au equivalent					
AR09-03	SUR	N-1100	380	7,051,100	482,077	4364	90	-70 <i>includes</i>	248	285	37	0.13	71	1.31
									262	274	12	0.20	151	2.71
									300	304	4	0.32	19	0.63
AR09-04	SUR	N-1100	235	7,051,100	482,200	4321	90	-70	Mineralisation absent or less than 0.5 g/t Au equivalent					
AR09-05	SUR	N-1200	261	7,051,200	482,085	4350	90	-65 <i>includes</i>	248	261	13	0.02	206	3.45
									257	261*	4	0.03	422	7.1
AR09-06	SUR	N-1400	224	7,051,405	482,190	4260	90	-63 <i>includes</i>	159	185	26	0.01	52	0.87
									178	181	3	0.01	233	3.88
AR09-07	SUR	N-1400	126	7,051,400	482,435	4241	90	-70 <i>includes</i>	103	118	15	0	106	1.78
									103	109	6	0	184	3.09
AR09-08	SUR	N-1500	180	7,051,492	482,220	4220	90	-60	130	139	9	0.05	37	0.68
AR09-09	SUR	N-1600	180	7,051,608	482,353	4192	90	-65 <i>Includes or includes</i>	67	178	111	0.51	43	1.23
									89	110	21	1.69	101	3.38
									96	107	12	2.44	127	4.56
									175	177	2	5.59	41	6.27
AR09-10	SUR	N-1600	80	7,051,598	482,395	4190	90	-75 <i>includes</i>	54	80	26	0.20	89	1.67
									62	68	6	0.10	220	3.84
AR09-11	SUR	N-1600	150	7,051,600	482,476	4166	90	-45	16	20	4	0.60	1.4	0.63
									28	59	31	0.03	52	0.91
AR09-12	SUR	N-1700	97	7,051,682	482,320	4148	90	-63 <i>includes</i>	73	97	24	1.28	22	1.64
									95	97*	2	6.34	14	6.56
AR09-14	NORTE	N-2000	105	7,052,005	482,322	4085	90	-60	2	9	7	0.66	3	0.71
									58	66	8	0.66	3	0.72

Table continues on next page ...

Note: \* Mineralisation not closed off

Table continued from previous page

Drill Hole	ARQUEROS Sector	Section	Total Metres	Collar coordinates, metres			Azimuth (°)	Dip. (°)	Intersection, metres			Grades, g/t		
				North	East	Elevation			From	To	Length	Gold	Silver	Gold equivalent
AR09-15	NORTE	N-1900	250	7,051,905	482,297	4064	90	-60	2	4	2	0.52	4	0.59
									141	142	1	0.62	7	0.74
									235	236	1	0.28	31	0.80
AR09-16	SUR	N-1800	150	7,051,796	482,294	4078	90	-65 <i>includes</i>	40	58	18	2.76	4	2.83
									45	49	3	7.12	8	7.26
									109	112	3	0.63	9	0.80
AR09-17	NORTE	N-2100	37	7,052,137	482,428	4150	90	-65	Hole abandoned					
AR09-18	NORTE	N-2100	160	7,052,137	482,422	4151	270	-65	88	98	10	0.57	15	0.82
AR09-19	NORTE	N-2200	110	7,052,223	482,440	4165	270	-65	68	74	7	0.26	22	0.63
AR09-20	NORTE	N-2200	80	7,052,221	482,439	4165	90	-70	38	55	17	0.25	42	0.96
AR09-21	NORTE	N-2300	150	7,052,288	482,463	4163	270	-65	36	72	36	0.27	55	1.18
									97	100	3	0.16	50	1.00
AR09-22	NORTE	N-2300	150	7,052,289	482,470	4163	90	-60 <i>includes</i>	34	62	28	0.02	70	1.19
									41	44	3	0.02	131	2.20
									71	79	8	0.18	23	0.56
AR09-23	SUR	N-900	277	7,050,900	481,976	4410	90	-80	Mineralisation absent or less than 0.5 g/t Au equivalent					
AR09-24	SUR	N-800	350	7,050,800	481,933	4433	90	-80 <i>includes</i>	316	347	34	0.15	77	1.43
									339	344	5	0.10	286	4.86
AR09-25	SUR	N-700	338	7,050,700	481,940	4429	90	-85	307	314	7	0.11	42	0.81
AR09-26	SUR	N-600	362	7,050,600	482,452	4425	270	-65	Assay results pending					
AR09-27	SUR	N-600	350	7,050,590	482,040	4392	270	-65	Assay results pending					
AR09-28	SUR	N-500	400	7,050,496	481,987	4418	270	-65	Assay results pending					
AR09-29	SUR	N-700	338	7,050,700	481,935	4429	270	-80	Assay results pending					
AR09-30	SUR	N-800	311	7,505,800	482,018	4398	90	-80	Drill hole in progress					
AR09-34	NORTE	N-2400	80	7,052,400	482,460	4148	90	-60	Assay results pending					
AR09-35	NORTE	N-2400	70	7,052,400	482,452	4148	270	-70	51	53	2	0.65	29	1.13

**Table 4. Summary of reverse circulation drillholes planned but not executed**

Drill Hole	ARQUEROS Sector	Section	Total Metres	Collar coordinates, metres			Azimuth (°)	Dip. (°)	Intersection, metres			Grades, g/t		
				North	East	Elevation			From	To	Length	Gold	Silver	Gold equivalent
AR09-31	SUR	N-1300	400	7,051,300	482,208	4306	90	-75	Planned					
AR09-32	NORTE	N-2300	130	7,052,300	482,408	4144	270	-65	Planned					
AR09-33	NORTE	N-2100	110	7,052,135	482,463	4128	0	-90	Planned					
AR09-36	SUR	N-1400	400	7,051,400	482,020	4243	90	-70	Planned					
AR09-37	SUR	N-1500	350	7,051,500	482,085	4181	90	-65	Planned					
AR09-38	SUR	N-1600	300	7,051,600	482,155	4148	90	-70	Planned					
AR09-39	SUR	N-1700	250	7,051,700	482,163	4107	90	-70	Planned					
AR09-41	SUR	N-1600	170	7,051,600	482,400	4217	270	-60	Planned					
AR09-42	SUR	N-1500	150	7,051,500	482,460	4203	270	-70	Planned					
AR09-43	SUR	N-1400	200	7,051,400	482,435	4243	270	-75	Planned					
AR09-44	SUR	N-1300	200	7,051,300	482,455	4235	270	-65	Planned					
AR09-45	SUR	N-1200	220	7,051,200	482,420	4252	270	-75	Planned					