# NI 43-101 Technical Report on Resources Invicta Gold Project Huaura Province, Peru

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### **Report Prepared for**

# **Andean American Gold Corporation**

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# **Summary (Item 1)**

This report was prepared as a Canadian National Instrument 43-101 (NI 43-101) Technical Report for Andean American Gold Corp. (Andean) by SRK Consulting (U.S.), Inc. (SRK) and concerns the Invicta Project located in the province of Huaura, department of Lima, Peru.

This report provides mineral resource estimates, and historical mineral reserve estimates, as well as a classification of resources in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, November 27, 2010 (CIM). All currency amounts are stated in US dollars (US\$) unless otherwise specified.

# **Property Description and Ownership**

The Invicta Project is located approximately 120 km to the northeast of the city of Lima. It is accessible by driving north along the Pan-American Highway from Lima to the city of Huaura, then along a portion of paved road and then a gravel road until the town of Huamboy for a total distance of 242 km. The property is located within the boundaries of the Paran, Lacsanga and Santo Domingo de Apache indigenous communities. Santo Domingo de Apache and Paran are in the district of Leoncio Prado while Lacsanga is in the district of Paccho.

Invicta Mining Corp. S.A.C. (Invicta) is 100% owner of the 38 mining concessions. Andean American Gold Corp. is 100% owner of Invicta.

Invicta exercised an option, in September 2005, (held by Andean American Mining, now Andean American Gold Corp.) for a 100% interest in five concessions held by Minera ABX Explorations S.A. (ABX), a subsidiary of Barrick Gold Corporation. The agreement was finalized in December 2008. Invicta has obligations set forth below for the maintenance of the five concessions acquired from ABX.

Payment of a 1% NSR royalty capped at US\$800,000. There is a payment to ABX of US\$100,000 per year towards the NSR royalty fee until the start of production. Invicta has to date paid US\$300,000 pursuant to the aforementioned royalty fee. A separate quarterly production royalty of US\$50,000 is payable after first production. The total production royalty is capped at US\$800,000.

In terms of the option agreement reached with ABX, Invicta is required to provide ABX with a copy of the Invicta Feasibility Study. ABX has a 90-day period to review the study. If the study demonstrates more than two million ounces of mineable gold-only reserves at the Invicta Project, ABX has the option to exercise a back-in right. Should ABX choose to exercise this back-in right, ABX would be required to pay Invicta 150% of all costs incurred at the Invicta Project in exchange for 51% of the project.

Invicta has no obligations regarding the remaining 33 concessions other than annual payment of the "Derecho Vigencia" fees.

Invicta has a surface rights agreement with the community of Santo Domingo de Apache covering all aspects of mine development, mineral processing and infrastructure. Negotiations regarding surface rights agreements are ongoing with the communities of Paran and Lacsanga as agreements with all three communities are required to initiate construction and operation.

### **Environmental**

Invicta has a previously approved Environmental Impact Assessment (EIA, 2009) from the Ministry of Energy and Mines, for the operation of a mine, plant (5,100 t/d of mineralized material based on a previous mine plan), and a power line. The mine, plant and infrastructure EIA (with the exception of the power line) was approved in December 2009. The EIA for the power line was approved by the Ministry of Energy and Mines, in December 2011.

The Invicta Project area currently has Certification of the Absence of Archaeological Ruins (CIRA), from the Ministry of Culture, covering slightly more than 400 hectares of the Invicta Project property. Additional CIRAs will be required before initiation of construction activities.

Invicta is currently evaluating alternative mine and plant production rates, and processing plant locations in order to optimize the Invicta Project economics.

The Invicta Project closure plan (for the 5,100 t/d of mineralized material mine plan) was approved by the Ministry of Energy and Mines in January 2012. The Invicta Project closure plan is subject to change and will be updated.

Invicta has assumed all environmental liabilities related to the concessions, and has committed to a program of sustainable development over the life of the mine.

The following Federal permits or approvals would be required before construction activities commence:

- Domestic and Industrial Waste Treatment and Sanitary Disposal System;
- Operation of a dump yard for the treatment of domestic solid waste or hazardous waste;
- Mine Plan:
- Various authorizations related to the use, transportation and manipulation of explosives;
- Authorization to Commence Exploitation Activities; and
- Concession de Beneficio (plant operating License).

Additionally, Invicta must obtain Municipal or Provincial authorization to construct access roads to mine facilities.

There are three neighboring communities within 12 km of the Invicta Project area: Paran, Lacsanga and San Domingo de Apache. The main economic activity of each of these rural villages is agriculture, particularly growing peaches and avocadoes. These three communities are in the area of direct influence of the Invicta Project and are titleholders of the surface lands where Invicta Project development would occur. By adopting the "Equator Principles", the Invicta Project has committed to obtaining and maintaining good relationships with nearby and affected communities.

# **Geology and Mineralization**

The western part of Peru consists of the Andean Cordillera, a major mountain range parallel to the Peru-Chile oceanic trench that developed as a result of subduction of the Nazca plate beneath the South American plate. The Coastal Batholith is divided into several plutonic complexes one of which is the Huaura complex, comprised mainly granodiorite, tonalite and diorite.

On a regional scale, the contact between intrusive rocks of the Coastal Batholith and the Calipuy Group (mafic to felsic volcanic to sub-volcanic rocks) exhibits distinct west-northwest or east-northeast trending orientations, which may be related to large-scale regional faults.

The Invicta Project geology comprises mainly mafic volcanic rocks of the Calipuy Group that overlie diorite, tonalite and granodiorite of the Paccho pluton, an intrusive suite that is part of the Huaura plutonic complex (Coastal Batholith).

In general, mineralization is characterized by the presence of quartz-pyrite-chalcopyrite-acanthite-hematite bearing quartz veins with common crustiform, banded and cockade textures exhibiting distinctive vugs. The sulfide mineralogy comprises stringers and blebs of pyrite and chalcopyrite and pods of sphalerite and galena. Minor chalcocite, digenite, chalcopyrite and bornite are also reported with traces of tennantite. Petrographic studies conducted suggest that gold occurs as free grains in fractured quartz and pyrite. These characteristics are typical of epithermal vein systems. Mineralization is hosted dominantly by (sub-) volcanic mafic rocks of the Calipuy Group.

At least three mineralized zones have been identified to date which are spatially associated with the Atenea, Pucamina and Dany Fault.

The primary mineralized zone, in terms of the mineral resources stated, is the Atenea vein. Lesser mineral resources are hosted by, or associated with, the Pucamina and Dany faults and include the Ydalias, Dany and Pucamina Zones.

Other quartz-sulfide vein zones are exposed at the Invicta Project. Limited trenching and minimal drilling has tested these zones and indicated that these vein zones also carry gold, copper and silver attesting to the further exploration potential of the area. SRK has not inspected these other vein zones in detail. The presence of copper-rich quartz-sulfide veins may suggest a stage of mineralization and deformation that may pre-date the dominant gold-silver-copper mineralization.

# **Exploration Status**

During 1997 and 1998, a 112 hole diamond drill program was completed by Pangea. Other work included detailed geological mapping, a stream sediment geochemical survey, and a resource calculation. Between July 2006 and May 2008 Invicta drilled 52 diamond drillholes in two separate phases.

Surface samples have been taken from the Atenea and the Pucamina Zones, and additional samples have been taken from the 3,400 m level adit, which extends into the Atenea vein. The surface sampling was conducted to explore the continuity of the Atenea Vein along the surface. Adit sampling was performed to augment and support the existing database.

A study was conducted between July and December 2010 to better understand the mineralogical and structural characteristics relating to the origin of the Invicta deposit. The study involved geological field work, surface sampling, review of satellite imagery, microscopic and electron microscopic investigations, chemical analysis, petrographic analysis and analysis of fluid inclusions.

Between August 2011 and March 2012, the Invicta geological team completed 47.8 ha of detailed geological mapping in an area centered on the Atenea and Pucamina Zones. During November 2011, SRK conducted a review of the structural and geological mapping to date carried out by the Invicta geological team.

SRK's interpretation of the Invicta exploration programs is that of an appropriately-planned and executed exploration program. Contractors and Invicta personnel are knowledgeable in mapping, sampling, and drilling procedures. SRK found that the procedures in place for exploration data gathering, and data verifications meet industry norms for precious metals exploration methods.

SRK has suggested that there is potential for mineralization similar to the Atenea Vein at depth below the breccia zones at the surface along the projected continuation of the Atenea Vein, and believes that this is a high priority exploration target that requires drilling to 1) test the presence of potential mineralization similar to the Atenea Vein at depth; and 2) if mineralization is encountered, determine the strike, dip and plunge extent of economic zones of mineralization. Other exploration targets have been identified for the Invicta Project.

Based on the presence of gold and copper within poorly explored quartz-sulfide vein zones at the Invicta Project, SRK believes that the Invicta Project has good potential for expansion of the current resource base. In particular, the implementation of diligent structural geology mapping procedures will aid in delimiting the strike, dip and plunge extent of additional vein zones. A program of focused trenching coupled with targeted drilling is required to test the economic potential of these known as well as other vein zones that may potentially exist in the area.

# **Mineral Processing and Metallurgical Testing**

Extensive process development studies have been performed in several test laboratories for the Invicta Project. In recent metallurgical test programs the objective was to incorporate a conventional processing flow sheet to recover two concentrates, namely copper concentrate which contained most of the gold and some silver and lead, and a lead concentrate which contained some silver and gold.

The recent test work was undertaken at the National University of San Augustine of Arequipa, Peru. The program was designed by Dr. Deepak Malhotra, President, Resource Development Inc. (RDi). A large fresh sample, consisting of over 1 t of mineralized material from the Invicta deposit was provided for the study.

Locked-cycle tests were performed to simulate the metallurgical performance in the plant. A pilot plant continuous circuit was also run for a few days to demonstrate that the process developed on the bench scale works on a larger scale and to generate concentrates and tailings for additional testing (i.e. filtration, thickening, etc.).

Limited test work was undertaken on the lead/copper rougher tailings to demonstrate that one could recover and produce marketable zinc concentrate if desired. However, it is not incorporated into the process flow sheet at this time.

Sufficient metallurgical test work has been undertaken to demonstrate that conventional processing method consisting of grinding the mineralized material to liberation size (P<sub>80</sub> of 74 microns) followed by bulk rougher and cleaner flotation produces a good Cu-Pb concentrate. The copper and lead concentrates can be separated by depressing lead minerals and floating copper minerals. The majority of the gold and half of silver reported to the copper concentrate and some gold and the other half of silver reported to the lead concentrate.

Based on the detailed metallurgical program results, overall recoveries and grades of the saleable metals in copper and lead concentrates were as follows:

- The lead concentrate assayed 52.87% Pb, 3.35% Cu, 4.28% Zn, 10.82 g/t Au, and 632.59 g/t Ag. The lead, gold and silver recoveries in the concentrate were 82.3%, 5.9% and 34.4%, respectively.
- The copper concentrate assayed 31.35% Cu, 3.33% Pb, 1.74% Zn, 111.93 g/t Au, and 648.98 g/t Ag. The copper, gold and silver recoveries in the concentrate were 81.5%, 78.9% and 45.4%, respectively.
- The overall gold and silver recoveries before discounting for smelter deductions were 84.8% and 79.8%, respectively.

Lead and copper separation in the current conventional circuit can be further optimized.

### **Mineral Resource Estimate**

The mineral resources for the Invicta gold-silver-copper-lead-zinc deposit, located in Huaura Province, Peru, is estimated by SRK at 8,644 kt grading an average of 2.13 g/t gold, 15.90 g/t silver, 0.43% copper, 0.24% lead and 0.29% zinc, classified as Measured and Indicated mineral resources; with an additional 2,534 kt grading an average of 1.61 g/t gold, 12.02 g/t silver, 0.46% copper, 0.27% lead and 0.18% zinc classified as Inferred mineral resources. The resource is stated above a 1.30 g/t gold equivalent cut-off and contained within potentially economically mineable mineralized solids. Metal prices assumed for the gold equivalent calculation are US\$1,500/oz for gold, US\$32.50/oz for silver, US\$3.90/lb for copper, US\$1.05/lb for lead and US\$1.00/lb for zinc. The gold equivalent calculation assumes 100% metallurgical recovery, and does not account for any smelting, transportation or refining charges.

The mineral resources are reported in accordance with Canadian National Instrument 43-101 (NI 43-101) and have been estimated in conformity with generally accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Estimation of Mineral Resource and Mineral Reserves Best Practices" Guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserves. The resource estimate was completed by Frank Daviess, MAusIMM under the direction of Jeffrey Volk, CPG, FAusIMM, Principal Resource Geologist with SRK.

Table 1: Mineral Resource Statement for the Invicta Gold-Silver-Copper-Lead-Zinc Deposit, Huaura Province, Peru, SRK Consulting (Inc.), April 6, 2012\*

	Resource	Tonnes			Metal Gr	ade				Con	tained I	Metal (000	0's)	
Zone	Category	(000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq Oz	Au Oz	Ag Oz	Cu Lbs	Pb Lbs	Zn Lbs
	Measured	131	6.65	4.29	31.71	0.73	0.39	0.38	28	18	133	2,119	1,110	1,105
Atenea -	Indicated	5,696	3.83	2.34	17.99	0.45	0.28	0.34	701	429	3,294	56,848	35,251	43,094
All Zones	M+I	5,827	3.89	2.39	18.29	0.46	0.28	0.34	729	447	3,427	58,967	36,361	44,198
	Inferred	1,533	3.56	2.35	10.93	0.46	0.13	0.19	175	116	539	15,574	4,495	6,373
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Dany	Indicated	868	1.97	0.54	13.45	0.58	0.11	0.09	55	15	375	11,151	2,153	1,723
Daily	M+I	868	1.97	0.54	13.45	0.58	0.11	0.09	55	15	375	11,151	2,153	1,723
	Inferred	668	1.72	0.14	12.66	0.53	0.58	0.16	37	3	272	7,876	8,496	2,387
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Pucamina	Indicated	1,064	2.53	1.97	6.98	0.10	0.23	0.28	87	67	239	2,277	5,315	6,614
Fucamina	M+I	1,064	2.53	1.97	6.98	0.10	0.23	0.28	87	67	239	2,277	5,315	6,614
	Inferred	202	1.96	1.38	8.68	0.14	0.14	0.18	13	9	56	625	605	781
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Ydalias -	Indicated	12	7.16	3.63	34.89	1.43	0.29	0.19	3	1	13	379	77	51
All Zones	M+I	12	7.16	3.63	34.89	1.43	0.29	0.19	3	1	13	379	77	51
	Inferred	35	2.66	0.41	58.19	0.21	1.25	0.04	3	0	65	159	951	27
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Zone 4	Indicated	872	3.31	2.15	12.94	0.44	0.12	0.10	93	60	363	8,393	2,375	2,000
20116 4	M+I	872	3.31	2.15	12.94	0.44	0.12	0.10	93	60	363	8,393	2,375	2,000
	Inferred	95	2.74	0.87	15.37	0.78	0.16	0.14	8	3	47	1,645	344	285
	Measured	131	6.65	4.29	31.71	0.73	0.39	0.38	28	18	133	2,119	1,110	1,105
Total - All	Indicated	8,513	3.43	2.09	15.65	0.42	0.24	0.28	939	573	4,285	79,048	45,171	53,482
Zones	M+I	8,644	3.48	2.13	15.90	0.43	0.24	0.29	967	591	4,418	81,167	46,281	54,587
	Inferred	2,534	2.90	1.61	12.02	0.46	0.27	0.18	236	131	979	25,879	14,891	9,854

#### \*Notes

- Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves estimate;
- Resources stated as contained within potentially economically minable underground solids stated above a 1.3g/t Au Equivalent cut-off:
- The resource is stated above a 1.30 g/t gold equivalent cut-off and contained within potentially economically mineable mineralized solids. Metal prices assumed for the gold equivalent calculation are US\$1,500/oz for gold, US\$3.2.50/oz for silver, US\$3.90/lb for copper, US\$1.05/lb for lead and US\$1.00/lb for zinc. The gold equivalent calculation assumes 100% metallurgical recovery, and does not account for any smelting, transportation or refining charges.
- Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding;
- Mineral resource tonnage and grade are reported as diluted to reflect a potentially minable underground SMU of 3.0m; and
- The resource model has not been depleted for historical artisanal mining, as location and extent of these workings are largely undocumented.

### Other Relevant Data and Information

The previous Technical Report applicable to the Invicta Project was issued by The Lokhorst Group in July 2010, and was entitled "Invicta Gold Project Optimized Feasibility Study". This current Technical Report issued by SRK, "NI 43-101 Technical Report on Resources, Invicta Gold Project", supersedes the previous July 2010 Lokhorst Technical Report, the results of which are no longer to be relied on.

In October 2011, Andean announced that the initial capital cost to build an underground mine at the Invicta Project would be considerably higher than forecast in the July 2010 Feasibility Study, partly due to increases in the estimates for infrastructure. Andean's management and Board of Directors decided to delay completion of the SRK Feasibility Study on the Invicta Project in October 2011, and indicated that the (then ongoing) engineering studies would not be completed to a feasibility level at that stage. The SRK Feasibility Study on the Invicta Project was discontinued at that time.

Given that neither a Pre-Feasibility Study (PFS) nor Feasibility Study (FS) currently exists for the Invicta Project, which incorporates all presently applicable Invicta Project cost estimates, there is no currently valid PFS or FS. It follows that there are no current mineral reserves for the Invicta Project in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, November 27, 2010 (CIM).

Andean has agreed to reclassify the (previous) mineral reserves as mineral resources. The mineral resources are stated in Section 12. Andean's press release (dated February 13, 2012) announced this reclassification. In summary, there are no current mineral reserves estimated for the Invicta Project.

### **Conclusions and Recommendations**

### **Conclusions**

SRK has suggested that there is potential for mineralization similar to the Atenea Vein at depth below the breccia zones at the surface along the projected continuation of the Atenea Vein, and believes that this is a high priority exploration target that requires drilling to test the presence of potential mineralization at depth and determine the strike, dip and plunge extent of economic zones of mineralization. Other exploration targets have been identified for the Invicta Project.

Based on the presence of gold and copper within the under- explored quartz-sulfide vein zones at the Invicta Project, SRK believes that the Invicta Project has good potential for expansion of the current resource base. In particular, the implementation of diligent structural geology mapping procedures will aid in delimiting the strike, dip and plunge extent of additional vein zones.

SRK has not reviewed the raw data that supports the QA/QC graphs presented in a previous NI 43-101 (Jaramillo, 2009) which support the validity of the drillhole database. However, SRK 's opinion is that the QA/QC program in place for the drilling programs was adequate, and the reported results are satisfactory to verify data qualify, and thus the drillhole database is sufficient for use in resource estimation.

SRK completed data verification by several means, including visual examination on site, verification of the assay database against laboratory assay certificates, and review of past and current QA/QC procedures and results.

SRK concluded that the data from the drilling campaign as provided are suitable for the use in resource estimation. It is SRK's opinion that there are no identified limitations to the resource database that will have a material effect on the resource estimation process or stated mineral resources.

Sufficient metallurgical test work has been undertaken to demonstrate that a conventional processing method consisting of grinding the ore to liberation size followed by bulk rougher and cleaner flotation produces a good Cu-Pb concentrate.

SRK has estimated the resources for the project using industry accepted practices and concludes that the sample data are of sufficient spacing to classify the resources into Measured, Indicated and Inferred resource categories. SRK is of the opinion that the potential to increase the resources with additional step-out and down dip drilling in the existing resource areas is good. SRK recommends that Invicta geology personnel construct a detailed 3-D geology and structural model based on

additional information and interpretations carried out during the 2011 field programs to assist in targeting the resource expansion campaign.

Viable options for power, water supply and road access have been defined; however, alternatives have been identified that could result in a reduction in Invicta Project development capital costs.

### Recommendations

As part of follow-up exploration, SRK recommends the following tasks be completed:

- Complete detailed structural-geological mapping over the entire Invicta Project;
- Develop a structural and stratigraphic 3D geological model, including cross- and longsections for mineralized zones to identify potential areas of interest for exploration targeting; and
- Complete a regional structural geological interpretation of airborne geophysical and remote sensing data to better define the regional structural framework and identify conceptual targets in the wider region.

Lead and copper separation in the current conventional circuit can be further optimized. Alternative reagents and test conditions are variables that can continue to be refined for testing with the established flowsheet. Work on increasing solids density has showed promise on recoveries and reagent consumption.

The direct leach of the Invicta Project mineralized material to produce a precious metal doré remains an interesting alternative and test work was planned but not executed in the last phase of work. New scoping test work on gold amenability to direct leaching on current ore composites is recommended.

The following trade-off studies are recommended as part of a Phase I Work Program:

- Complete preliminary mining trade-off studies to determine the most suitable mining method and ore production rate;
- Complete preliminary project cash flow modeling to estimate project economics;
- Given satisfactory results from the preliminary project economic study, prepare summary documentation for Andean management approval to advance the Invicta Project to a feasibility study; and
- Future activities will include finalizing community agreements that will define the location of the process and tailings facilities.

Table 2 provides a breakdown of the total Phase I Work Program costs.

Table 2: Phase I Costs

Item	Cost \$US
Structural-Geological Mapping	7,000
Regional Structural Geological Interpretation	40,000
Metallurgical LeachingTestwork	40,000
Mining Trade-off Studies	40,000
Preliminary Project Economic Study	30,000
Total	US\$157,000

Based on the findings of the Phase I Work Program, a decision would be made to proceed to either a Phase IIA Work Program for a series of studies leading up to and including a Feasibility Study, or a

Phase IIB Work Program for an infill and exploration drilling program, or to possibly execute components of both programs.

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Appendix B: Pangea and Invicta Drillhole Data

# 1 Introduction (Item 2)

# 1.1 Terms of Reference and Purpose of the Report

This report was prepared as a Canadian National Instrument 43-101 (NI 43-101) Technical Report for Andean American Gold Corp. (Andean) by SRK Consulting (U.S.), Inc. (SRK). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in SRK's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Andean subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Andean to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to NI 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Andean. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued. This document supersedes earlier Technical Reports.

This report provides mineral resource estimates, and historical mineral reserve estimates, as well as a classification of resources in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, November 27, 2010 (CIM).

# 1.2 Qualifications of Consultants (SRK)

The Consultants preparing this technical report are specialists in the fields of geology, exploration, mineral resource and mineral reserve estimation and classification, environmental, permitting, metallurgical testing, and mineral processing.

None of the Consultants or any associates employed in the preparation of this report has any beneficial interest in Andean. The Consultants are not insiders, associates, or affiliates of Andean. The results of this Technical Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Andean and the Consultants. The Consultants are being paid a fee for their work in accordance with normal professional consulting practice.

The following individuals, by virtue of their education, experience and professional association, are considered Qualified Persons (QP) as defined in the NI 43-101 standard, for this report, and are members in good standing of appropriate professional institutions. The QP's are responsible for specific sections as follows:

- Allan Moran (SRK), Principal Geologist is the QP responsible for Sections 7, 8, 9, and 18.1.2.
- Ivo Vos (SRK), Senior Geologist (Structural Geology) is the QP responsible for Sections 5, 6, 18.1.1 and 18.2.1.
- Jeff Volk (SRK), Principal Resource Geologist is the QP responsible for Sections 10, 12, 16, 18.1.3, 18.1.4, and 18.2.2.

- Deepak Malhotra (RDi), Processing Engineer, is the QP responsible for Sections 11, 17.2, 18.1.5, and 18.2.4.
- Terry Braun (SRK) is the QP for Section 15.
- Peter Clarke (SRK), Principal Mining Engineer is the QP responsible for Sections 1 through 4, 13, 14, 17.1, 17.3, 18.2.3, 18.2.5, 18.2.6, 18.2.7, and 19 and report compilation.

## 1.2.1 Details of Inspection

Dr. Ivo Vos visited the Invicta Project for the purpose of a structural geology study from November 23 to 30, 2011. During this visit, Dr. Vos investigated available mineralized drill core intervals and inspected surface and underground exposures within the Invicta Project area to determine the structural controls on the distribution of mineralization. During this visit, Dr. Vos worked together closely with Invicta Mining Corp. S.A.C.'s (Invicta) project geologists. Drilling and logging procedures were discussed at this time. Furthermore, prior to this site visit, Dr. Vos visited Invicta's Lima office on November 22 to discuss geological work completed to that date and review available geological maps.

Jeffrey Volk visited the Invicta's offices in Lima between September 12 and 14, 2011. Following this visit, Mr. Volk also visited the site, toured the underground workings, and met with the project geologist and staff to discuss the drilling, logging, sampling, analytical procedures, and QA/QC procedures at the Invicta Project site.

Terry Braun made a site visit to the Invicta Project on October 14, 2010. Mr. Braun visited the Pariacoto Puñocoto area (originally planned plant site at elevation 2,300 m) to obtain familiarity with the environmental aspects of the Invicta Project.

# 1.3 Reliance on Other Experts (Item 3)

The Consultant's opinion contained herein is based on information provided to the Consultants by Andean throughout the course of the investigations. SRK has relied upon the work of other consultants in the project areas in support of this Technical Report. The sources of information include data and reports supplied by Invicta personnel as well as documents referenced in Section 20. Report contributors included Juan Mora, Superintendent of Geology, Richard Chavez, Senior Exploration Geologist, Luisa Loayza, Assistant Resource Geologist, Carlos Almonte, Senior CAD Technologist and Terry Murphy, Project Manager, with Invicta.

The Consultants used their experience to determine if the information from previous reports was suitable for inclusion in this technical report and adjusted information that required amending. This report includes technical information, which required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the Consultants do not consider them to be material.

### 1.3.1 Sources of Information and Extent of Reliance

Invicta provided SRK with drillhole data, topography and density data for use in the resource estimation. SRK has relied on information provided by Invicta personnel as to land and mineral ownership and any associated royalties. SRK has not independently verified ownership of land or

mineral rights and has not reviewed all of the agreements between the local communities and Invicta. Section 20 lists sources of information used in the preparation of this report.

The information contained in this Technical Report is based on documentation believed to be reliable. The recommendations and conclusions stated in this report are based on information provided to SRK.

### 1.4 Effective Date

The effective date of this report is April 6, 2012.

### 1.5 Units of Measure

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in U.S. dollars (US\$) unless otherwise stated.

# 1.6 Previous Technical Report

The previous Technical Report applicable to the Invicta Project was issued by The Lokhorst Group in July 2010, and was entitled "Invicta Gold Project Optimized Feasibility Study". This report was prepared for Andean and placed on file at <a href="https://www.sedar.com">www.sedar.com</a>.

This current Technical Report issued by SRK, "NI 43-101 Technical Report on Resources, Invicta Gold Project", prepared for Andean American Gold Corp., supersedes the previous July 2010 Lokhorst Technical Report, the results of which are no longer to be relied on.

In October 2011, Andean announced that the initial capital cost to build an underground mine at the Invicta Project would be considerably higher than forecast in the July 2010 Feasibility Study, partly due to increases in the estimates for infrastructure. Andean's management and Board of Directors decided to delay completion of the SRK Feasibility Study on the Invicta Project in October 2011, and indicated that the (then ongoing) engineering studies would not be completed to a feasibility level at that stage. The SRK Feasibility Study on the Invicta Project was discontinued at that time.

Given that the 2010 Feasibility Study (by The Lokhorst Group) does not incorporate all presently applicable Invicta Project cost estimates, there is no currently valid feasibility study for the Invicta Project. In accordance with CIM Guidelines, it follows that there are no current mineral reserves for the Invicta Project. Andean has agreed to reclassify the (previous) mineral reserves as mineral resources, as announced by Andean in the press release dated February 13, 2012.

# 2 Property Description and Location (Item 4)

The Invicta Project is located in the province of Huaura, department of Lima, Peru (Figure 2-1). The property is located within the boundaries of the Paran, Lacsanga and Santo Domingo de Apache indigenous communities. Santo Domingo de Apache and Paran are in the district of Leoncio Prado, while Lacsanga is in the district of Paccho.

# 2.1 Property Location

The Invicta Project is located approximately 120 km to the northeast of the city of Lima, centered about the geographical coordinates of Latitude 11°01'47.13"S and Longitude 77°00'38.49"W. It is readily accessible by driving north along the Pan-American Highway from Lima to the city of Huaura, then along a portion of paved road and then a gravel road until the town of Huamboy for a total distance of 242 km. A shorter access route from Lima is along the Pan-American Highway North, exiting at Rio Seco and continuing along a paved (10 km) and gravel road, which reduces the distance to 198 kilometers. Access to the site is by either a secondary gravel road from Huamboy via Paran, or a secondary gravel road from Picunche via Lacsanga. Vehicles up to 8 t access the site regularly via the road from Picunche. A third longer access is available via Santo Domingo de Apache.

# 2.2 Mineral Titles

The Invicta Project comprises 38 mining concessions held by Invicta. The Invicta Project comprises a total area of 31,600 ha. A map of the mining concessions is shown in Figure 2-2.

The General Mining Law of Peru defines and regulates different categories of mining activities, ranging from sampling and prospecting to development, mining, and processing. Since September 1992, mining concessions are granted using UTM coordinates to define areas generally ranging from 100 ha up to a maximum of 1,000 ha in size. Mining titles are irrevocable and perpetual, as long as the titleholder maintains payment of the "Derecho Vigencia" fees up to date to the Ministry of Energy and Mines. A holder must pay a "Vigencia" (annual maintenance fee) of US\$3/ha (for metallic mineral concessions) for each concession actually acquired or for a pending application (petitorio or claim) at the time of acquisition, and then by June 30th of each subsequent year to maintain the concession. The concession holder must sustain a minimum level of annual commercial production of greater than US\$100/ha in annual gross sales before the end of the sixth year of the granting of a concession; or, if the concession has not been put into production within that period (by the first semester of the seventh year), the annual rental increases to US\$9/ha (US\$3 for Vigencia plus a US\$6 penalty) until the minimum production level is met. If by the start of the twelfth year the minimum production level has still not been achieved then the annual rental increases to US\$23/ha thereafter (US\$3 for Vigencia plus a US\$20 penalty). The concession holder can be exonerated from paying the penalty if he can demonstrate that during the previous year he has "invested" an equivalent of no less than ten times the penalty for the total concession. This investment must be documented along with the copy of the "declaración jurada de impuesto a la renta" (annual tax statement) and the payment of the annual Derecho Vigencia fees. The concession will terminate if the annual rental is not paid for three years in total or for two consecutive years. The term of a concession is indefinite provided it is properly maintained by payment of rental fees.

A Peruvian mining concession is a property-related right; distinct and independent from the ownership of land on which it is located, even when both belong to the same person. The rights granted by a mining concession are defensible against third parties, are transferable and chargeable, and, in general, may be the subject of any transaction or contract.

To be enforceable, any and all transactions and contracts pertaining to a mining concession must be entered into a public deed and registered with the Public Mining Registry (Registry Publico de Mineria). Conversely, the holder of a mining concession must develop and operate his/her concession in a progressive manner, in compliance with applicable safety and environmental regulations and with all necessary steps to avoid third-party damages. The concession holder must permit access to those mining authorities responsible for assessing that the concession holder is meeting all obligations.

### 2.2.1 Nature and Extent of Issuer's Interest

Invicta is 100% owner of the 38 mining concessions. Table 2.2.1.1 contains the list of the mining concessions, area covered and due date for annual payment of the Derecho Vigencia fees. Figure 2-2 contains the Invicta Concession Map. Andean is 100% owner of Invicta.

Table 2.2.1.1: List of Concessions

Concession Name	Area (Hectares)	Expiry Date	Code	Owner
Victoria Uno	1,000	30 June 2012	10334195	Invicta Mining Corp S.A.C.
Victoria Dos	400	30 June 2012	10336295	Invicta Mining Corp S.A.C.
Victoria Tres	900	30 June 2012	10335795	Invicta Mining Corp S.A.C.
Victoria Cuatro	400	30 June 2012	10197196	Invicta Mining Corp S.A.C.
Victoria Siete	1,000	30 June 2012	10231196	Invicta Mining Corp S.A.C.
Invicta I	1,000	30 June 2012	10312905	Invicta Mining Corp S.A.C.
Invicta II	1,000	30 June 2012	10313005	Invicta Mining Corp S.A.C.
Invicta III	1,000	30 June 2012	10313105	Invicta Mining Corp S.A.C.
Invicta IV	1,000	30 June 2012	10313205	Invicta Mining Corp S.A.C.
Invicta V	900	30 June 2012	10313305	Invicta Mining Corp S.A.C.
Invicta VI	600	30 June 2012	10306609	Invicta Mining Corp S.A.C.
Invicta VII	300	30 June 2012	10313705	Invicta Mining Corp S.A.C.
Invicta VIII	800	30 June 2012	10336305	Invicta Mining Corp S.A.C.
Invicta IX	800	30 June 2012	10336405	Invicta Mining Corp S.A.C.
Invicta X	900	30 June 2012	10336505	Invicta Mining Corp S.A.C.
Invicta XI	1,000	30 June 2012	10336605	Invicta Mining Corp S.A.C.
Invicta XII	600	30 June 2012	10336705	Invicta Mining Corp S.A.C.
Invicta XV	1,000	30 June 2012	10169606	Invicta Mining Corp S.A.C.
Invicta XVI	300	30 June 2012	10169706	Invicta Mining Corp S.A.C.
Invicta XVII	1,000	30 June 2012	10596907	Invicta Mining Corp S.A.C.
Invicta XVIII	1,000	30 June 2012	10597007	Invicta Mining Corp S.A.C.
Invicta XIX	1,000	30 June 2012	10598907	Invicta Mining Corp S.A.C.
Invicta XX	1,000	30 June 2012	10599007	Invicta Mining Corp S.A.C.
Invicta XXI	500	30 June 2012	10601907	Invicta Mining Corp S.A.C.
INVICA XXII	800	30 June 2012	10602007	Invicta Mining Corp S.A.C.
Invicta XXIII	1,000	30 June 2012	10622307	Invicta Mining Corp S.A.C.
Invicta XXV	1,000	30 June 2012	10622507	Invicta Mining Corp S.A.C.
Invicta XXVI	900	30 June 2012	10103709	Invicta Mining Corp S.A.C.
Invicta XXX	800	30 June 2012	10103809	Invicta Mining Corp S.A.C.
Invicta XXXI	500	30 June 2012	10103909	Invicta Mining Corp S.A.C.
Invicta XXXII	1000	30 June 2012	10104009	Invicta Mining Corp S.A.C.
Invicta XXXIII	1000	30 June 2012	10104109	Invicta Mining Corp S.A.C.
Invicta XXXIV	800	30 June 2012	10104209	Invicta Mining Corp S.A.C.
Invicta XXXV	1,000	30 June 2012	10104309	Invicta Mining Corp S.A.C.
Invicta XXXVI	700	30 June 2012	10209010	Invicta Mining Corp S.A.C.
Invicta XXXVII	800	30 June 2012	10208910	Invicta Mining Corp S.A.C.
Invicta XXXVIII	1000	30 June 2012	10476110	Invicta Mining Corp S.A.C.
Invicta XXXIX	900	30 June 2012	10476210	Invicta Mining Corp S.A.C.
TOTAL	31,600			

# 2.3 Royalties, Agreements and Encumbrances

Invicta exercised an option, dated September 9, 2005, (held by Andean American Mining Corp., now Andean American Gold Corp.) for a 100% interest in the concessions Victoria Uno, Victoria Dos, Victoria Tres, Victoria Quatro and Victoria Siete from Minera ABX Explorations S.A. (ABX), a subsidiary of Barrick Gold Corporation (Barrick). The agreement was finalized in December 2008.

Invicta has the obligations set forth below for the maintenance of the five concessions acquired from ABX.

Payment of a 1% NSR royalty capped at US\$800,000. There is a payment to ABX of US\$100,000 per year towards the NSR royalty fee until the start of production. Invicta has to date paid US\$300,000 pursuant to aforementioned royalty fee.

A separate quarterly production royalty of US\$50,000 is payable after first production. The total production royalty is capped at US\$800,000.

In terms of the option agreement reached with ABX, Invicta is required to provide ABX with a copy of the Invicta Feasibility Study. ABX has a 90-day period to review the study. If the study demonstrates more than two million ounces of mineable gold-only reserves at the Invicta Project, ABX has the option to exercise a back-in right. Should ABX choose to exercise this back-in right, ABX would be required to pay Invicta 150% of all costs incurred at Invicta in exchange for 51% of the project

Compañía Minera San Jorge S.A. has a right of first refusal on any transfer of the concessions by Invicta.

Invicta must pay all Derecho Vigencia fees to the Ministry of Energy and Mines to maintain the mineral concessions.

Invicta has no obligations regarding the remaining 33 concessions other than annual payment of the Derecho Vigencia fees.

Invicta has surface rights agreement with the community of Santo Domingo de Apache covering all aspects of mine development, mineral processing and infrastructure. Invicta has committed to a program of sustainable development with the community over the life of the mine.

Negotiations regarding surface rights agreements are ongoing with the communities of Paran and Lacsanga, as agreements with all three communities are required to initiate construction and operation.

Invicta has a water use permit for 40 l/s for 12 h/d from the Peruvian Ministry of Agriculture through the ATDR (Irrigation District Technical Administration Authority), dated Oct 27, 2009. A water well has been constructed and the surface rights for the area required for the well have been obtained from a third party and registered.

### 2.4 Location of Mineralization

The Invicta Project mineralized area is located near the contact of the Tertiary Calipuy Group overlying the Cretaceous Paccho Pluton. The volcanic rocks are cross-cut by structures hosting quartz veins that contain gold, silver and base metal mineralization at the Invicta Project. Several mineralized structures are present at the Invicta Project and are described in more detail in Section

5. Mineralization that forms the basis for the resource estimate occurs in five discrete zones named the Atenea Zone, Pucamina Zone, Dany Zone, Zone 4 and the Ydalias Zone.

# 2.5 Environmental Liabilities and Permitting

Invicta has assumed all environmental liabilities related to the concessions, and has committed to a program of sustainable development over the life of the mine.

### 2.5.1 Environmental Liabilities

Environmental liabilities related to previous exploration drilling include drilling platforms, mud deposits, access roads, adits and historical mining conducted on the property. During recent exploration activities, Invicta implemented mitigation measures such as installation of geotextile covers, and rainwater diversion canals at the waste and mineral storage area.

Invicta is currently working with a third party engineering firm to develop a closure plan and execute closure of the liabilities. The closure plan will then be presented to the authorities, and once approval for this work has been granted by the Peruvian Ministry of Energy and Mines, Invicta plans to execute the closure of the environmental liabilities. This work is expected to commence in 2012.

# 2.5.2 Required Permits and Status

Invicta has an approved Environmental Impact Assessment (EIA) from the Ministry of Energy and Mines, for the operation of the mine, plant, and power line. The mine, plant and infrastructure EIA (with the exception of the power line) was approved in December 2009. The EIA for the power line was approved by the Ministry of Energy and Mines, in December 2011. The Invicta Project closure plan was approved by the Ministry of Energy and Mines in January 2012. The Invicta Project area currently has Certification of the Absence of Archaeological Ruins (CIRA), from the Ministry of Culture, covering slightly more than 400 ha of the Invicta Project property. Additional CIRAs will be required before initiation of construction activities.

Table 2.5.2.1: Remaining Major Permits and Approvals Required for the Invicta Project

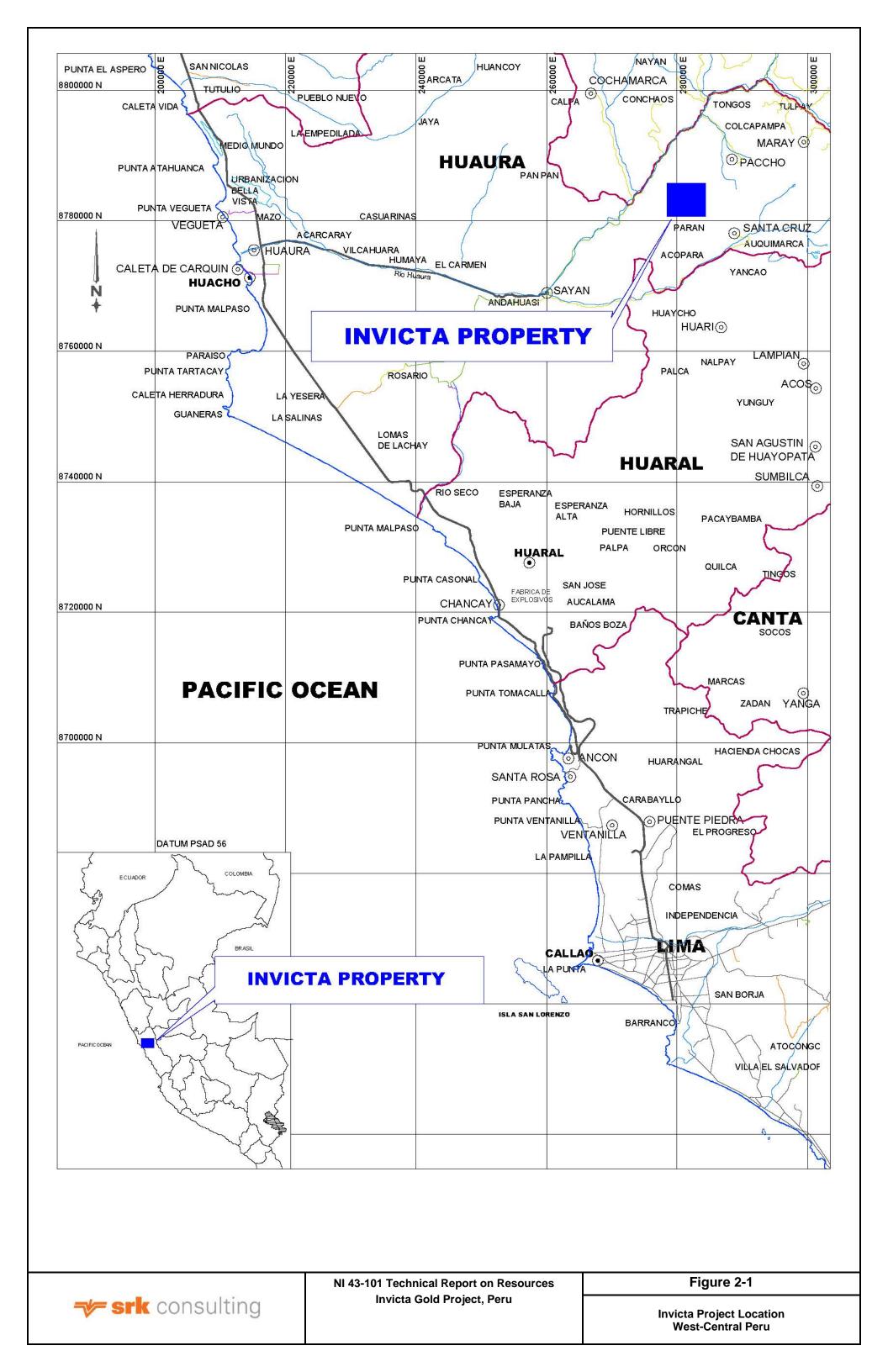
Permit/Approval	Granting Agency	
Federal		
Mine Plan	Ministry of Energy and Mines (MEM)	
Various Authorizations related to the use, Transportation and manipulation of explosives.	Ministry of Energy and Mines (MEM)	
Authorization to Commence Exploitation Activities	Ministry of Energy and Mines (MEM)	
Concession de Beneficio (Plant operating License)	Ministry of Energy and Mines (MEM)	
Certification of the absence of Archaeological Ruins	Ministry of Culture	
Municipal and Provincial		
Authorization to construct access roads	Municipality or Province.	

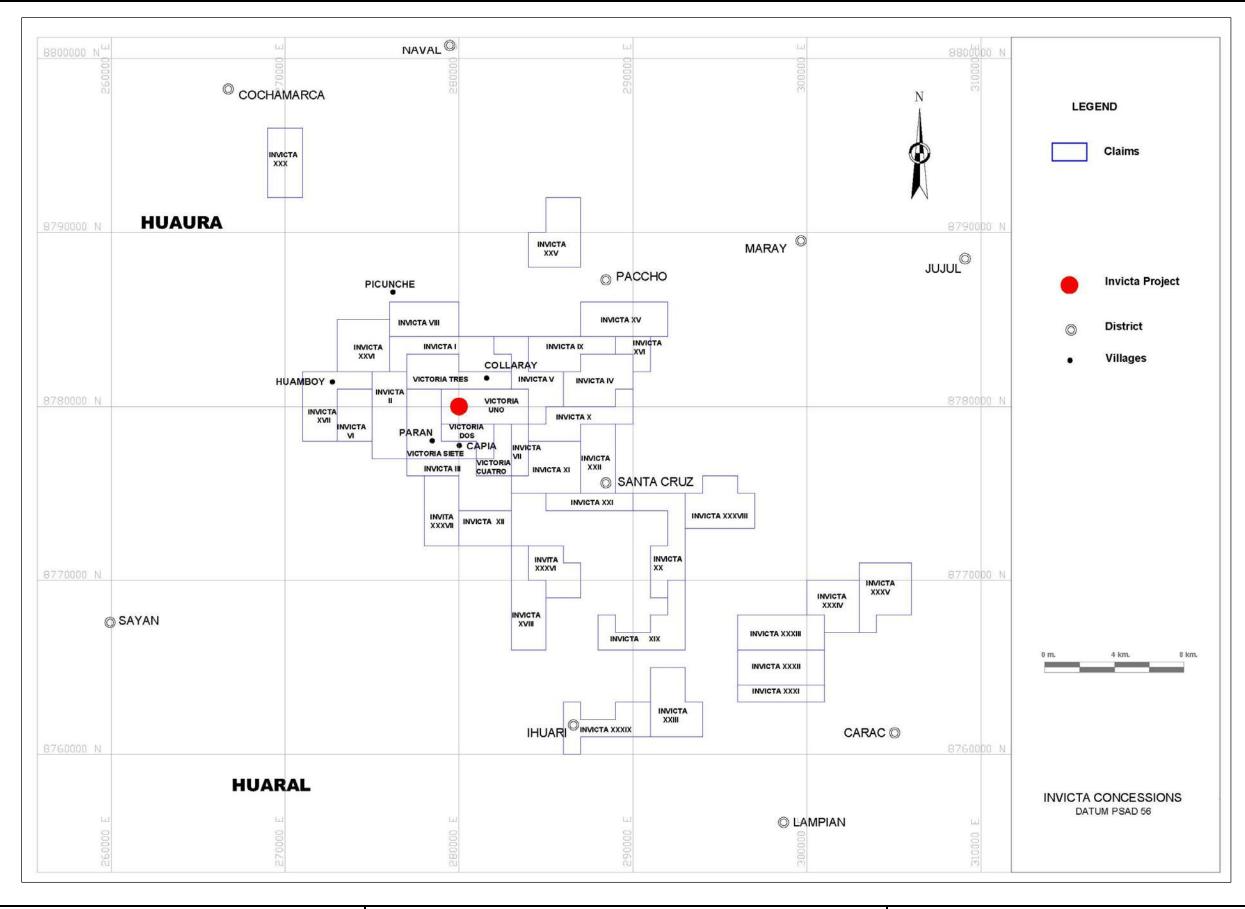
# 2.6 Other Significant Factors and Risks

A land use agreement was finalized with Santo Domingo de Apache in October 2010. It is necessary to either formulate a plan to have all surface works in Santo Domingo de Apache, or finalize agreements with one or more of the other two communities of Paran and Lacsanga. Comprehensive offers targeting a land use agreement with Invicta have been tabled formally to both communities and engagement continues.

Currently the EIA and closure plans envisage a Paran based solution with the metallurgical facility and tailings enclosure in the area of Pariacoto Puñocoto. Based on trade-off studies conducted so far, this remains an alternative although not the preferred solution. A facility location identified in Lacsanga land has attractive capital and build timeline advantages, while being at least as suitable environmentally. This facility location would require modifications to the EIA and closure plans.

Future activities will include finalizing community agreements that will define the location of the process and tailings facilities. A feasibility study will be completed with the selected option and revisions to the EIA and closure plans will follow logically from that work.





# 3 Accessibility, Climate, Local Resources, Infrastructure and Physiography (Item 5)

# 3.1 Topography, Elevation and Vegetation

The topography is rugged with deep "V" shaped valleys cutting through the Andes along the eastern margin of the Coastal Batholith. The average elevation in the Invicta Project area is 3,600 masl. There is little vegetation, mainly small plants and cacti.

# 3.2 Climate and Length of Operating Season

The climate is semi-arid most of the year. The rainy season runs from December to March, with annual rainfall of 25 to 53 cm. Temperatures during winter can be 5°C and in the summer months reach up to 34°C. Temperatures vary with altitude.

# 3.3 Sufficiency of Surface Rights

SRK has reviewed the sufficiency of surface rights and is of the opinion that Invicta has sufficient surface rights for the mine area and water pumping station; however, additional surface rights are required for the plant and supporting infrastructure.

Invicta has surface rights agreement with the community of Santo Domingo de Apache covering all aspects of mine development, mineral processing and infrastructure. The agreement provides for an annual fee pre-production and over the life of mine.

Negotiations regarding mine surface rights agreements are ongoing with the communities of Paran and Lacsanga, as agreements with all three communities are preferred to be in place prior to initiation of construction and operation.

The Pariacoto Puñocoto plant location (original primary plant site alternative at elevation 2,300 m) requires a surface land agreement with the registered owners, in addition to the community of Paran, whereas the secondary plant location would require a surface rights agreement with the community of Lacsanga and not Paran. Options exclusively involving Santa Domingo de Apache are possible, although not preferred. Hence progress with community agreements will guide the location of the plant facilities, and inclusion of communities in mutually beneficial economic activities surrounding the mine operation.

Invicta has surface rights agreements with the community of Sayan for the servitude for a 66 kV power transmission line. Additional servitudes are required from the communities of Quintay, Paran and Lacsanga. Negotiations are underway with Paran and Lacsanga, while negotiations with Quintay have been postponed while Invicta investigates alternatives for the power supply.

# 3.4 Accessibility and Transportation to the Property

The Invicta Project is accessible from the capital of Peru, Lima, by driving north along the Pan American Highway north to Huaura (160 km), then Highway 16 (paved) east to Sayan (45 km), and on gravel road to Huamboy. Access from Sayan to Huamboy or Picunche is along a gravel road that runs from Sayan to Churin; with a minimum width of 4.5 m. This road is used daily by concentrate

trucks and heavy transports. Weight is limited to 30 t due to weight restrictions crossing the bridge at Cuñay.

A secondary gravel road provides access from Huamboy to the Invicta Project (33 km). An all-terrain 4-wheel drive vehicle allows access to most parts of the property.

A primary (original) site selection for the process plant location would require 15.8 km of new road construction from Choques to the plant site, and from Paran to the plant site.

The closest port facility is located at El Callao, in Lima, and mineral concentrates could be transported by truck to this port.

# 3.5 Infrastructure Availability and Sources

The provincial city of Sayan provides services, supplies and facilities to the mining industry.

#### 3.5.1 Power

#### **66kV Transmission Line Option**

There is an existing 66 kV power supply to Andahuasi, which is 29 km from the planned Invicta Project site. For this option, new substation infrastructure requirements would be limited to additional high voltage switching equipment and protection systems in a switch yard. Invicta currently has an approved EIA to construct 29 km of 66 kV electrical transmission line from Andahuasi to the Invicta Project site.

Invicta has obtained permission to connect to the National Grid. Basic Engineering studies were completed and approved for the infrastructure and tie-in to the Andahuasi substation. The capacity of the substation and the feeding transmission line from Huacho to Anahuasi was upgraded in 2011 to 24 MW.

At the terminus of the 66 kV transmission line, a 66 kV/10 kV step down transformer would be required to provide power for the mine, process plant, and water well site (described in the following sub-section). From the 66 kV terminus two separate 10 kV transmission lines would run to the mine transformer and to the water pumping station in Huamboy.

Once Detailed Engineering is complete, Invicta requires operating study approval from Comité de Operación Económica del Sistema Interconectado (C.O.E.S.).

### **220kV Transmission Line Option**

In parallel to the Design, Engineering, EIA Processing, and approval of the Invicta 66 kV transmission, SN Power Perú S.A. has obtained environmental approval to construct a 220 kV transmission line for the Cheves hydroelectric facility, currently under construction up-river from the Invicta site. SN Power Perú S.A. started construction of the 220 kV line in January 2012. This 220 kV electrical transmission line could provide an alternative power source to the 66 kV transmission line.

Discussions have been held with S.N. Power Perú S.A. to allow for a potential tie-in to the 220 kV electrical lines. Although a larger step down transformer would be needed for the 220 kV/22.9 kV substation, the distance of the transmission line to the Invicta Project site would be reduced significantly. From the Invicta substation (at the connecting point with the 220 kV line) a 22.9 kV

transmission corridor approximately 6.8 km to 9.8 km long would be required to supply power to the Invicta Project site. A pre-feasibility study was completed in December 2011 on this alternative. Approval from S.N. Power Perú S.A. would be still required for this tie-in.

### 3.5.2 Water

The Huaura River is located in the lower lands located 7.5 km to the west of the property and is fed from the highlands with year-long flows varying between 10 m<sup>3</sup>/s in September to 73 m<sup>3</sup>/s in March.

Water for industrial mining and mineral processing is not readily available at the mine site, and will need to be sourced from a water well near the Huaura River.

Invicta has a water use permit for 40 l/s for 12 h/d (to the plant site) from the Peruvian Ministry of Agriculture through the ATDR (Irrigation District Technical Administration Authority), dated Oct 27, 2009. A well has been constructed and the surface rights for the area required for the well have been obtained from a third party and registered. Well testing studies concluded that the well head can supply up to 50 l/s of water during the dry season. Biological and elemental testing has confirmed that the water is suitable as a potable water supply.

Water supply to the Pariacoto Puñocoto plant site (original primary plant site alternative at elevation 2,300 m) would be via a 9.6 km overland pipeline from the wellhead to the plant. A study conducted by Patterson & Cooke/DRA Americas indicated that a single pumping station located at the wellhead is sufficient to supply 40 l/s to the plant site. The water pipe would be a mixture of schedule 80 and schedule 40 depending on the static head in the pipeline at the location. A secondary pumping station at the plant site would supply water to the mine.

Several routing options exist for water supply to a potential alternative secondary plant site selection (at an elevation of 3,400 m), including following the access route from the well head at Huamboy to the secondary plant location. A single stage pumping route would be 6.8 km with a static pumping head of 2,226 m. Water distribution to the mine would be via a secondary pumping station, as required with the primary plant location.

### 3.5.3 Mining Personnel

In 2010, Peru was listed as the sixth largest gold producing country in the world after China, Australia, the United States, South Africa and Russia. Peru is also the world's leading silver producer and a leader in copper and zinc mining. Mining activities in Peru date to pre-Inca cultures. As a result of Peru's long history of mining activity a labor pool of specifically skilled and technically qualified personnel is available within Peru itself. The education system in Peru is geared towards mining, with sixteen separate Universities providing degrees in Mining Engineering. Technical institutes (such as TECSUP) provide technical training focused on the mining and civil industrial sectors.

The Departments of Lima, Huancavelica, Junin and Pasco have an abundant pool of qualified workers. A portion the workforce will come from the surrounding communities of Lacsanga, Santo Domingo de Apache and Paran. Invicta has committed to developing training programs for the community workforce. The remaining workforce, including some of the labor for specifically skilled and/or technical positions, would be hired from the surrounding areas.

The current level of continuing investment in Peru, and the lack of skilled workers in other South American Countries, is resulting in an increase in recruitment of Peruvian workers. As the Invicta Project is located relatively close to the city of Lima, this should increase its competitiveness for workers with specific skills and/or technical qualifications compared to more distant locations.

### 3.5.4 Potential Tailings Storage Areas

There is no tailings storage facility (TSF) currently on the property. Dry stack TSF sites are being investigated.

The tailings storage area for the primary (original) plant site selection (2,300 m elevation) would be Pariacoto Puñocoto. The tailings area was designed to be1.6 km from the processing plant requiring pumping from the plant site and filtration close to the tailing storage. Engineering on this TSF has been completed to a feasibility level, and the location has been approved in the EIA. The Closure Plan for tailings storage area was also approved.

Tailings storage areas for a potential (alternative) secondary plant selection (3,400 m elevation) have been identified at the scoping study level. A trade-off study has been commissioned to determine the best option between four locations identified for this option. The four locations range in distance from 0.5 km to 2 km from the potential plant site.

### 3.5.5 Potential Waste Disposal Areas

There is no development waste rock disposal facility currently on the property, except for the previous development waste excavated from the existing mine adit (at 3,400 m elevation).

Waste disposal sites for mine waste, soil, and organic waste have been approved for the mine area. However, Invicta has committed to the community of Paran to move the planned mine waste storage area due to the perceived risk of rock fall as the waste area lies 1,300 m above the community.

Plant waste areas would include locations for disposal of topsoil, clay, and organic waste.

Access roads to Pariacoto Puñocoto require storage areas for waste rock generated during road construction.

Waste disposal sites for a potential (alternative) secondary plant location have been identified on a conceptual basis only; however, there are adequate areas for all waste deposits. Access road development to this site may not require a waste rock deposit area, as less cutting may be required. The nature of the terrain allows for more cutting to be used as fill.

Potential waste disposal sites are indicated on Figure 3-1.

### 3.5.6 Potential Processing Plant Sites

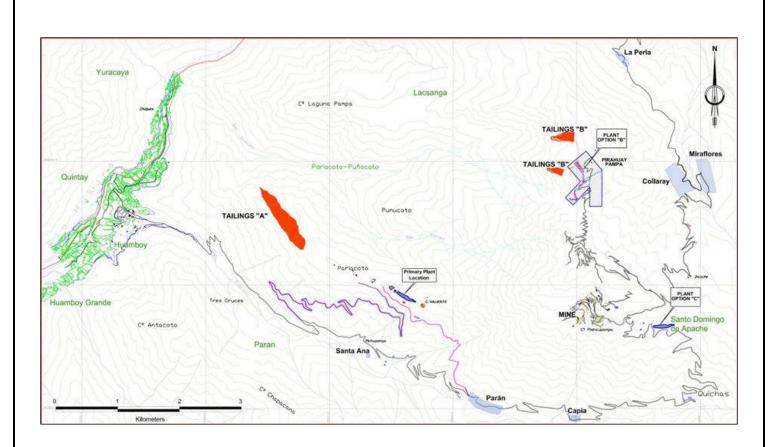
The primary (original) site selection for the processing plant is Pariacoto Puñocoto (refer to Figure 3-1). The altitude of the plant site is 2,300 m. The plant location is 3 km, in a direct line, from the mine site and would require 2.8 km of underground tunnels and conveyors to convey the mineralized material to the primary crusher. Two new access roads would be required before construction started as currently access is by walking trail.

A potential (alternative) secondary site selection for the processing plant has been identified and designated "Location B". Location B is situated at 3,400 m and is located within the community of

Lacsanga. The location provides less costly alternatives for transportation and also provides the opportunity for disposal of a portion of the metallurgical tailings as mine backfill. Four potential tailings areas have been identified, and a trade-off study has been commissioned to prioritize the tailings locations. Although it is located at a higher altitude and experiences a greater variation in weather (mainly higher rainfall), Location B has numerous potential advantages in terms of capital and operating costs mainly due to shorter routing for water and power infrastructure, lower mine preproduction development cost, and lower manpower requirements. Access is currently available using a four- wheel drive vehicle. Access roads remain a challenge, however Government financed upgrades to the existing road and further studies are expected to provide cost reduction opportunities.

# 3.5.7 Potential Construction Camp Areas

The current exploration camp site is on the south side of the Invicta Project site. For construction of the Invicta Project a construction camp would be required to be built near to the mine and facilities sites to meet construction requirements. Such a construction camp would probably be subsequently used during operations for project operating staff.





## 4 History (Item 6)

Mining activities at the Invicta site date back to 1968 to 1969, when two adits were developed in the Atenea area. The longest adit is 162 m long while the other is 39 m long. Historical small scale mining was also conducted in the Pucamina Zone through a series of small adits.

In 1990 Mr. Leopoldo Livschitz staked an area of 900 ha centered on the Atenea Vein. Further work was put on hold in 1991 and the property was declared abandoned in 1994 by the Department of Mines. Pangea Peru S.A. (Pangea) geologists visited the property later the same year and the following year (1995) Pangea staked the property. The Pangea claim comprised the concessions Victoria Uno, Victoria Dos, Victoria Tres, Victoria Quatro and Victoria Siete.

Between July and December 1996, Pangea conducted trench channel sampling over an area of 12,500 ha on the Invicta Project (then called the Victoria Project) with covering the following mineralized Zones: Zone 1 (renamed the Atenea Zone by Pangea), Zone 2 (renamed the Pucamina Zone by Pangea), Zone 3 (renamed the Juan Zone by Pangea), Zone 4 (subdivided into the Ydalias Zone and Zone 4 by Pangea), Zone 6 (renamed the Dany Zone by Pangea), and Zones 5 and 7. SRK has maintained the zone naming nomenclature in this report as had been utilized in past resource reporting (Jamarillo, 2009). SRK notes that Zone 4 and Ydalias (Ydalia 1 and 2 in previous resource statements) occupy a similar geographic space, and recommends that these zones be combined into a unified Ydalias Zone for future resource estimation and reporting. Drillhole assay results subsequently confirmed the occurrence of gold in most of these zones. Val d´Ór Geophysics completed an induced polarization (IP) and magnetic survey over a 43 km long grid. Pangea completed construction of the access road from the community of Paran to the Invicta camp.

During 1997 and 1998, a 12,476 m diamond drill program was completed by Pangea. Other work included detailed geological mapping, a stream sediment geochemical survey, and a resource calculation. In 1998 a scoping study was completed by Spiteri Geological and Mining Consultants Inc. with metallurgical tests completed by Lakefield Research. The scoping study and resource estimate were not published.

## 4.1 Prior Ownership and Ownership Changes

The Victoria Project claim consisting of the concessions Victoria Uno to Victoria Dieciseis was first registered in January 1995. Pangea conducted exploration work as the operator of a 50/50 joint venture with Sundust Resources Inc.

Barrick acquired Pangea in the year 2000. In September of that year an employee for Barrick, Mr. Francois Gaboury, visited the property and prepared a summary report. On September 9, 2005 Andean (now Invicta) signed an Option Agreement with ABX (a subsidiary of Barrick in Peru) to acquire a 100% interest in the Victoria Uno, Victoria Dos, Victoria Tres, Victoria Cuatro and Victoria Siete Properties.

Invicta exercised the option for the above mentioned Victoria Properties in December 2008.

## 4.2 Previous Exploration and Development Results

#### 4.2.1 Pangea (1994-2000)

#### Reconnaissance Exploration and Trenching

Reconnaissance exploration mapping was conducted from January 1997 to June 1997 by Pangea personnel. A total of 280 samples were collected over the entire property. All samples were assayed for 35 elements.

Pangea initiated trenching in June 1996 along with the preliminary mapping. A total 72 trenches were dug and sampled of which 18 were in the Atenea Zone, 25 in the Pucamina Zone, 11 in the Dany Zone, 11 in the Juan Zone and 7 in Zone 7. The thickness of overburden or the absence of mineralized breccia restrained the sampling of some trenches.

Large areas of argillite and oxide alteration have been delineated in the northern part of the concession Victoria-Seis (now Invicta). This alteration is within what appears to be the Paccho Pluton. It was difficult to identify the rock because of the level of alteration.

#### **Stream Sediment Geochemical Survey**

The objective of the stream sediment survey was to outline any gold or base metal anomalies within the limits of the Victoria property, in addition to the known mineralized structures. The survey was conducted during the month of April 1998 by Pangea personnel. In total 113 samples were collected in seven ravines. All samples were assayed for fourteen elements, Au, Ag, Cu, Pb, Zn, Mo, Sb, As, Ni, Bi, Cd, Co, Mn and Fe. Gold was assayed by the Fire Assay method while the other thirteen were assayed by Atomic Absorption.

The survey confirmed the presence of anomalous areas. The prime area of interest is located north of the Pucamina Fault along the Picunche Ravine. This is a gold anomaly which extends over 1.5 km. Gold values vary between 140 ppb and 520 ppb. There is no evidence for the presence of a mineralized structure within the anomaly itself. On the other hand, mineralization along the Pucamina Fault is located 500 m upstream of this anomaly and could be its source. The Paran Ravine also showed anomalous gold background levels from 22 ppb to 310 ppb. The general area is underlain by the Paccho Pluton. Near these anomalies local mineralized veinlets are observed.

#### **Geophysical Surveys**

The Induced Polarization and Magnetic surveys were carried out in two phases: Phase I, from August 1996 to September 1996, for a total of 13.9 line km of Magnetic survey and 10.7 line km of Induced Polarization (IP) survey; and Phase II, from August 1997 to September 1997, for a total of 32.2 line km of Magnetic and 37.2 line km of Induced Polarization. Spacing of the readings was 25 m for Phase I and 50 m for Phase II.

The report by Val d'Ór Geophysics highlighted that the strongest anomalies are located in the Dany Zone. These anomalies exhibit both high resistivity, produced by what is believed to be silicification, and high chargeability, the highest values observed in the survey. The high level of chargeability could be explained by the multitude of mineralized structures, containing disseminated sulfides.

The Pucamina Zone, Juan Zone and Zone 7 exhibited a very weak Induced Polarization signature. The related mineralized structures are not explained with the results from this survey. On the other

hand both zones have a good magnetic signature. The Atenea Zone exhibits high chargeability, but because of the rugged terrain limited information was obtained.

#### 1997-1998 Drilling Campaign

Between February 1997 and August 1998, 112 holes were drilled for a total of 12,476 m on the Victoria property. This drilling was carried out in two phases:

- Phase I (February 1997 to August 1997): 4,209 m of surface drilling in Atenea Zone,
   Pucamina Zone, and Zones 4, 6 and 7.
- Phase II (October 1997 to August 1998): 8,115 m of surface drilling in Atenea, Pucamina, and Dany Zones and Zones 5 and 6. Also, 152 m of underground drilling was completed in the Atenea Zone (adit 3557 and adit 3614).

The drilling campaign was conducted over six of the mineralized zones encountered on the Victoria Uno claim. The drill spacing ranged between 50 to 100 m.

Geodrill S.A. performed the Phase I drilling and Bradley S.A. and MDH S.A. drilled the surface and the underground component of Phase II, respectively. For the surface drilling, the core size varied from NQ to HQ, while XRT was used for underground drilling. In January 1998 and February 1998, all transportation was by donkey because of heavy rains due to the phenomenon El Nino. All activities were then put on hold from mid-February 1998 to May 1998 for safety reasons, as the main road between Sayan-Churin and the company's access road were completely destroyed by mud-slides.

For each hole a Rock Quality Designation (RQD) test was conducted over the total length while density testing was only conducted in the mineralized zones. A total of 3,313 samples were assayed by CIMM Peru S.A., with most of the zones re-assayed by Bondar & Clegg.

In the Atenea Zone, 32 holes were drilled on surface for a total of 4,684.8 m. Twenty eight of these holes intersected the mineralized breccia. Holes 4411-98-101 and 4411-98-102 were drilled as a test with the portable drill and had to be abandoned within the first 10 m. 4411-98-78 targeted an IP anomaly nearby the Atenea structure and 4411-98-57 targeted the Atenea SW extension. The latter hole did not intersect any breccia.

Twenty nine underground holes were also drilled in the two adits for a total of 152 m. The drill spacing used was a 15 m interval. 120 m were drilled in adit 3557 and 31 m in adit 3614.

In Pucamina, 31 holes were drilled on surface for a total of 4,414.75 m. Twenty eight of these holes intersected the mineralized breccia. Hole 4411-98-42 was abandoned, while hole 4411-98-62 targeted secondary structures.

In the Dany Zone and Zone 6, 17 holes were drilled for a total of 2,999.28 m. Most of the holes intersected mineralized structures. However, due to the low drilling density, it was not possible to correlate mineralized structures between drillholes.

Zone 7 was thought to be the potential NW extension of the Pucamina Zone, but because of the difference in the strike orientation of these breccias, Pangea decided not to associate this breccia with the Pucamina Zone and instead renamed it Zone 7. Hole 4411-97-27 was bored under a 4 m wide breccia zone (Trench P25). It did not intersect the breccia.

Two test holes totaling 51.75 m were conducted in Zone 5.

Table 4.2.1.1 provides a summary of the historical work done on the site.

Table 4.2.1.1: Summary of Historical Work

Year	Area Covered	Work Done	Units
1996 to 1998	Entire property	Reconnaissance and detailed mapping	8,600 ha
1996	South flank of the property	Construction of access road to the property	14 km
1996 to 1998	Victoria Uno	Trenching	72
1996	Victoria Uno	Underground sampling 4 cross-cuts	(18 samples)
1996 and 1997	Victoria Uno	Geophysical surveys	3.9 and 32.2 km of Mag & 10.7 and 37.2 km of IP
1997 and 1998	Victoria Uno	Diamond Drilling 83 surface holes & 29 underground holes.	

#### 4.3 Historic Mineral Resource and Reserve Estimates

#### 4.3.1 1998 Pangea Resource Estimate

In 1998, Pangea (Aubertin and Diaz 1998) made an estimate of mineral resources for Atenea, Pucamina and Zones 4 and 6. This resource estimate was based on a cut-off grade of 3.0 g/t Au, and another estimate was reported using a 1.0 g/t Au cut-off grade. All of the resources were classified as sulfide. The estimates are shown in Table 4.3.1.1 and Table 4.3.1.2. The date of the report within 1998 is not included in the more recent reports available.

This historical estimate was made in accordance with the standards in effect at the time. This estimate is reported in a historical context only.

Table 4.3.1.1: Invicta Resource Estimate, Cut-off 3.0 g/t Au, Pangea Peru S.A., 1998

Zone	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)
Atenea	1,252	6.09	67.19	1.22
Pucamina	264	6.53	14.45	0.10
Zones 4 & 6	184	6.09	39.53	0.89
Total	1,700	6.16	56.00	1.01

Source: Pangea Peru, 1998

Table 4.3.1.2: Invicta Resource Estimate Cut-off 1.0 g/t Au, Pangea Peru S.A., 1998

Zone	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)
Atenea	2,053	4.08	46.77	0.92
Pucamina	840	3.17	9.97	0.08
Zones 4 & 6	638	2.49	21.59	0.69
Total	3,532	3.58	33.46	0.68

Source: Pangea Peru, 1998

The stated historical resources in Table 4.3.1.1 and 4.3.1.2 are not reliable or relevant; they are historically reported information only. Key assumptions and estimation parameters used in the above estimate are unknown to the authors of this report, it is therefore not possible to determine what additional work is required to upgrade or verify the estimate as current mineral resources or

mineral reserves. The above tonnage and grade figures are not CIM compliant resources, as no Andean or SRK Qualified Persons have evaluated the data used to derive the estimates of tonnage and grade; therefore the estimate should not be relied upon. A qualified person has not done sufficient work to classify the historical estimate as current mineral resources, and SRK and Andean are not presenting the historical estimate as current mineral resources. The estimate of tonnes and grade are presented here only as documentation of what was historically reported for the property (Aubertin and Diaz, 1998).

Subsequent to the 1998 study, CIM compliant mineral resources have been prepared as stated in Sections 4.3.2 through 4.3.6. SRK is presenting current CIM compliant mineral resources sufficient for NI 43-101 reporting in Section 12 of this report.

#### 4.3.2 2007 Andean Resource Estimate

To bring the deposit into compliance with National Instrument 43-101 (NI 43-101) reporting standards, Invicta performed a validation work program and completed an updated resource estimate in 2007.

Invicta initially validated twelve blocks in the Atenea Vein. Geological and analytical data were obtained by Invicta (including re-logging of core, bulk densities, assays, widths, areas.

The mineralization was divided into a mixed type (oxide and sulfide) and a sulfide type. The bulk of the mineralization in the Atenea Zone (78%) and almost all of the mineralization in the Pucamina Zone were classified as the sulfide type.

The estimate for the Invicta Project in 2007 by Andean, as validated by Victor A. Jaramillo M.Sc.A., P.Geo, for Measured and Indicated resources is shown in Table 4.3.2.1. The NI 43-101 report stated that a 1.0 g/t Au cut-off grade was used.

Table 4.3.2.1: Invicta Measured and Indicated Resource Estimate Cut-off 1.0 g/t Au, Andean, July 24, 2007

Zone	Category	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)
Atenea	Measured	1,104	3.88	15.77	0.26
Atenea	Indicated	2,029	1.95	25.31	0.71
Pucamina	Indicated	750	3.27	8.98	0.10
Zones 4 & 6	Indicated	856	2.63	13.44	0.39
Total	M&I	4,739	2.73	18.36	0.45

Source: Andean, July 2007

The estimate for Inferred resources is shown in Table 4.3.2.2.

Table 4.3.2.2: Invicta Inferred Resource Estimate Cut-off 1.0 g/t Au, Andean, July 24, 2007

Zone	Category	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)
Atenea	Inferred	5,188	1.43	17.35	0.61
Pucamina	Inferred	901	1.47	6.21	0.07
Total	Inferred	6,089	1.44	15.70	0.53

Source: Andean, July 2007

The associated metal content for the Measured and Indicated resources is shown in Table 4.3.2.3.

Table 4.3.2.3: Invicta Measured and Indicated Metal Content Cut-off 1.0 g/t Au, Andean, July 24, 2007

Zone	Category	Au oz (000's)	Ag oz (000's)	Cu lb (000's)
Atenea	Measured	138	560	6,328
Atenea	Indicated	127	1,651	31,753
Pucamina	Indicated	79	217	1,654
Zones 4 & 6	Indicated	72	370	7,364
Total	M&I	416	2,797	47,099

Source: Andean, July 2007

The associated metal content for the Inferred resources is shown in Table 4.3.2.4.

Table 4.3.2.4: Invicta Inferred Resource Metal Content Cut-off 1.0 g/t Au, Andean, July 24, 2007

Zone	Category	Au oz (000's)	Ag oz (000's)	Cu lb (000's)
Atenea	Inferred	239	2,894	69,766
Pucamina	Inferred	43	180	1,392
Total	Inferred	281	3,074	71,157

Source: Andean, July 2007

# 4.3.3 August 2008 Resource Update Technical Report (Discover Geological Consultants)

Between October 2006 and August 2008, Invicta completed an additional 48 diamond drillholes (14,201 m of drilling), and developed 1,200 m of underground exploration workings (from the 3,400 m level adit) in order to explore the Atenea Vein.

Victor A. Jaramillo, M.Sc.A., P.Geo., a geologist with Discover Geological Consultants Inc., was retained by Andean in August 2008 to provide a resource estimate in a (NI 43-101 compliant) report titled "The Invicta Property Resource Update Technical Report" (August 29, 2008).

In August 2008, Mr. Jaramillo was at Invicta's Lima office where he was able to review and verify that a resource estimate prepared by Invicta using DataMine software complied with the CIM Definition Standards for Mineral Resources. On August 19, 2008 Mr. Jaramillo visited the Invicta Project. A resource estimate report dated August 29, 2008, was issued in which all of the resources were classified as sulfide.

The resource estimate for the Invicta Project in 2008 by Andean, as validated by Victor A. Jaramillo, for Measured and Indicated resources is shown in Table 4.3.3.1. The NI 43-101 report did not state what value or type of cut-off was used to report the resources. Other records provided indicate that a mineral cut-off value of US\$16.00/t was used. The mineral value calculations used the following metal prices: gold US\$549/oz; silver US\$9.93/oz; copper US\$2.36/lb; lead US\$0.67/lb; and zinc US\$1.03/lb. It is not known whether metallurgical recoveries were used in the mineral value calculations. (For comparison with other cut-offs used: a value of US\$16.00/t with gold price of US\$549/oz and an assumed 100% metallurgical recovery for gold would equate to a 0.91 g/t Au cut-off grade.)

Table 4.3.3.1: Invicta Measured and Indicated Resource Estimate Above Mineral Value Cut-off US\$16/t, Discover Geological Consultants Inc., August 29, 2008

Zone	Category	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Pb Grade (%)	Zn Grade (%)
Atenea	Measured	850	2.20	29.48	0.69	0.67	0.54
Atenea	Indicated	4,339	1.79	21.32	0.54	0.44	0.37
Pucamina	Indicated	1,114	2.10	6.25	0.26	0.20	0.43
Dany	Indicated	659	0.53	9.28	0.37	0.10	0.14
Ydalia 1	Indicated	193	2.12	26.63	1.00	0.27	0.21
Ydalia 2	Indicated	184	4.65	10.68	0.33	0.33	0.11
Zone 4	Indicated	564	5.49	24.61	0.73	0.15	0.13
Total	M&I	7,903	2.11	19.19	0.52	0.38	0.35

Source: Discover Geological Consultants, August 2008

Metal prices and recoveries for the mineral value calculations as given in accompanying section text

The estimate for Inferred resources is shown in Table 4.3.3.2.

Table 4.3.3.2: Invicta Inferred Resource Estimate Above Mineral Value Cut-off US\$16/t, Discover Geological Consultants Inc., August 29, 2008

Zone	Category	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Pb Grade (%)	Zn Grade (%)
ZOITE	,	, ,			. ,	( /0)	. ,
Atenea	Inferred	4,079	1.22	8.88	0.20	0.24	0.27
Pucamina	Inferred	1,103	1.91	8.29	0.17	0.12	0.19
Dany	Inferred	3,124	0.26	11.43	0.44	0.52	0.14
Ydalia 1	Inferred	1,335	1.04	28.49	0.70	0.11	0.08
Ydalia 2	Inferred	866	0.51	16.17	0.47	0.10	0.24
Zone 4	Inferred	1,189	1.29	13.70	0.56	0.26	0.09
Total	Inferred	11,695	1.22	10.14	0.27	0.24	0.23

Source: Discover Geological Consultants, August 2008

Metal prices and recoveries for the mineral value calculations as given in accompanying section text

The associated metal content for the Measured and Indicated resources is shown in Table 4.3.3.3.

Table 4.3.3.3: Invicta Measured and Indicated Metal Content Above Mineral Value Cut-off US\$16/t, Discover Geological Consultants Inc., August 29, 2008

Zone	Category	Au oz (000's)	Ag oz (000's)	Cu lb (000's)	Pb lb (000's)	Zn lb (000's)
Atenea	Measured	60	806	12,930	12,555	10,119
Atenea	Indicated	250	2,974	51,655	42,089	35,393
Pucamina	Indicated	75	224	6,385	4,912	10,560
Dany	Indicated	11	197	5,375	1,453	2,034
Ydalia 1	Indicated	13	165	4,255	1,149	894
Ydalia 2	Indicated	28	63	1,339	1,339	446
Zone 4	Indicated	100	446	9,077	1,865	1,616
Total	M&I	536	4,875	91,016	65,362	61,063

Source: Discover Geological Consultants Inc., August 2008

Contained metal numbers rounded to reflect the accuracy of the estimate and may not add due to rounding

The associated metal content for the Inferred resources is shown in Table 4.3.3.4.

Table 4.3.3.4: Invicta Inferred Metal Content Above Mineral Value Cut-off US\$16/t, Discover Geological Consultants Inc., August 29, 2008

Zone	Category	Au oz (000's)	Ag oz (000's)	Cu lb (000's)	Pb lb (000's)	Zn lb (000's)
Atenea	Inferred	160	1,165	17,985	21,582	24,280
Pucamina	Inferred	68	294	4,134	2,918	4,620
Dany	Inferred	26	1,148	30,304	35,813	9,642
Ydalia 1	Inferred	45	1,223	20,602	3,237	2,355
Ydalia 2	Inferred	14	450	8,973	1,909	4,582
Zone 4	Inferred	49	524	14,679	6,815	2,359
Total	Inferred	362	4,803	96,677	72,275	47,838

Source: Discover Geological Consultants Inc., August 2008

Contained metal numbers rounded to reflect the accuracy of the estimate and may not add due to rounding

#### 4.3.4 June 2009 Feasibility Study (The Lokhorst Group)

In June 2009, the Lokhorst Group issued the NI 43-101 Technical Report entitled "Invicta Mine Feasibility Study", and incorporated an estimate of mineral reserves. This study is not to be relied on, and is summarized here as a previous estimate only. In October 2011, Andean announced that the initial capital cost to build an underground mine at the Invicta Project would be considerably higher than forecast compared to previous feasibility study estimates, partly due to increases in the estimates for infrastructure.

This study used the resource estimate developed by Discover Geological Consultants Inc. in August 2008, previously cited. From the August 2008 Measured and Indicated resource estimate of 7.9 Mt grading 2.11 g/t Au, 19.19 g/t Ag, 0.52% Cu, 0.38% Pb, and 0.35% Zn, a subset of 7.8 Mt was estimated as Probable mineral reserves. This reserve estimate was reported as based on a net smelter return (NSR) cut-off value of US\$24/t, which was calculated using various metal prices, mineral processing recoveries, and smelter terms. Further details are provided below.

Metal prices reported as used for the reserves estimate (but not the feasibility study economics) were: gold US\$650/oz; silver US\$13.75/oz; copper US\$3.25/lb; lead US\$0.85/lb; and zinc US\$0.90/lb.

Average processing recoveries mentioned in the feasibility study report include: gold, variable 87 to 94%; silver, variable 79 to 89%; copper, variable 70 to 78%; lead, variable 82 to 89%; and zinc, variable 72 to 87%. Processing recoveries used in the NSR calculations for the reserves estimate may have been different, but were not specifically reported in the feasibility study.

The Probable reserve estimate for the Invicta Project, developed for the 2009 feasibility study, is shown in Table 4.3.4.1.

Table 4.3.4.1: Invicta Probable Reserve Estimate Above NSR Value of US\$24/t, Lokhorst Group, June 2009

	Category	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Pb Grade (%)	Zn Grade (%)
Total	Probable	7,807	2.14	18.76	0.52	0.38	0.30

Source: Lokhorst Group, June 2009

Estimated tonnage and grade are reported as diluted to reflect a potentially minable material Metal prices and recoveries for the NSR calculations as given in accompanying section text

The associated metal content for the 2009 Probable reserve estimate is shown in Table 4.3.4.2.

Table 4.3.4.2: Invicta Probable Reserve Estimate Metal Content, Above NSR Value of US\$25/t, Lokhorst Group, June 2009

Zone	Category	Au oz (000's)	Ag oz (000's)	Cu lb (000's)	Pb lb (000's)	Zn lb (000's)
Total	Probable	536	4,709	89,144	65,806	51,500

Source: Lokhorst Group, June 2009

Metal prices and recoveries for the NSR calculations as given in accompanying section text Contained metal numbers rounded to reflect the accuracy of the estimate and may not add due to rounding

The production rate was planned to be: for the first year 3,000 t/d; for the second year 4,000 t/d; and for subsequent years 5,000 t/d. The planned life of mine (LoM) was 5 years.

Mining methods selected included sub-level stoping, cut and fill, and shrinkage stoping. A small portion of the reserves were mined within a small open pit. The process plant included crushing, gravimetric concentration, grinding, flotation, thickeners, filters for concentrates and filters for tailings and tailings disposal.

#### 4.3.5 November 2009 Updated Technical Report (Discover Geological Consultants)

Victor A. Jaramillo, M.Sc.A., P.Geo., geologist with Discover Geological Consultants Inc., was retained by Andean in September 2009 to update the resources reported in the previous Technical Report dated August 2008. The purpose of the 2009 NI 43-101 report was to include new infill diamond drillhole data (4 holes) and underground sampling from a cross-cut that was not included in the previous 2008 report. All of the resources were classified as sulfide.

The estimate for the Invicta Project in 2009 by Mr. Jaramillo, for Measured and Indicated resources is shown in Table 4.3.5.1.

Table 4.3.5.1: Invicta Measured and Indicated Resource Estimate Cut-off 1.0 g/t AuEq, Discover Geological Consultants Inc., November 20, 2009

Zone	Category	Tonnes (000's)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade (%)	Pb Grade (%)	Zn Grade (%)
Atenea	Measured	868	2.71	31.26	0.69	0.73	0.61
Atenea	Indicated	4,747	1.96	16.52	0.40	0.40	0.38
Pucamina	Indicated	2,028	1.70	5.71	0.11	0.18	0.25
Dany	Indicated	1,063	0.75	10.39	0.41	0.10	0.11
Ydalia 1	Indicated	592	1.63	28.85	1.00	0.22	0.16
Ydalia 2	Indicated	396	2.92	13.83	0.27	0.22	0.09
Zone 4	Indicated	1,041	3.83	20.96	0.70	0.15	0.12
Total	M&I	10,735	2.05	16.08	0.43	0.32	0.30

Source: Discover Geological, November 2009

Mineral resource tonnage and grades rounded to reflect the accuracy of the estimate, and may not add due to rounding. Gold Equivalent gold equivalent was calculated using the following ratios: 85:1 silver to gold ratio; 31:1 copper to gold ratio; 131:1 lead to gold ratio; and 109:1 zinc to gold ratio. All metal ratios had regard to the respective metallurgical recoveries. The gold equivalent calculations used the following metal prices: gold \$900/oz; silver \$ 12.50/oz; copper \$ 2.00/lb; lead \$ 0.50/lb; and zinc \$ 0.60/lb. Ounces used the following conversion rate: 1 troy ounce = 31.1035 grams.

The resource estimate for Inferred resources is shown in Table 4.3.5.2.

Table 4.3.5.2: Invicta Inferred Resource Estimate Cut-off 1.0 g/t AuEq, Discover Geological Consultants Inc., November 20, 2009

	_	Tonnes	Au Grade	Ag Grade	Cu Grade	Pb Grade	Zn Grade
Zone	Category	(000's)	(g/t)	(g/t)	(%)	(%)	(%)
Atenea	Inferred	9,700	0.74	9.16	0.32	0.17	0.17
Pucamina	Inferred	704	0.80	8.10	0.13	0.13	0.15
Dany	Inferred	1,654	0.17	12.42	0.46	0.80	0.13
Ydalia 1	Inferred	981	0.91	29.05	0.59	0.07	0.05
Ydalia 2	Inferred	597	0.25	16.02	0.54	0.09	0.27
Zone 4	Inferred	590	0.76	10.53	0.44	0.36	0.07
Total	Inferred	14,225	0.67	11.20	0.36	0.24	0.15

Source: Discover Geological, November 2009

Mineral resource tonnage and grades rounded to reflect the accuracy of the estimate, and may not add due to rounding. Gold Equivalent was calculated using the following ratios: 85:1 silver to gold ratio; 31:1 copper to gold ratio; 131:1 lead to gold ratio; and 109:1 zinc to gold ratio. All metal ratios had regard to the respective metallurgical recoveries. The gold equivalent calculations used the following metal prices: gold \$900/oz; silver \$ 12.50/oz; copper \$ 2.00/lb; lead \$ 0.50/lb; and zinc \$ 0.60/lb. Ounces used the following conversion rate: 1 troy ounce = 31.1035 grams.

The associated metal content for the Measured and Indicated resources is shown in Table 4.3.5.3.

Table 4.3.5.3: Invicta Measured and Indicated Metal Content Cut-off 1.0 g/t AuEq, Discover Geological Consultants Inc., November 20, 2009

		Au oz	Ag oz	Cu lb	Pb lb	Zn Ib
Zone	Category	(000's)	(000's)	(000's)	(000's)	(000's)
Atenea	Measured	76	872	13,204	13,969	11,673
Atenea	Indicated	299	2,521	41,861	41,861	39,768
Pucamina	Indicated	111	372	4,918	8,048	11,177
Dany	Indicated	26	355	9,608	2,343	2,578
Ydalia 1	Indicated	31	549	13,051	2,871	2,088
Ydalia 2	Indicated	37	176	2,357	1,921	786
Zone 4	Indicated	128	702	16,065	3,442	2,754
Total	M&I	708	5,548	101,064	74,456	70,824

Source: Discover Geological, November 2009

Contained metal numbers have been rounded to reflect the accuracy of the estimate, and may not add due to rounding

The associated metal content for the Inferred resources is shown in Table 4.3.5.4.

Table 4.3.5.4: Invicta Inferred Metal Content Cut-off 1.0 g/t AuEq, Discover Geological Consultants Inc., November 20, 2009

Zone	Catagory	Au oz (000's)	Ag oz (000's)	Cu lb (000's)	Pb lb (000's)	Zn lb (000's)
	Category	, ,	. ,		. ,	. ,
Atenea	Inferred	231	2,857	68,431	36,354	36,354
Pucamina	Inferred	18	183	2,018	2,018	2,328
Dany	Inferred	9	660	16,773	29,171	4,740
Ydalia 1	Inferred	29	916	12,760	1,514	1,081
Ydalia 2	Inferred	5	307	7,107	1,185	3,554
Zone 4	Inferred	14	200	5,723	4,683	910
Total	Inferred	307	5.124	112.812	74.924	48.968

Source: Discover Geological, November 2009

Contained metal numbers have been rounded to reflect the accuracy of the estimate and may not add due to rounding

In 2009 the estimated resources were reported using a 1.0 g/t Au equivalent cut-off grade, as presented in the previous tables. (At the time it was considered that a 1.0 g/t gold equivalent grade would be reasonable estimate for economic extraction.)

The gold equivalent was calculated using the following ratios: 85:1 silver to gold ratio; 31:1 copper to gold ratio; 131:1 lead to gold ratio; and 109:1 zinc to gold ratio. All metal ratios had regard to the respective metallurgical recoveries. The gold equivalent calculations used the following metal prices: gold \$900/oz; silver \$ 12.50/oz; copper \$ 2.00/lb; lead \$ 0.50/lb; and zinc \$ 0.60/lb.

The following metal recoveries were used in the gold equivalent calculations: gold recovery 77.5%; silver recovery 65.6%; copper recovery 70.0%; lead recovery 73.0%; zinc recovery 73.5%. These metal recoveries were based on averages of metallurgical tests available at the time.

The Measured and Indicated resources were also reported at various gold equivalent cut-offs as shown in Table 4.3.5.5.

Table 4.3.5.5: Invicta Measured and Indicated Resource Estimate Various AuEq Cut-offs, Discover Geological Consultants Inc., November 20, 2009

AuEq			Au	Ag	Cu	Pb	Zn	Au	AuEq	AuEq
CoG		Tonnes	Grade	Grade	Grade	Grade	Grade		Grade	
(g/t)	Category	(000's)	(g/t)	(g/t)	(%)	(%)	(%)	(koz)	(g/t)	(koz)
1.0	M&I	10,735	2.05	16.08	0.43	0.32	0.30	708	3.18	1,098
1.5	M&I	8,777	2.39	17.60	0.45	0.36	0.33	675	3.61	1,020
2.0	M&I	6,131	3.09	20.03	0.50	0.40	0.34	610	4.44	876
2.5	M&I	4,680	3.67	22.16	0.54	0.43	0.35	553	5.13	772
3.0	M&I	3,490	4.36	24.86	0.59	0.45	0.36	489	5.94	666
3.5	M&I	2,733	4.97	27.03	0.64	0.48	0.37	437	6.68	587
4.0	M&I	2,299	5.46	28.53	0.67	0.50	0.38	403	7.24	535

Source: Discover Geological Consultants Inc., November 2009

Mineral resource tonnage and grades rounded to reflect the accuracy of the estimate, and may not add due to rounding. Gold Equivalent was calculated using the following ratios: 85:1 silver to gold ratio; 31:1 copper to gold ratio; 131:1 lead to gold ratio; and 109:1 zinc to gold ratio. All metal ratios had regard to the respective metallurgical recoveries. The gold equivalent calculations used the following metal prices: gold \$900/oz; silver \$ 12.50/oz; copper \$ 2.00/lb; lead \$ 0.50/lb; and zinc \$ 0.60/lb. Ounces used the following conversion rate: 1 troy ounce = 31.1035 grams.

The Inferred resources were also reported at various gold equivalent cut-offs as shown in Table 4.3.5.6.

Table 4.3.5.6: Invicta Inferred Resource Estimate Various AuEq Cut-offs, Discover Geological Consultants Inc., November 20, 2009

AuEq			Au	Ag	Cu	Pb	Zn	Au	AuEq	AuEq
CoG		Tonnes	Grade	Grade	Grade	Grade	Grade		Grade	
(g/t)	Category	(000's)	(g/t)	(g/t)	(%)	(%)	(%)	(koz)	(g/t)	(koz)
1.0	Inferred	14,225	0.67	11.20	0.36	0.24	0.15	307	1.54	703
1.5	Inferred	3,669	1.96	17.21	0.41	0.33	0.27	232	3.08	363
2.0	Inferred	2,319	2.73	19.42	0.36	0.44	0.30	204	3.86	288
2.5	Inferred	1,200	4.22	18.50	0.37	0.42	0.41	163	5.40	208
3.0	Inferred	1,086	4.45	19.42	0.38	0.44	0.44	155	5.67	198
3.5	Inferred	970	4.76	19.37	0.35	0.47	0.48	148	5.96	186
4.0	Inferred	867	5.07	18.80	0.30	0.50	0.53	141	6.23	173

Source: Discover Geological, November 2009

Contained metal numbers have been rounded to reflect the accuracy of the estimate and may not add due to rounding

#### 4.3.6 July 2010 Feasibility Study (The Lokhorst Group)

In July 2010, the Lokhorst Group issued the NI 43-101 Technical Report entitled "Invicta Gold Project Optimized Feasibility Study", and incorporated an estimate of mineral reserves. This study is not to be relied on, and is summarized here as a previous estimate only. In October 2011, Andean announced that the initial capital cost to build an underground mine at the Invicta Project would be considerably higher than forecast in the July 2010 Feasibility Study, partly due to increases in the estimates for infrastructure.

This study used the resource estimate developed by Discover Geological Consultants Inc. in November 2009, previously cited.

From the November 2009 Measured and Indicated resource estimate of 10.7 Mt grading 2.05 g/t Au, 16.08 g/t Ag, 0.43% Cu, 0.32% Pb, and 0.30% Zn, a subset of 7.8 Mt was estimated as Probable mineral reserves from the feasibility study work performed in 2010. This reserve estimate was based on a net smelter return (NSR) cut-off value of US\$25/t, which was reported as calculated using various metal prices, mineral processing recoveries, and smelter terms. Further details are provided in this Section.

The Probable reserve estimate for the Invicta Project, developed for the 2010 feasibility study and reported, is shown in Table 4.3.6.1.

Table 4.3.6.1: Invicta Probable Reserve Estimate Above NSR Value of US\$25/t, Lokhorst Group, April 2010

		Tonnes	Au Grade	Ag Grade	Cu Grade	Pb Grade	Zn Grade
	Category	(000's)	(g/t)	(g/t)	(%)	(%)	(%)
Total	Probable	7,807	2.14	18.76	0.52	0.38	0.30

Source: Lokhorst Group, April 2010

Estimated tonnage and grade are reported as diluted to reflect a potentially minable material Metal prices and recoveries for the NSR calculations as given in accompanying section text

The associated metal content for the 2010 Probable reserve estimate is shown in Table 4.3.6.2.

Table 4.3.6.2: Invicta Probable Reserve Estimate Metal Content, Lokhorst Group, April 2010

Zone	Category		Ag oz (000's)			Zn lb (000's)
Total	Probable	536	4,709	89,144	65,806	51,500

Source: Lokhorst Group, April 2010

Metal prices and recoveries for the NSR calculations as given in accompanying section text

Contained metal estimates rounded to reflect the accuracy of the estimate

The production rate was planned to be: for the first year 3,000 t/d; for the second year 4,000 t/d; and for subsequent years 5,000 t/d. The planned life of mine (LoM) was 5 years.

Mining methods selected included sub-level stoping, cut and fill, and shrinkage stoping. Approximately 8% of the reserves were mined within a small open pit. The process methodology included crushing, grinding, gravity recovery, and scavenger and differential floatation.

Metal prices reported as used for the reserves estimate (but not the feasibility study economics) were: gold US\$900/oz; silver US\$12.50/oz; copper US\$2.50/lb; lead US\$0.84/lb; and zinc US\$0.95/lb.

Processing recoveries reported as used for the feasibility study were: gold 91%; silver 82%; copper 75%; lead 80; and zinc 80%. Processing recoveries used in the NSR calculations for the reserves estimate may have been different, but were not specifically reported in the feasibility study.

The final LoM average project operating costs (including some concentrate transportation costs) were estimated in the feasibility study to be US\$28.31/t.

#### 4.3.7 Previous Resource and Reserve Estimates

The aforementioned previous mineral resource estimates in Sections 4.3.2, 4.3.3 and 4.3.5 are not current. The aforementioned previous mineral reserve estimates in Sections 4.3.4 and 4.3.6 are not current or presently to be relied on (as mentioned in those sub-sections). Both previous resource and reserve estimates are provided as formerly reported information only. As certain key assumptions and estimation parameters used in the above estimates are not sufficiently known to the authors of this report, it is not possible to determine what additional work would be required to upgrade or verify those estimates as current mineral resources or mineral reserves. A qualified person has not done sufficient work to classify the previous estimates as current mineral resources or mineral reserves, and SRK and Andean are not presenting the previous estimates as current mineral resources or mineral reserves. The estimates of tonnages, grades and metal contents are presented here only as documentation of what was previously reported for the Invicta Project.

SRK is presenting current CIM compliant mineral resources in accordance with NI 43-101 standards in Section 12 of this report.

## 5 Geological Setting and Mineralization (Item 7)

## 5.1 Regional Geology

The western part of Peru consists of the Andean Cordillera, a major mountain range parallel to the Peru-Chile oceanic trench that developed as a result of subduction of the Nazca plate beneath the South American plate. Along the coastal margin of Peru, oblique subduction during the Cretaceous resulted in large-scale arc magmatism and the subsequent formation of Mesozoic arc-parallel volcano-sedimentary basins, collectively known as the Western Peruvian Trough (e.g. Atherton et al., 1983). The development of the Western Peruvian Trough was associated with intrusion of numerous plutons that together form the present-day Coastal Batholith. Emplacement of the plutons in the Coastal Batholith reached its peak during the Late Cretaceous and Paleocene (e.g. Soler and Rotach-Toulhouat, 1990). The Coastal Batholith is divided into several plutonic complexes one of which is the Huaura complex that includes the Santa Rosa and Paccho Plutons. These complexes comprise mainly granodiorite, tonalite and diorite.

The Invicta Project is situated along the boundary between the Huaura complex to the west and a segment of the Western Peruvian Trough (e.g. Polliand et al., 2005) to the east. This segment of the Western Peruvian Trough comprises a complex assemblage of volcanic to sub-volcanic dominantly mafic volcanic units of the Tertiary (c. 53-15 Ma) Calipuy Group (Figure 5-1). The Calipuy Group comprises mainly mafic to felsic volcanic to sub-volcanic rocks and unconformably overlies strongly deformed sedimentary rocks and limestone of the Lower Cretaceous Goyllarisquizga Group. These rocks are severely faulted and folded and host several deposits including the Uchucchacua, Iscaycruz and Raura base metal-silver deposits approximately 65 to 70 km northeast of the Invicta Project. On a regional scale, the contact between intrusive rocks of the Coastal Batholith and the Calipuy Group exhibits distinct west-northwest or east-northeast trending orientations, which may be related to large-scale regional faults.

## 5.2 Local Geology

#### 5.2.1 General Geology and Lithologies

The geology of the Invicta Project is known from field mapping of rock exposures and focused drilling and underground mapping and sampling conducted by Invicta and Pangea (refer to Figure 5-2). Detailed mapping conducted by Invicta during 2011 and 2012 covered an area of 47.8 ha.

The Invicta Project geology comprises mainly mafic volcanic rocks of the Calipuy Group that overlie diorite, tonalite and granodiorite of the Paccho pluton, an intrusive suite that is part of the Huaura plutonic complex (Coastal Batholith). Diorite and granodiorite of the Paccho Intrusion are exposed in the southwest and western portions of the Invicta Project (Figure 5-2). These generally comprise massive, weakly to moderately silicified rocks, with strong kaolinite, limonite and hematite altered rocks associated with mineralized zones.

Exposures of the Calipuy Group include variably hematite- and chlorite-altered andesite flows interbedded with mafic tuff, porphyritic andesite units (possibly representing dome complexes), variably polymictic to monolithic volcano-magmatic breccia units (Figure 5-3) and siliceous crystal tuff beds. The volcanic units generally have a gentle dip (less than 30°) and variable strike, which could suggest that the sequence is folded.

Several northeast-trending, steeply dipping, flow-banded rhyolite dykes cross-cut the Calipuy Group units (Figure 5-4). Their orientation parallel to the main mineralized zone (Atenea Vein) suggests that these dykes may have been emplaced contemporaneously with mineralization along dilational structures. Another possible intrusion occurs along the Dany Fault to the southeast of the Atenea Vein, and comprises massive aphanitic siliceous rocks that are locally brecciated, and associated with a fine-grained hematitic matrix (Figure 5-5).

## 5.3 Property Geology

#### 5.3.1 Structural Geology

The structural framework developed from geological mapping at the Invicta Project is shown in Figure 5-6.

Two main regional west-northwest to northwest trending structures transect the Invicta Project, the Pucamina Fault to the north and the Dany Fault to the south. The projection of these faults to the west correlates with sinistral separation of the contact between the Paccho Intrusion and the Calipuy Group.

The Pucamina Fault comprises a 2 to 8 m wide brittle fault zone that is characterized by up to 1.5 m wide quartz and quartz breccia veins and associated vein networks in dominantly chlorite altered, brecciated host rocks (mainly andesite) of the Calipuy Group. The fault zone exhibits discrete smooth, planar fault surfaces along silicified rock exposures that can be traced at surface for at least 1,500 m. The fault is commonly associated with narrow (0.5 to 1.5 m wide) steeply-dipping quartz (breccia) vein systems in both the hanging wall and footwall. The Pucamina Fault dips steeply to the south (76°) and has an average orientation of 114° azimuth. Sub-horizontal to shallow-pitching striations associated with steps on fault surfaces, widening of vein zones along left-stepping bends along the fault (i.e. dilational jogs) and limited fault-vein arrays with Riedel geometries indicate sinistral strike-slip movement.

The Dany Fault is a 2 to 3 m wide brittle fault zone that is characterized by heterolithic chlorite-sericite-quartz breccia, multiple oxidized gouge fracture zones, and well-defined fault surfaces, and up to 1 m wide quartz veins. The fault trends 100° to 110° degrees azimuth and dips steeply (dominantly south). Shallow east-pitching striations and steps along fault surfaces indicate sinistral strike-slip movement. This is consistent with offset of a mapped rhyolite dyke (Figure 5-6).

A prominently northeast trending mineralized structure, locally termed the Atenea Vein, occurs between the Pucamina and Dany Faults in the central portion of the property. The Atenea Vein is a steeply southeast dipping brittle quartz vein-filled fault system with average orientation of 67° azimuth and 72° dip. The fault zone is between 3 and 12 m wide and is characterized by:

- A broad zone of oxidation and chlorite-sericite-silica alteration;
- Numerous (banded) up to 10 cm wide quartz veins;
- Quartz-chlorite heterolithic breccia intervals; and
- Common clay-rich gouge intervals, particularly along the hanging wall contact of the fault zone.

Numerous, variably oriented, up to 20 cm wide, banded (commonly vuggy) quartz veins occur in the hanging wall up to 25 to 30 m away from the fault zone. Steeply-pitching striations on fault surfaces indicate dip-slip movement with local steps suggesting a normal sense of shear.

The Atenea Vein can be traced along surface for at least 480 m and changes strike to an east-west orientation along the northern portion of its known extent. At this location, the Atenea Vein is crosscut by a generally east-west striking, steeply south dipping fault that forms a prominent topographic feature in the property area. Narrow fault-parallel quartz veins and related veinlets associated with weak chlorite-sericite alteration occur along this fault. Striations and steps supported by a single observation of vein geometry in drill core along this late fault indicate oblique dextral-reverse movement. This suggests that a possible continuation of the Atenea Vein may exist east and north of this late fault, potentially in an area where strongly quartz-hematite altered heterolithic breccia has been mapped.

In summary, field observations at the Invicta Project suggest at least two stages of deformation: 1) Development of sinistral strike-slip faults and linking zones of dilation associated with Au-Ag-Cu mineralization during WSW-ENE compression, and 2) Development of E-W trending dextral-reverse faults during NW-SE compression that offset Au-Ag-Cu mineralization.

## 5.4 Significant Mineralized Zones

Mineralization is closely linked to the first stage of deformation, and occurs in three principal settings:

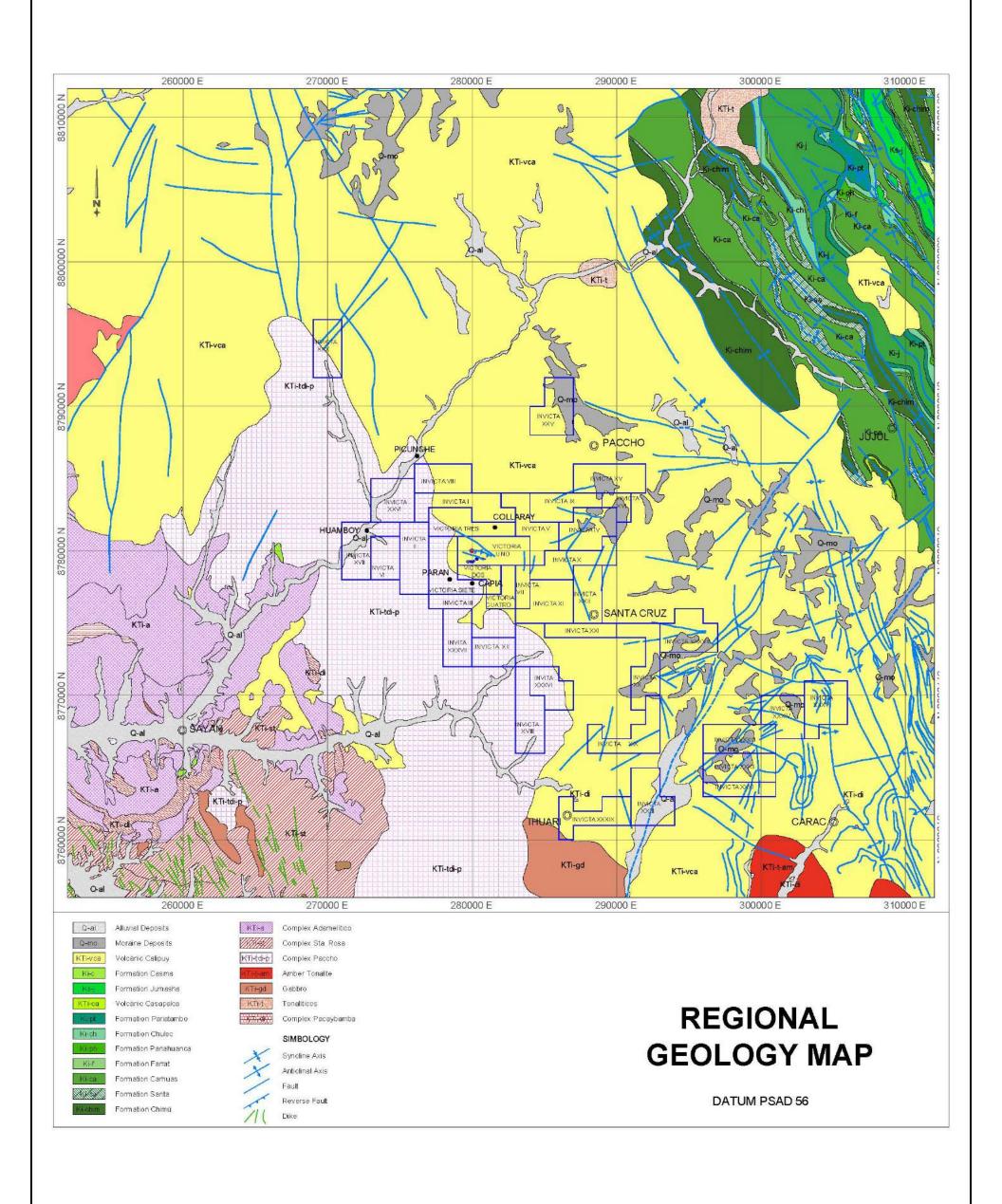
- Along the principal southeast- to east-southeast-striking, steeply-dipping strike-slip fault zones (e.g. Pucamina and Dany Faults);
- Along northeast-striking, southeast-dipping normal faults that developed in extensional (dilational) settings linking the principal faults; and
- Along left-stepping (dilational) and right-stepping (compressional) jogs or bends along the principal strike-slip faults.

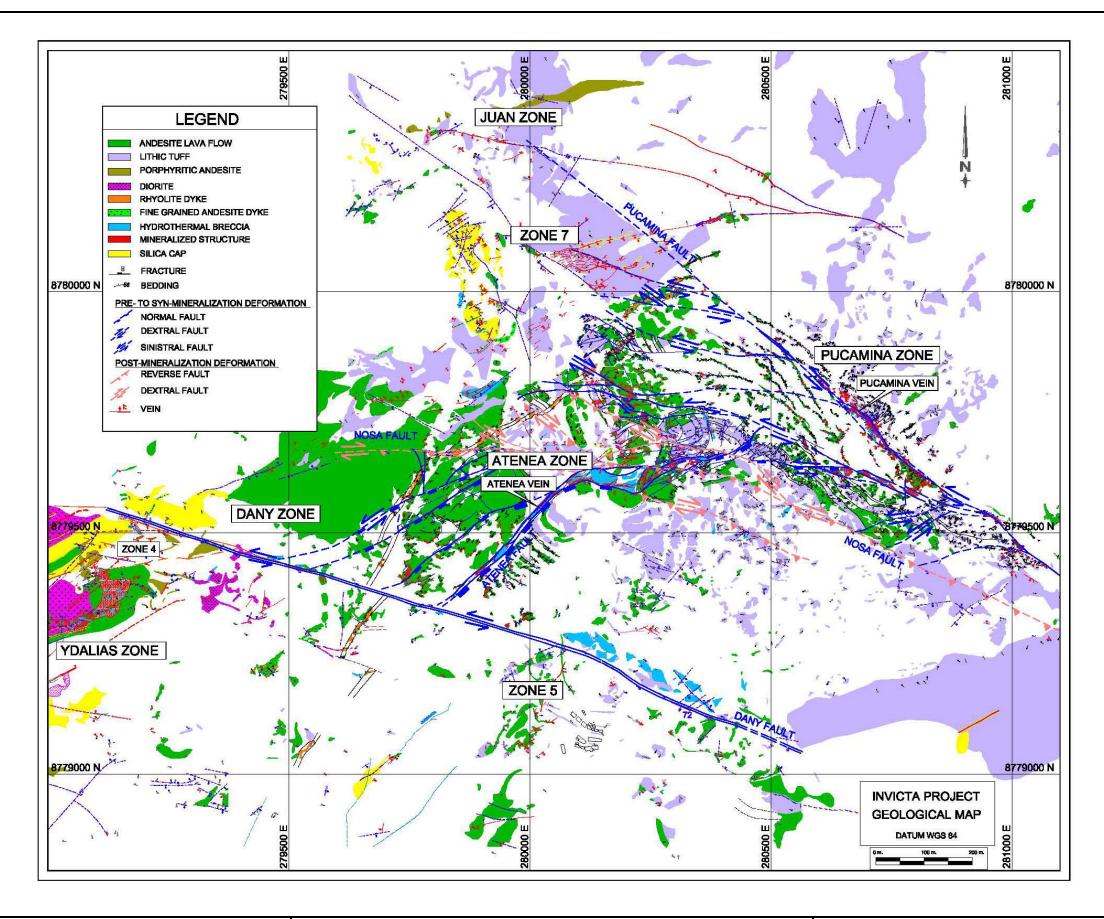
In general, mineralization is characterized by the presence of quartz-pyrite-chalcopyrite-acanthite-hematite bearing quartz veins with common crustiform, banded and cockade textures exhibiting distinctive vugs (Figures 5-7 and 5-8). The sulfide mineralogy comprises stringers and blebs of pyrite and chalcopyrite and pods of sphalerite and galena. Minor chalcocite, digenite, chalcopyrite and bornite are also reported with traces of tennantite. Petrographic studies conducted by Pangea and Invicta suggest that gold occurs as free grains in fractured quartz and pyrite. These characteristics are typical of epithermal vein systems. Mineralization is hosted dominantly by (sub-) volcanic mafic rocks of the Calipuy Group.

At least three mineralized zones have been identified to date which are spatially associated with the Atenea, Pucamina and Dany Fault.

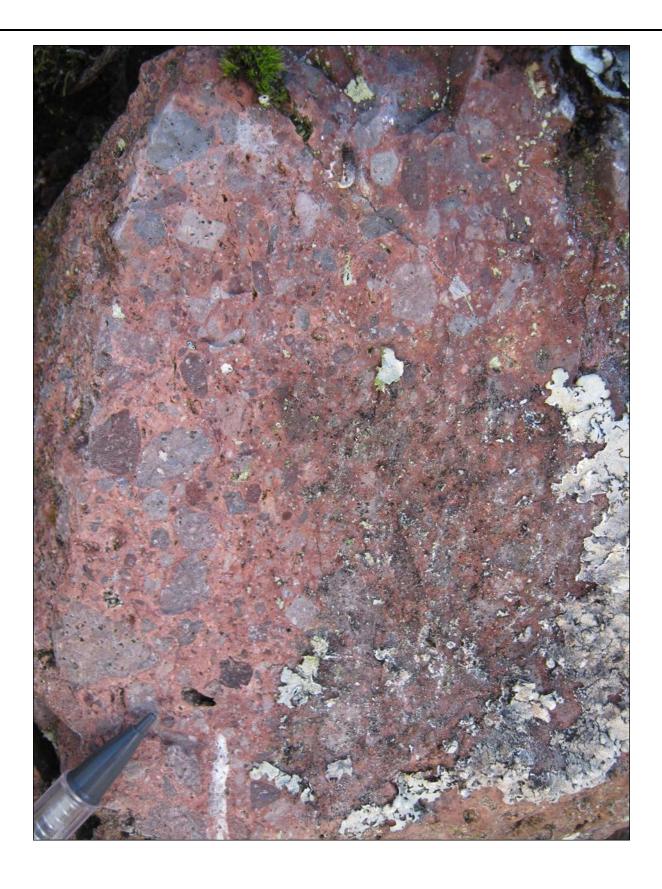
The primary mineralized zone, in terms of the mineral resources stated in Section 12, is the Atenea vein. Lesser mineral resources are hosted by, or associated with, the Pucamina and Dany faults and include Ydalias, Dany and Pucamina Zones, as shown in Figure 5-2 and 5-3.

Other quartz-sulfide vein zones (e.g. Juan, Manuel, Zone 3, and Zone 7) are exposed at the Invicta Project. Limited trenching and minimal drilling has tested these zones and indicated that these vein zones also carry gold, copper and silver attesting to the further exploration potential of the area. SRK has not inspected these vein zones in detail. The presence of copper-rich quartz-sulfide veins may suggest a stage of mineralization and deformation that may pre-date the dominant gold-silver-copper mineralization. However, on the basis of information available to date, it can be surmised that the character and extent of these vein zones including their metal content, is not well constrained and requires further investigation.

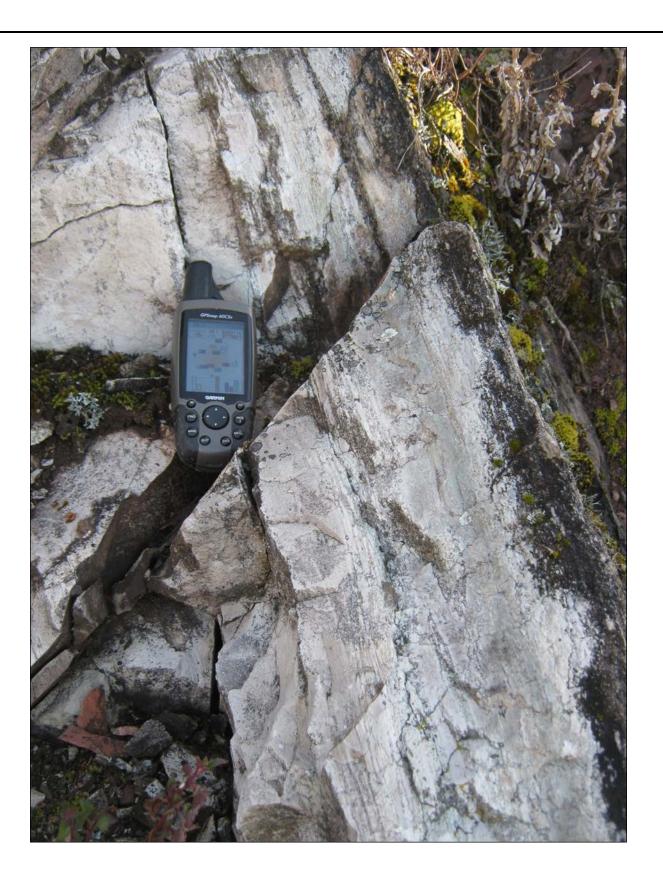








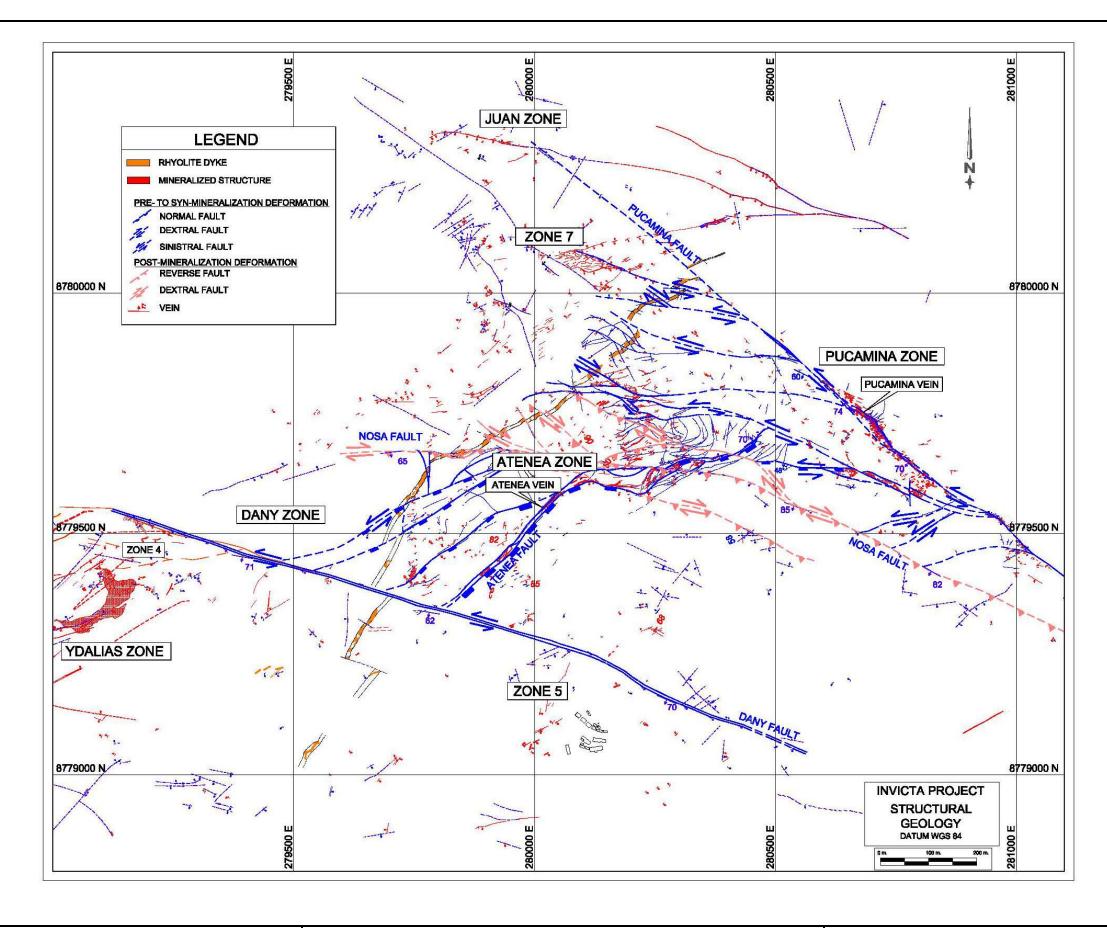




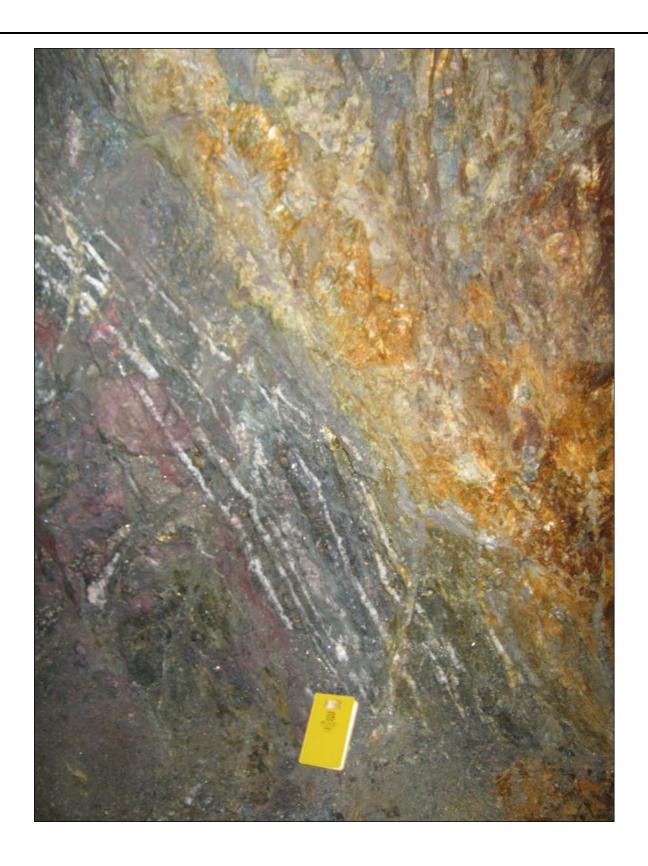
















Mineralized Quartz-Galena-Sphalerite\_Pyrite\_Hematite Veins and Adjacent Hematitic Breccia Zone in Footwall



## 6 Deposit Type (Item 8)

### 6.1 Mineral Deposit

Mineralized veins at the Invicta Project have many of the characteristics of epithermal vein system. Buenaventura Ingenieros S.A. (2010) concluded on the basis of fluid inclusions studies, which indicated multiple fluid populations and homogenization temperatures between 250 and 400°C, that mineralization at the Invicta Project was mesothermal. However, field observations, including the style of veining, alteration, and the presence of open-space, vuggy textures are more in support of epithermal-style veining. The results obtained by Buenaventura Ingenieros S.A. (2010) may be explained by a depositional process controlled by fluid mixing and the cooling of the hydrothermal system associated with multiple stages of mineral deposition over a protracted period of time.

In fact, petrographic studies (Buenaventura Ingenieros S.A., 2010) combined with field observations show that there have been multiple phases of hydrothermal metal-rich solutions, with separate episodes of quartz-hematite-gold-silver and quartz-chlorite-gold-silver-copper solutions deposited along a structure that has been subject to multiple phases of recurring fracturing.

Mineralization occurs as quartz veins and associated minor stockwork veinlets that carry gold, pyrite, sphalerite, galena and chalcopyrite. The main alteration minerals associated with auriferous quartz veins include quartz, chlorite, hematite, calcite and minor epidote.

### 6.2 Geological Model

Epithermal-type Au-Ag deposits in the Pacific Rim and in Eurasia are more prominently becoming the source of much of the world's new gold supply. This has driven academic research that resulted in an improved understanding of epithermal precious metal deposits. The following comments are based largely on recent papers including Hedenquist et al. (2000), Corbett (2002), and Taylor (2007).

Epithermal deposits form in the near-surface environment, from hydrothermal systems typically within 1.5 km of the Earth's surface. They are commonly found associated with centers of magmatism and volcanism (including rifts) dominantly in Tertiary to recent calc-alkaline and alkaline volcanic rocks, but also form in shallow marine settings. Hot-spring deposits and both liquid- and vapor-dominated geothermal systems are commonly associated with epithermal deposits. Host rock types vary, but include volcanic and sedimentary rocks, particularly those emplaced in volcanic to sub-volcanic settings, and include diatremes and domes.

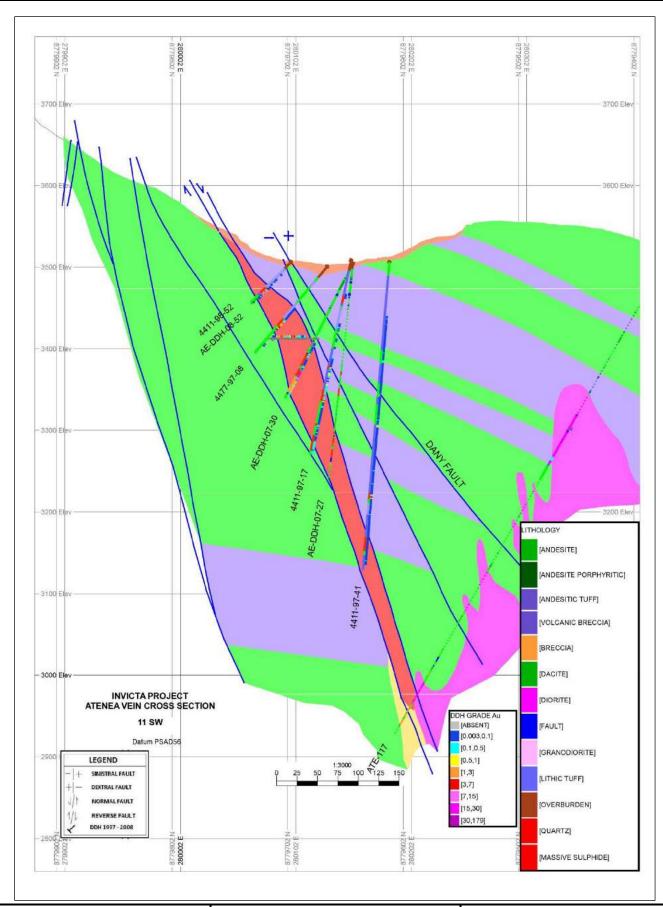
Epithermal deposits are almost invariably structurally controlled and include dilatant zones related to extensional faulting. Most commonly mineralization is hosted by steeply-dipping vein systems that may be associated with disseminated mineralization (Figure 6-1). Mineral textures include banded, crustiform-coliform and lattice textures composed of platy calcite sometimes as quartz pseudo-morph replacements.

An important feature of epithermal deposits is a pronounced vertical zonation, with quartz veins carrying base metal sulfide mineralization at depth, becoming silver-rich higher in the system and finally gold-rich near the top.

Three end-member types of epithermal deposit are generally recognized: high sulfidation, intermediate sulfidation, and low sulfidation, each denoted by characteristic alteration mineral assemblages and textures. Base metal (Cu, Pb, and Zn) sulfide minerals may also occur in addition

to pyrite and native gold (Au) or electrum. In some epithermal deposits, notably those of the intermediate-sulfidation sub-type, base metal sulfides may comprise a significant mineralized material constituent.

The sulfide assemblages associated with quartz veins at the Invicta Project resemble the intermediate sulfidation epithermal sub-type.



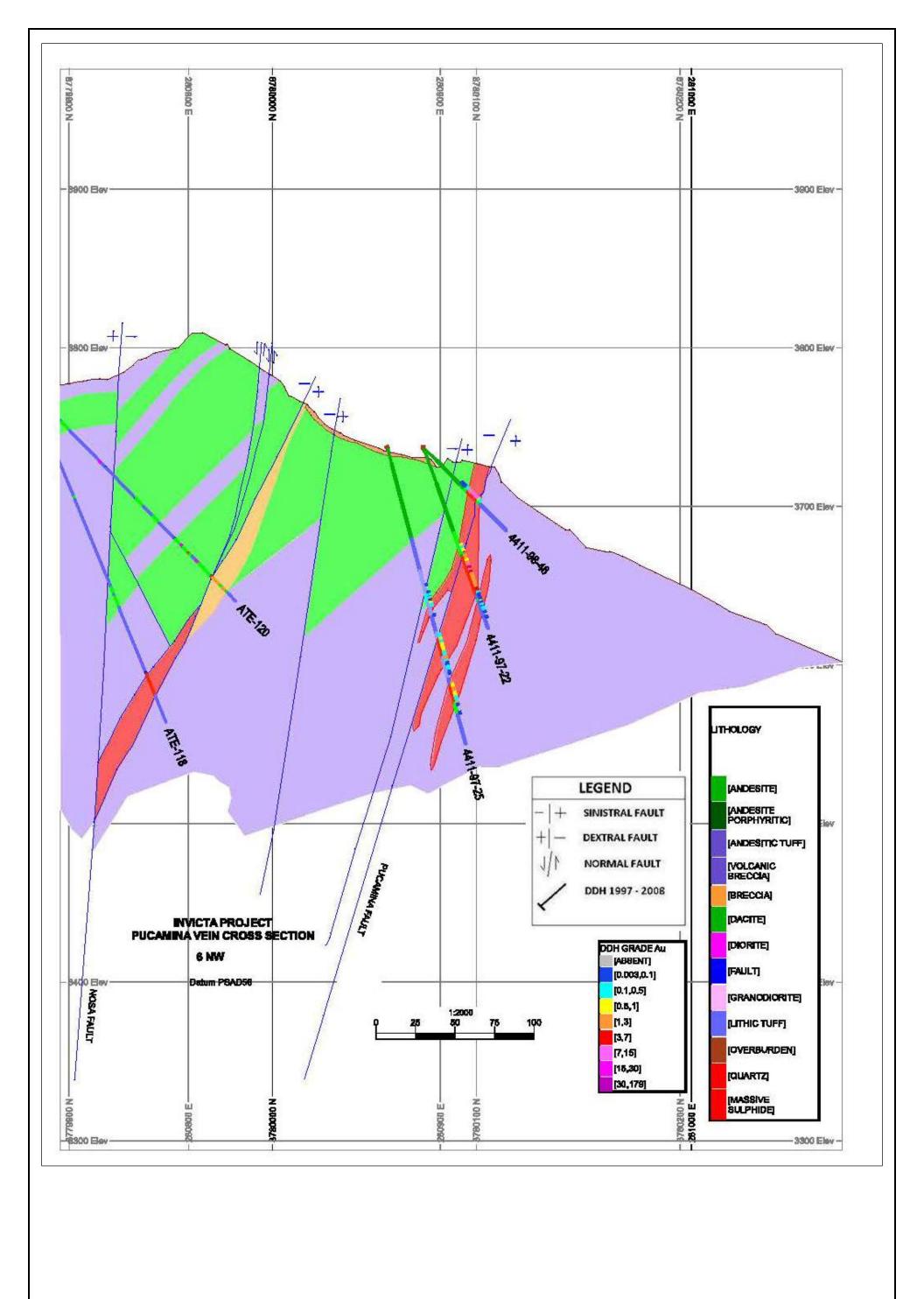


NI 43-101 Technical Report on Resources Invicta Gold Project, Peru

Source: Andean American, 2012

Figure 6-1

Geology Cross-Section of the Atenea Vein



## 7 Exploration (Item 9)

This section describes Andean exploration work from 2006 to present; prior exploration activities by predecessor companies are discussed in Section 4 History.

## 7.1 Andean Exploration Work – 2006 to 2009:

This Section (7.1) is extracted from Jaramillo, November 20, 2009: "The Invicta Property Updated Technical Report (Huaura, Lima-Peru)", a NI 43-101 Technical Report prepared for Andean American Mining Corp, a predecessor company to Andean American Inc. Changes to standardizations, sub-titles, and organization have been made to suit the format of this Technical Report. SRK has provided updated information since 2009 for completeness. SRK comments and opinions, where present, contain "SRK" in the pertinent sentences and paragraphs, and changes to the text are noted with []. Sections 7.2 and 7.3 refer to exploration since 2009 and have been prepared by SRK.

[Invicta] extended and completed detailed geological mapping along the Atenea, Pucamina, and Dany Zones as well as Zone 4. A QA/QC program was in place during all exploration work.

Between September 2006 and May 2008, Invicta completed an additional 52 diamond drillholes for a total of 14,807.52 m. Of the total meters drilled, 4,511.47 m were completed as infill drilling and 10,296.05 m comprised exploration drilling. An adit at the 3,400 m level, of approximately 1,200 linear meters, was completed during 2008 and exposed underground the Atenea Vein. Detailed underground geological mapping and systematic sampling were completed.

#### [Invicta] Drilling

In October 2006 [Invicta] drilled three twin holes (AE-DDH-06-52, 56 and 58) in order to validate the historical resources for blocks 52, 56 and 58. To test the continuity of the mineralization approximately 50 m below AE-DDH-06-56, [Invicta] also drilled hole AE-DDH-06-80, which intersected a 11.95 m mineralized interval (133.25 m to 143.90 m) that assayed 6.94 g/t gold, 18.55 g/t silver, 0.75% copper, 0.32% lead and 0.37% zinc. Core recoveries were generally above 95%.

On July 24, 2007 Andean released the results for diamond drillhole AE-DDH-07-30, which intersected a 14.25 m mineralized interval (145.95 m to 160.20 m) that assayed 18.45 g/t gold, 18.02 g/t silver and 0.46% copper, and a 18.50 m mineralized interval (159.22 m to 177.75 m) that assayed 2.13 g/t gold, 56.12 g/t silver and 2.87% copper. The estimated true width for the interval 139.55 m to 179.35 m was 32.60 m.

The updated resource estimate report included data from four additional diamond drillholes and underground sampling from cross cut 10NE. The new drillholes include AE-DDH-07-85 (650.20m), AE-DDH-07-112 (628.70m), ATE-117 (682.60m) and ATE-120 (239.0m) all drilled into the Atenea Vein.

## 7.2 Relevant Exploration Work, 2009 to 2012

#### 7.2.1 Study of the Mineralogical Characteristics of the Invicta Deposit

Invicta commissioned Alfonso Huamán Guerrero to conduct a study to better understand the mineralogical and structural characteristics relating to the origin of the Invicta deposit (Guerrero, 2011). The study was conducted between July and December 2010. The study involved geological field work, surface sampling, review of satellite imagery, microscopic and electron microscopic investigations, chemical analysis, petrographic analysis and analysis of fluid inclusions. A total of 296.23 m of 2.54 cm diameter pack sack underground drilling was conducted to obtain samples for this investigation.

For the microscopic characterization of the Invicta deposit, 36 samples from 21 separate diamond drillholes were selected, corresponding to three vein zones, the Atenea (9), Dany (7), and Pucamina (5) Zones. Surface sampling included 12 rock outcrops, including 4 silicified samples. Microscopy studies were completed by Buenaventura Ingenieros S.A., (2011) including, thin section petrography (16 samples), mineragraphic (23 samples) analysis, Scanning Electron Microscopy (SEM 5 samples), clay mineral analysis by X-ray diffraction (XRD 5 samples), mineralogical analysis by XRD (5 samples), and chemical analysis by X-ray fluorescence (XRF 5 samples). In addition, 9 samples from silicified outcrop were sent for geochemical analysis to the INSPECTORATE laboratory in Lima. The relevant conclusions from the report are as follows:

- Hydrothermal fluids circulated along pre-existing faults forming veins varying from a few
  centimeters to several meters in width. In some sectors where these veins are located, and
  in areas close to them, up to 200 m wide zones of breccia occur at the intersection between
  faults and veins;
- Silica and iron deposition in veins occurred during several stages of quartz and pyritemarcasite deposition; and
- A structural analysis of satellite images indicated that three dominant lineament orientations
  can be defined: NW-SE, NE-SW and to a lesser degree N-S and E-W. Fifteen potential
  zones for exploration were identified in the Invicta concessions.

The major recommendations from the report were as follows:

- Complete surface mapping at a scale of 1:500 and complete a detailed structural map over the same area; and
- Re-log the existing core and complete a new interpretation of the lithology and mineralization.

#### 7.2.2 Geological Mapping

Between August 2011 and March 2012, the Invicta geological team completed 47.8 ha of detailed geological mapping in an area centered on the Atenea and Pucamina Zones. The new work increased the resolution of the mapping from 1:2500 to 1:500 m. The geodesic points used to reference the mapping are based on points placed on the site for an aerial topographic map of the area. This aerial mapping work was completed by Horizons S.A. in 2011. The geological map produced is shown in Figure 5-2.

#### 7.2.3 Structural Mapping

As part of the geological mapping campaign outlined above, structural mapping was carried out. The structural geology map produced is shown in Figure 5-6. The structural mapping focused on a somewhat larger area to include salient structural geological characteristics, including the continuation and offset of vein zones and a felsic dike.

During November 2011, SRK conducted a review of the structural and geological mapping to date carried out by the Invicta geological team. A total of 8 days were spent on site. As a result of this review, a number of improvements were made to the mapping methodology. SRK recommended an extension of the area covered by the mapping campaign to include the Dany Fault and vein zone in the south and southwest, and the extension of the Pucamina Fault in the (north)west. Worthy of note is that SRK identified a previously unmapped dextral reverse fault that intersects and offsets the Atenea Vein. The report prepared by SRK following this review, provided knowledge of the structural regime controlling the mineralization at the Invicta Project and lead to a better understanding of the distribution of the gold and other economic elements in the deposit.

#### 7.2.4 Surface Sampling

A total of 496 surface samples were taken by Invicta geology personnel during the 2011 field season from the Atenea and the Pucamina Zones and 111 samples were taken from the 3,400 m level adit, which extends into the Atenea Vein. The surface sampling was conducted to explore the continuity of the Atenea Vein along the surface and to better define any follow up exploration drilling of a possible extension to the Atenea Vein including any additional structures that may be present. Adit sampling was performed to augment and support the existing database.

The surface sampling campaign results are as follows:

262 samples were taken from the surface outcrop of the main structure of Atenea.

The structural geology indicates that the Atenea vein may extend in a north east direction towards the Pucamina vein. Detailed examination of the fault systems suggest that this extension may not be as close to surface as the presently defined Atenea vein. Ninety samples were taken from a silicified breccia zone, located in the area between Atenea and Pucamina. These results indicate an anomalous zone in the silicified breccia which suggests possible continuity of the mineralized structure. (Refer to Figure 7-1.)

#### 7.2.5 Relogging Program

The Invicta geological team completed a relogging program comprising 18,332 m of drill core obtained from the Pangea and Invicta drilling campaigns. The focus of this program was the development of a revised geology model, with emphasis on improving the lithological interpretation (including alteration and mineralization). As part of this program, 96% (13,072 m of the total 13,603 m drilled) of drill core corresponding to the Atenea Vein was re-logged. The remainder of drill core investigated included 2,588 m from the Pucamina Zone, 1531 m from the Ydalias Zone, 919 from the Dany Zone, 175 m from Zone 7, and 45 m from Zone 5.

Work on the development of a new lithological-alteration model for each vein zone is ongoing at the time of issue of this report.

Prior to the initiation of this re-logging program, a collection of samples were prepared for petrographic and mineragraphic analysis by Buenaventura Ingenieros S.A.. The results from this study were used to build a reference (rock) library that supported better consistency between different logging geologists.

Selective sub-sampling of mineralized intervals from 4 drillholes that intersect the Atenea Vein (AE-DDH-06-52; 4411-97-08; AE-DDH-06-80; AE-DDH-07-28) was conducted to better understand the distribution of gold and other metals within the vein zone. At the same time, this sampling program aimed to study potential dilution effects stemming from wider sampling intervals that extend beyond the margin of mineralization into wallrock along the margin of the veins. Preliminary results from this program highlighted that quartz veins have significantly higher gold grades then their surrounding brecciated wallrock, indicating that wider areas of brecciated wallrock within the vein zone may cause grade dilution. Following the re-logging program discussed above, the new lithological model will better constrain the extent of brecciated wallrock within the vein zone and aid in improving future mining plans.

#### 7.2.6 Aster Satellite Interpretation

An interpretation of ASTER satellite imagery over an area covering the Invicta concessions was completed by Favio Mena Osorio (2012). A variety of anomalies were identified on the basis of reflectance spectroscopy (using spectral indices). The interpretation of the imagery suggested the presence of zones of oxide and hydroxide, hydrothermal alteration minerals, and silica. In addition, a lineament study was undertaken on the basis of topographic data.

Salient results from this study include:

- The identification of an anomaly attributed to the presence of jarosite, calcite, epidote, chlorite, alunite and kaolin suggesting the potential presence of sulfide-rich surface exposures within the Victoria Uno claim;
- A dominance of silica anomalies observed throughout all claims, most likely spatially associated with lithologies exposed near surface; dominant NW and NE trending lineaments, most likely reflecting the dominant structural trends in the area; and
- Spectral characteristics in the eastern and southern portion of the area covering the claims suggesting a slight acidic hydrothermal environment conducive to the formation of (epithermal) mineral deposits.

## 7.3 Significant Results and Interpretation

SRK is of the opinion that the work completed by Pangea and the subsequent studies conducted by Invicta during the period 2006 to 2012 has verified the grades in drillholes, and improved the geological mapping, which together have enhanced the understanding of the geological controls on vein mineralization at the Invicta Project.

Both Pangea and Invicta personnel are knowledgeable in in all aspects of mapping, sampling and drilling procedures, and SRK is of the opinion that the procedures both in the past and currently in place for exploration data acquisition, data compilation and data verification procedures meet or exceed industry best practices.





## 8 Drilling (Item 10)

## 8.1 Type and Extent

The exploration and development drilling conducted by Pangea during the period 1997-1998 and the subsequent drilling/sampling programs conducted by Invicta during the period 2006-2011 are summarized in Table 8.1.1.

Table 8.1.1: Drilling Statistics by Owner – 1997 to 2011

			Length (m)				
Drill Campaign	Sample Type	Number	Total	Min	Max	Avg	
Pangea (1997-1998)	Core	112	12,475.88	1.00	390.40	111.39	
Invicta (2006-2008)	Core	53	15,128.97	69.00	682.60	285.45	

The holes are typically NQ; however, some holes were started with HQ, and then continued at depth with NQ. Drill depth varied between 69 m and 682.60 m with an average depth of 285 m.

Average core recovery was greater than 95% over both phases of the drilling.

#### 8.1.1 Pangea Drilling

A summary of the Pangea drilling and sampling procedures is provided in Section 4.2.1. Although this information is detailed in the section related to History, SRK is of the opinion that the procedures in place during the Pangea exploration phase of the Invicta Project were conducted to industry best practices at the time of the programs.

#### 8.1.2 Invicta Mining Corp. Drilling

Between July 2006 and May 2008 Invicta drilled 53 diamond drillholes for a total of 15,128.97 m. Two separate phases were conducted.

- Phase 1 commenced in July 2006 and was completed in March 2007. A total of 1,272.05 m of infill drilling in the Atenea deposit was completed using Tech-Drill as the drilling contractor.
- Phase 2 commenced in June 2007 and was completed in May 2008. A total of 13,535.47 m of drilling of which 3,239.42 m consisted of infill drilling in Atenea and 10,296.05 m of exploration drilling in Atenea, Dany, Pucamina, Ydalias and Zone 7. The drilling contractors were Geotechnica, Andeig, and Esondi.

#### 8.2 Procedures

Invicta conducted drilling during 2007 and 2008. Water for the drill program was obtained through a water use agreement with the community of Lacsanga.

The Exploration Manager provided the Chief Project Geologist with the information required to commence drilling.

#### **Drill Responsibilities**

The Chief Geologist for the Invicta Project was responsible for drill planning and hole siting. Drill pads and access routes were constructed under his supervision. The Drilling Geologist was responsible for checking the daily drill logs.

The drill contractor was carefully monitored and regulated during drilling, mobilization and demobilization.

#### **Drilling**

All drilling was carried out with diamond drill rigs with NQ (47.6 mm id) core tools, although some holes were started with HQ (63.5 mm id). The drillhole location, orientation, and planned final depth were checked by the Drilling Geologist before the start of drilling at each hole. On-site supervision of the contractor was maintained and site inspection visits were carried out regularly.

All holes were sealed and marked with a concrete monument. The drill locations were surveyed by the company surveyor.

#### **Procedures at the Drill**

The core boxes were labeled and arrows drawn to ensure that each core was systematically laid in the wooden core box. A wooden marker was placed in the core box after each run and the meters down hole were identified on the marker, to be used to calculate core recovery.

Transfer of the core from the core barrel to the box was done as carefully as possible so that no core was allowed to fall on the ground. A rubber mallet was used to loosen the core from the core tube. As soon as a core box is full a lid is properly secured.

#### **Core Transportation Procedure**

Transportation of core from the drill site to the logging facility was by a pickup truck proceeding at a slow velocity to minimize shifting of material in the core boxes. The wooden core boxes were appropriately sized to ensure a tight fit of the core into the box.

#### **Drill Core Checking**

The core boxes were checked on arrival at the core shack by the Logging Geologist to ensure that they were intact. The core boxes were opened sequentially. The boxes were marked with paint at intervals corresponding to the rock type.

#### **Photography**

No photographs of the core have been found in the Invicta archives for any drilling conducted at the Invicta Project. During the re-logging campaign 5,329 m were photographed. The photographs were taken after re-logging. Core photographs were stored in a backed up digital database for future reference.

#### **Core Cutting and Storage**

Once the uncut core arrived at the core shack an experienced technician supervised the core splitting. Once the core was cut a sample, between 1 to 3 kg in weight, depending of the sample length and type of mineralization, was taken. Picking and sample preparation are described in Section 9.1. The remaining core fraction was returned to the core box.

The core splitting room was separate from the logging area.

#### **Core Logging**

A paper summary log containing the main lithological contacts, structures and mineralization is completed and the core is sent for cutting. Detailed core logging restarted when the cut core was returned to the geologist responsible for logging the hole. Detailed core logging included mapping of the lithology and structure of the core, identification of the mineralization and registration in the log, marking of the core and marking of the areas to be cut for samples. The geologist applied water with a paint brush to more clearly identify the areas for logging and sampling. A paper version of the core log was completed and then transferred to Excel. During re-logging the geologist who completed the logging also transferred the data to Excel.

#### **Geotechnical Logging**

Geotechnical logging was not conducted during any of the drilling campaigns. Invicta contracted Ing. Jorge Ramírez Seminario (2008, 2010) to log a portion of the Invicta core. In total 3,000 m was logged in 2008 and 821 m was logged in 2010.

The geotechnical characterization used the system of RMR (Bieniawski, 1989) and Q (Barton, 2000) following the ISRM (International Society for Rock Mechanics) standards.

### 8.3 Interpretation and Relevant Results

The results of the 112 hole 12,475.88 m drilled by Pangea (1997-1998) initially defined the geometry of the main Atenea structure to a depth of approximately 2,900 m, and secondary structures as Pucamina (Zone 2), Dany (Zone 6), Ydalias (Zone 4); lacking further exploration with holes in the Zones 3, 5, 7, and outcrops of silica.

The 53 holes drilled in Atenea define the geometry of the main Atenea structure to a depth of approximately 2,900 m, and secondary structures at Pucamina (Zone 2), Dany (Zone 6), Ydalias (Zone 4). Based on visual comparisons between the Pangea and Invicta drill programs in terms of tenor and zone thickness, SRK is of the opinion that the two datasets are generally confirmatory, and are suitable for combination in to a global database that is suitable for use in resource estimation.

A complete listing of all raw assay intervals and grades for all Pangea and Invicta drillholes that form the basis for the resource estimate is provided is in Appendix B.

# 9 Sample Preparation, Analysis and Security (Item 11)

Quality control results for the 2006–2008 Invicta drilling campaigns have been reported in previous NI-43-101 reports (Jaramillo, 2009). Additional surface sampling and core re-sampling by Invicta related to 2011 sample validation campaign conducted are provided to describe current procedures in place at the time of this report.

# 9.1 Methods – Pangea Programs

Sample preparation, analysis and security measured conducted by Pangea during the period 1994-2000 are not well documented, and the programs and procedures in place during that time have been summarized in Section 4 of this report. SRK is familiar with the work practices conducted by Pangea in both Peru and their other former assets in Tanzania and Canada. Based on this experience, SRK is of the opinion that the Pangea drilling and sampling methods were conducted to industry best practices at the time of these historic programs.

# 9.2 Methods - Invicta Programs

# 9.2.1 Core Sampling

All core was cut using a core saw. Once the core was cut in half, the process for picking the sample from the cutting plate and filling it into the bag was as follows: both coarse and fine grained fragments were picked using a small brush and a wood spatula; compressed air was used for cleaning the base of the core saw and plate after every cut to avoid contamination; and the sample obtained from the cut core was placed into a 10''x15'' plastic bag and then sent to the laboratory, for the corresponding assay.

The remaining core fraction was returned to the core box. Sample weights varied from 1 to 3 kg depending of the sample length and type of mineralization.

After each sample was placed into the bag, a sample ticket was attached on the top of the bag, which was then folded and tied. In addition, the same sample code (including the drillhole number) was also written on the outer surface of the bag with a permanent marker. The samples were then stored in a secure dry room, with adequate ventilation.

# 9.2.2 Surface Sampling

The surface samples were collected from mineralized surface outcrops using channel sampling. The outcrops were sampled every 10 m, using a channel 20 cm wide by 10 cm deep with the length dependent on the dimensions of the mineralized vein, the location of any breccia zone and on fault location. The responsible Exploration Geologist, identified the sample locations in the channel and marked the locations. The Senior Sampler, and his assistants cleaned the channels by removing any foreign material. A sample of between 3 and 6 kg was taken from each area and placed in a plastic bag, numbered and tied. Finally, the Exploration Geologist wrote a lithological and mineralogical description of each sampled channel into the sampling log book. The location of each sample was mapped. Samples were packaged, and shipped in company truck to Actlabs in a company truck to be analyzed. Duplicate samples were manually crushed and mixed before splitting and sending for analysis.

# 9.2.3 Security Measures

The core shack is located at the mine camp where 24-hour security is provided. The core storage building itself is locked when the geological staff is not present. The storage boxes for the core are shown in Figure 9-1. The core boxes are stacked in groups of four. The storage location is registered by column, row number and letter respectively.

Sample security from the exploration camp to the laboratory was as follows; the samples were packed into thick sacks in batches of 20 to 25. The samples were transported to the laboratories in Lima using a company vehicle. Once they arrived at the laboratory, the samples were unloaded from the truck by the laboratory personnel.

Surface samples were stored in the core shack (refer to Figure 9-1).

# 9.2.4 Sample Preparation

Actlabs, Peru performed the 2012 analysis for the surface samples and the core sampling conducted as part of the validation interim report. Actlabs is an internationally recognized analytical laboratory which provides independent analytical services to the mining industry.

#### **Actlabs Peru Laboratory Procedures**

Actlabs Peru is ISO 9001certified.

#### Sample Preparation

The entire sample as received was crushed to a nominal 70% minus 10 mesh (1.7 mm), mechanically split (riffle) to obtain a representative sample and then pulverized to at least 95% minus 150 mesh (106 microns). The laboratory then ran quartz sand between each sample and then cleaned the pulverizer with compressed air. The quality of the crushing and pulverization was routinely checked as part of the laboratory quality assurance program through preparation of duplicates and pulp duplicates.

#### Assay Procedures - Au Assay AA finish

A 30 gram sample was mixed with flux (borax, soda ash, silica) and litharge (PbO) with Ag added as a collector. The sample with the flux was then added to a crucible, placed in a 1050°C assay furnace and left for a predetermined time to melt or "fuse" the contents of the crucible. The crucibles were then removed from the assay furnace and the molten slag (lighter material) was carefully poured from the crucible into a mould, leaving a lead button at the base of the mould. The lead button was then placed in a preheated cupel which absorbed the lead when cupelled at 820-880°C leaving only a metal bead of Ag (doré bead) which contained the Au from the sample. The entire Ag doré bead was dissolved in acid, and the gold content determined by AA (Atomic Absorption Spectrophotometry).

## Assay Procedures - Copper and 28 Element Assay

A 0.2 g sample was prepared by Agua Regia Digestion. In this procedure the sample was placed in a mixture of agua regia (concentrated hydrochloric (HCI) and nitric (HNO3) acids) to leach sulfides, some oxides and some silicates. Final determination of the elemental concentration was performed by optical emission ICP.

# 9.2.5 QA/QC Procedures - 2009

The following information in Section 9.2.5 has been partially extracted from a previously filed NI 43-101 Technical Report on the Invicta property (Jaramillo, 2009) titled "The Invicta Property, Updated Technical Report, (Huaura, Lima – Peru)", prepared for Andean American Mining Corp.; minor changes to the language have been made by SRK for formatting purposes, but the table and figure numbers refer to Jaramillo, 2009.

Quality control procedures and methodology were implemented by [Invicta] during the sampling validation in 2006. This included care in taking representative samples, insertion of duplicates, blanks and standards during sample submittal to Act Labs and CIMM Labs.

Quality control and data verification procedures were also implemented by [Invicta] during the 2007 and the 2008 drill programs. Duplicate, standard and blank samples were inserted into batches of 17 samples. All these samples were sent to CIMM Labs in Lima for preparation and analytical work.

During the 2007 and the 2008 drill programs a total of 216 standards were included in sample batches. The standards were acquired from CDN Resource Laboratories. Two standards were used:

Ctondord	Grades					
Standard	Au g/T	Ag g/t	Cu %	Pb %	Zn %	
CDN-FCM-3	0.40 ± 0.07	23.6 ± 3.3	0.291 ± 0.020	0.152 ± 0.014	0.543 ± 0.032	
CDN-FCM-2	1.37 ± 0.12	73.9±7.3	0.756 ± 0.046	0.479 ± 0.038	1.739 ± 0.104	

TABLE 5: Standards used during 2007-08 drill Programs

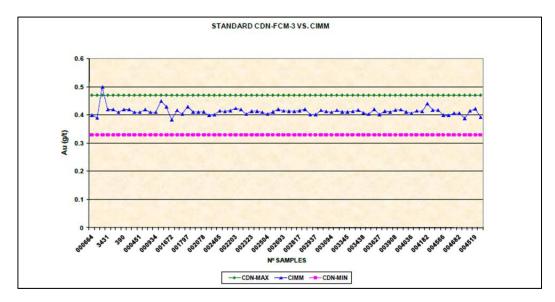


Figure 6: Gold Variance plot for Standard FCM-3

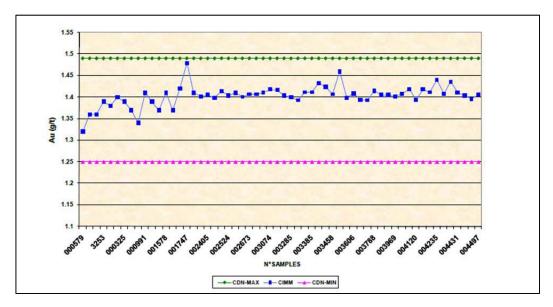


Figure 7: Gold Variance plot for Standard FCM-2

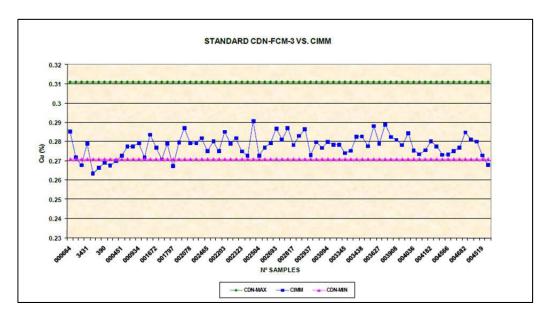


Figure 8: Copper Variance plot for Standard FCM-3

During the 2007 and 2008 drill programs a total of 218 duplicates were inserted in the sample batches.

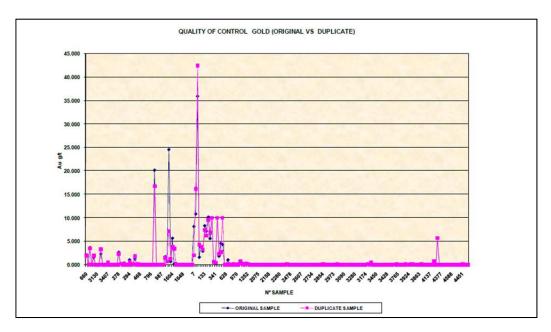


Figure 9: Plot of Gold values for duplicate samples

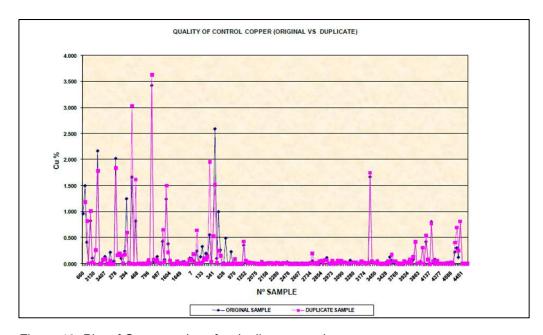


Figure 10: Plot of Copper values for duplicate samples

Variance analysis showed good correlation between the CIMM sample results and the standards used. Blank sample results lie within acceptable limits and duplicate samples show good correlation.

SRK has not reviewed the raw data that supports the graphs above (Figures 6 through 10 of Jaramillo, 2009); however, SRK 's opinion is that the QA/QC program in place for the drilling program was adequate, and the reported results are satisfactory to verify data quality, and thus the drillhole database is sufficient for use in resource estimation.

## 9.2.6 QA/QC Procedures - 2011

SRK notes that the following discussion in Section 9.2.6 of Invicta QA/QC procedures during 2011 is not necessarily relevant to the drillhole database that is used for resource estimation. However, the current QA/QC program is relevant in that Invicta has a program in place for the insertion of standard, duplicate, and blank samples into the normal stream of exploration samples supplied to the analytical labs. SRK recommends that this program be continued and extended to include samples from all future drilling programs.

During the 2011 surface sampling and core re-sampling quality control and data verification procedures were implemented by Invicta. Duplicate, standard, and blank samples were inserted into batches of 17 core samples increasing the batch size to 20. For the core samples, a low grade standard was inserted for sample batches that did not have mineralization and a medium grade standard was submitted for batches that contained mineralization. The lower grade standard was used for the surface samples. All samples were sent to Actlabs, Peru, for preparation and analytical work. The standards were acquired from Analytical Solutions Ltd. Two standards were used.

Certified Au blank samples were purchased from Actlabs, Peru.

The result of the ActLabs laboratory QC sample analyses for surface sampling between November 2011 and February 2012 are provided in this section for blanks, standards (standard reference material), and duplicate samples. For core samples, a total of 6 duplicate samples, 7 blanks and 7 standards were inserted into the sample batches submitted to the analytical lab. For surface sampling, a total of 17 duplicate samples, 13 blanks, and 18 standard samples were inserted into sample batches sent to the lab. Analyses were for both Au and Cu.

The types of analysis used are: Fire Assay, Gravimetric for gold (Au), and ICP-MS for 38 elements for copper (Cu) assays.

Table 9.2.6.1: Detection limits for Au and Cu

Metal	Code of Analysis	Unit symbol	<b>Detection Limit</b>
Au	Au-EF1	ppb	5
Au	Au-EF6	g/t	0.04
Cu	VH-ME-ICP2	ppm	0.5

Actions taken to re-assay sample batches based on failed standards or blanks are discussed in Section 9.2.6 (QA/QC Actions), and the individual QA/QC analytical results are discussed in Section 9.2.6 (Results).

## **QA/QC Actions**

#### Core Sampling

The assay of gold standards submitted as quality control for the surface sampling resulted in two samples falling below the lower quality control limit (Chart 9-1). As a result of this the two batches were re-analyzed. Copper assays were not affected.

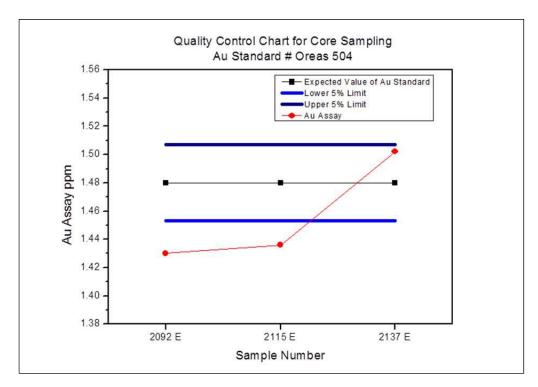


Chart 9-1: Quality Control Chart for Gold Standard - Oreas 504

The second assay of the two batches containing the standards that analysed outside the lower limit (Chart 9-2). Discussions have been held with the laboratory to analyse a third time. At this point the results from the original assay have been used.

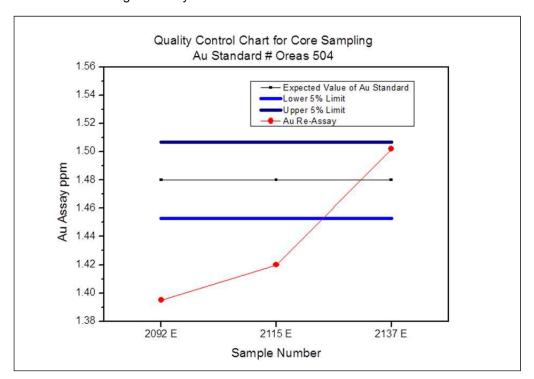


Chart 9-2: Quality Control Chart for Gold Re-Assay - Standard Oreas 504

Charts 9-1 and 9-2 suggest that the analytical lab is biased low relative the standard sample value in two out of three analyses; however, SRK suggests that the data are not necessarily representative of trend as the sample population is too small. Additional work is required, and recommended to determine if the analytical lab results are conservative relative to standard reference material.

#### Surface Sampling

The assay results of gold standards submitted as quality control for the surface sampling resulted in 7 of the 17 samples falling below the lower quality control limit (Chart 9-3). As a result of this the entire batch was re-analyzed. Copper assays were not affected.

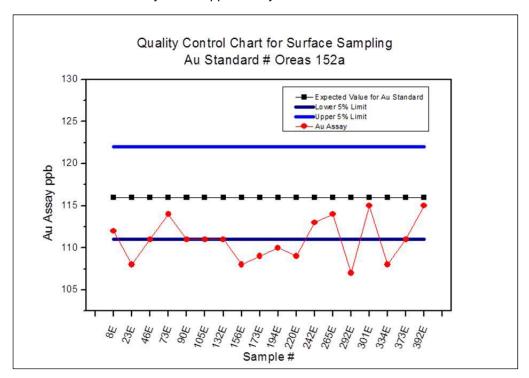


Chart 9-3: Quality Control Chart for Gold Standard - Oreas 152a

## **Results**

## Core Resampling

#### **Blanks**

Chart 9-4 shows the assay values for blank samples in units of ppm. All blank samples returned gold values below the 0.003 ppm analytical detection limit, as expected. The certified value of the blanks is < 0.005 ppm. Blanks were inserted for gold analysis only.

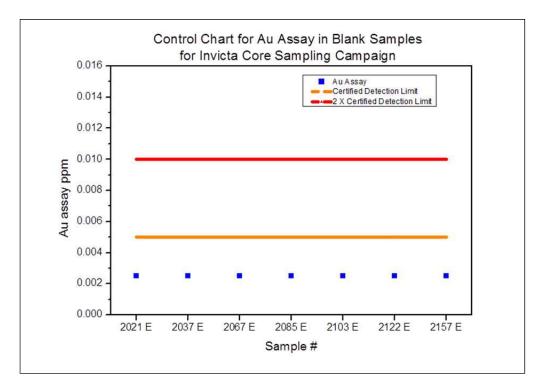


Chart 9-4: Blank Sample Assays for Gold

## Standard Reference Material

Standards (standard reference material) were procured from Analytical Solutions Ltd consisting of a low grade gold standard (116 ppb) and a mid-grade copper standard (1.123%). The limits used to determine the control limits for acceptability are shown in Tables 9.2.6.2 and 9.2.6.3. A +/-5% limit was chosen representing approximately a 90% confidence interval. Final plots of the quality control results for gold and copper are shown in Charts 9-5, 9-6 and 9-7, respectively.

Table 9.2.6.2: Gold Standard (Oreas 152a) and Limits of Acceptability

Metal	Certified Value	1SD	5% Wi	indow
IVICIAI	Certified value	130	Low	High
Gold (ppb)	116	5	110	122
			20% W	/indow
Copper (%)	0.385	0.009	0.365	0.404

Table 9.2.6.3: Gold Standard (Oreas 504) and Limits of Acceptability

Metal	Certified Value	1SD	5% Window	
Wetai	Certified value	130	Low	High
Gold (ppm)	1.48	0.04	110	122
			20% W	/indow
Copper (%)	1.123	0.019	0.365	0.404

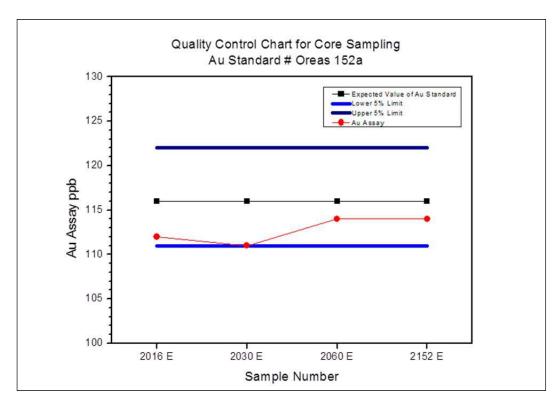
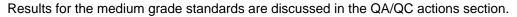


Chart 9-5: Quality Control Chart for Gold Standard - Oreas 152a



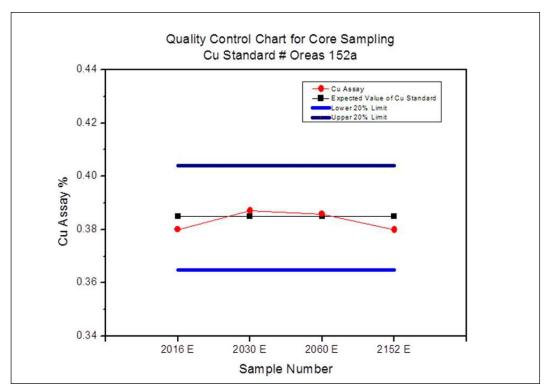


Chart 9-6: Quality Control Chart for Copper Standard - Oreas 152a

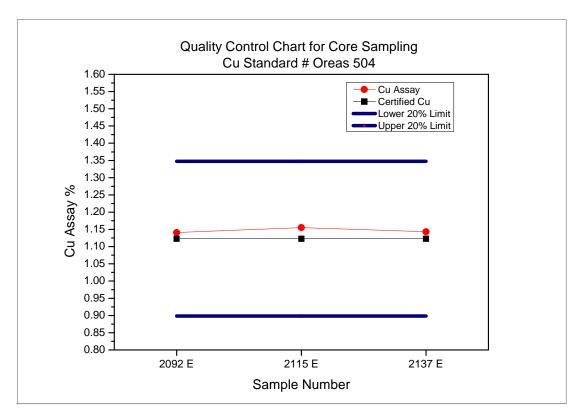


Chart 9-7: Quality Control Chart for Copper Standard - Oreas 504

Table 9.2.6.4 provides the results of standard failure for which the results exceeded confidence limits. Section 9.2.6 (QA/QC Action) describes the actions taken, which is to re-assay the entire sample batch.

Table 9.2.6.4: Gold Standard Sample Analyses that Fall Outside the Limits of Acceptability

Sample #	Au_ppm	Re-assay-Au_ppm
2092E	1.430	1.395
2115E	1.436	1.421

#### **Duplicates**

The results of duplicate samples analyzed for gold are shown in Chart 9-8, with ±20% confidence limits. A similar chart for duplicate sample analyses for copper is shown in Chart 9-9. Duplicate sample analyses for gold are typically quite variable, given the nuggety distribution of gold in epithermal deposits, as indicated in the graph; two of the Cu duplicate assays fell outside the limits. The reason is believed to be due to the fact the samples were not homogenized before sending to the laboratory.

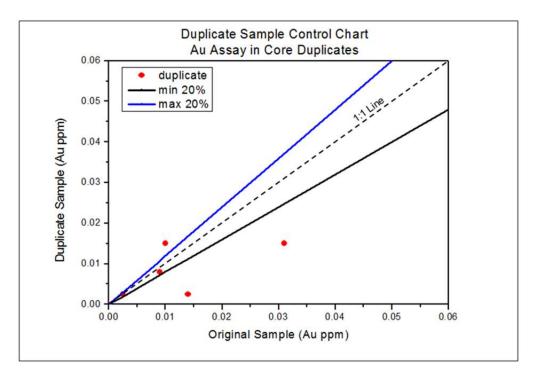


Chart 9-8: Quality Control Chart for Au Assay in Duplicate Sample

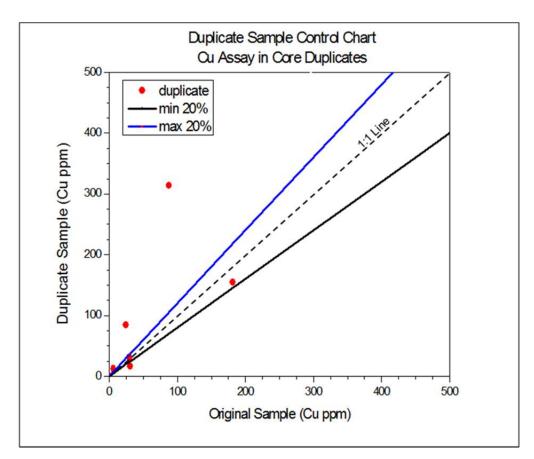


Chart 9-9: Quality Control Chart for Cu Assay in Duplicate Samples

Table 9.2.6.5: Gold and Cu Analyses of Duplicate Samples

Oı	riginal		Duplicate		
Sample #_Orig	Au_ppm	Cu_ppm	Sample #_Dup	Au_ppm	Cu_ppm
2007E	0.0025	30.8	2008E	0.0025	16.3
2041E	.0.031	87.6	2042E	0.015	314.0
2051E	0.014	181.3	2052E	0.0025	154.2
2073E	0.009	29.4	2074E	0.008	31.2
2110E	0.010	24.4	2111E	0.015	84.5
2127E	3.235	451.1	2128E	2.181	961.8
2143E	0.0025	5.9	2144E	0.0025	12.1

Note: In red = Samples that exceed +/- 20% tolerance are not admissible.

## Surface Sampling

#### Blanks

Chart 9-10 shows the assay values for blank samples in units of ppb. All blank samples returned Au values below the 3 ppb detection limit, as expected.

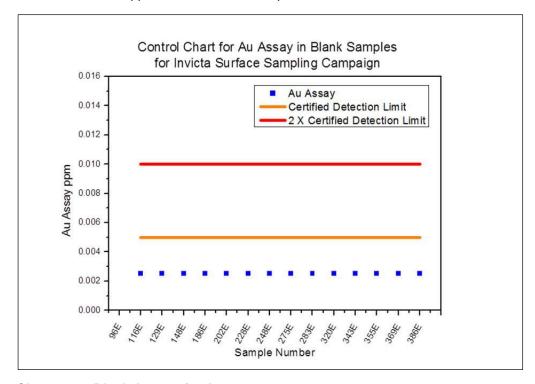


Chart 9-10: Blank Assays for Au

#### Standard Reference Material

Standards (standard reference material) were procured from Analytical Solutions Ltd consisting of a low grade Au standard (116 ppb) and a mid-grade Cu standard (0.385%). The limits used to determine the control limits for acceptability are shown in Table 9.2.6.1. A +/-5% limit was chosen representing approximately a 90% confidence interval. Final plots of the quality control results for Au and Cu are shown in Charts 9-11 and 9-12, respectively.

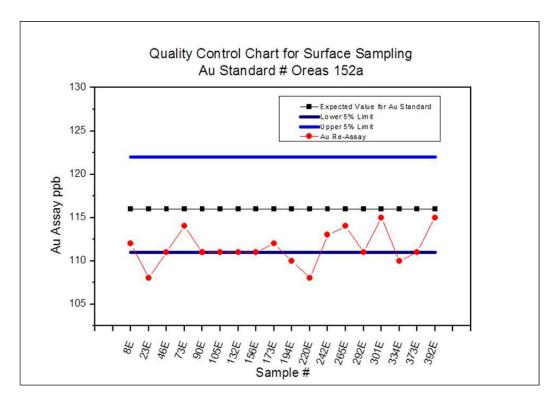


Chart 9-11: Au Quality Control Chart for Standard Oreas 152a

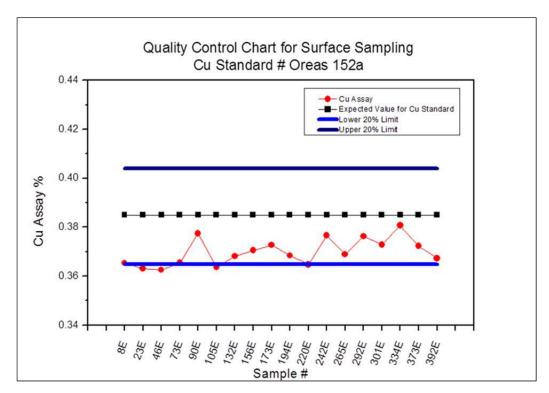


Chart 9-12: Cu Quality Control Chart for Standard Oreas 152a

The Standard sample analyses that lie outside the acceptable confidence limits are provided in Table 9.2.6.6:

Table 9.2.6.6: Gold And Cu Standard Sample analyses that fall outside the limits of acceptability

Sample #	Au_ppm	Re-assay_Au_ppm	Sample #	Cu_%
000023E	0.108	0.108	000023E	0.3630
000220E	0.109	0.108	000046E	0.3624
			000105E	0.3636

## **Duplicates**

The results of duplicate samples analyzed for Au are shown in Chart 9-13, with ±20% confidence limits. A Similar graph for duplicate sample analyses for Cu is shown in Chart 9-14. Duplicate sample analyses for Au are commonly quite variable, as indicated in the graph; Cu duplicate assays behave much better than gold, as shown in Chart 9-14, with only on duplicate assay falling outside the confidence limits of acceptability.

The duplicate samples analyzed for Au that fall outside the limits of acceptability are marked in red in Table 9.2.6.7.

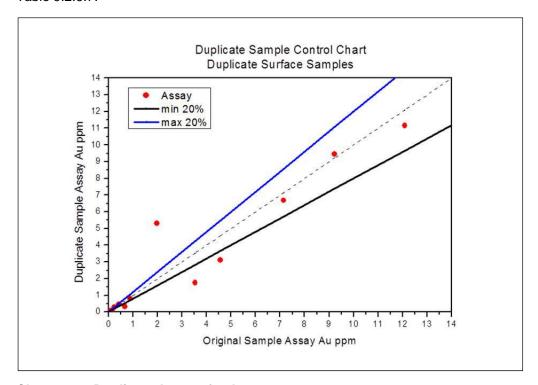


Chart 9-13: Duplicate Assays for Au

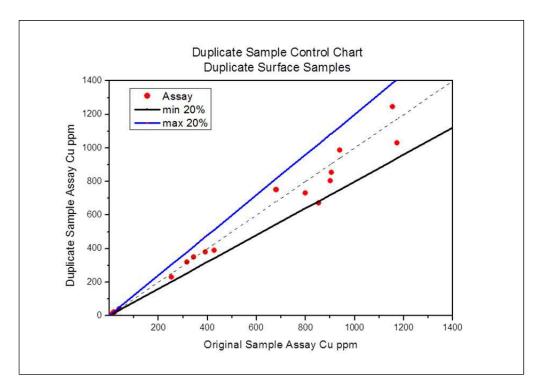


Chart 9-14: Duplicate Assays for Cu

Table 9.2.6.7: Gold and Cu Analyses of Duplicate Samples

Original				Duplicate	
Sample #_Orig	Au_ppm	Cu_ppm	Sample #	Au_ppm	Cu_ppm
000014E	0.068	21.9	000015E	0.064	17.3
000037E	0.02	41.9	000038E	0.049	41.3
000059E	0.014	5.9	000060E	0.012	6.5
000082E	0.007	19.5	000083E	0.0025	22.5
000118E	6.687	752.4	000119E	7.152	680.7
000141E	1.754	229.2	000142E	3.532	254.1
000164E	0.475	389.1	000165E	0.428	427.4
000187E	11.15	379.6	000188E	12.09	392.8
000209E	9.449	671.8	000210E	9.227	853.6
000232E	0.813	804.6	000233E	0.888	902.9
000255E	0.277	349.3	000256E	0.248	344.6
000278E	0.074	986.5	000279E	0.139	939.4
000301E	5.299	855.2	000302E	1.972	905.7
000324E	3.111	1247	000325E	4.566	1155.6
000347E	0.32	1029.6	000348E	0.61	1174.3
000359E	0.06	731.3	000360E	0.076	800.1
000382E	0.025	319.3	000383E	0.023	316.2

Note: In red = Samples that exceed +/- 20% tolerance are not admissible.

The percentage of duplicate samples analyzed for Au that fall outside acceptable confidence limits of ±20% is 47.1%; the percentage of duplicate samples analyzed for Cu that fall outside acceptability limits is 11.8%. These variances are not considered outside the industry norm for duplicate sample. As the duplicate samples were not crushed and split at site some errors were introduced due to

inaccuracy of splitting bulk samples. Future work will require homogenization of any duplicate samples before submission to the laboratory.

Chart 9-13 illustrated that three of the five duplicate samples for Au fell outside the recommended zone.

# 9.2.7 Opinion on Adequacy

SRK has reviewed both the Pangea (1997-1998) and the Invicta (2006-2008) drilling programs and quality assurance/quality control (QA/QC) protocols. The more recent Invicta drilling campaigns redrilled and resampled most areas originally drilled by Pangea, and both mineral tenor and zone thicknesses have been confirmed by these more recent drill programs. Although the Pangea QA/QC program is not well documented, the procedures and protocols in place during these historic drilling campaigns were industry compliant at that time, and the primary lab (CIMM) implemented the insertion of blanks, standards and duplicate samples into the assay sample stream. SRK has not reviewed the raw data that support the graphs in Section 9.4 (Figures 6 through 10 of Jaramillo, 2009), which are related to QA/QC results of the 2009 and 2008 Invicta drilling data; however, SRK's opinion is that the QA/QC programs in place for the drilling program were adequate, and the reported results are satisfactory to verify data qualify, and that the drillhole database is sufficient for use in resource estimation.

Based on the above, SRK is of the opinion that both the Pangea 1997-1998 and the Invicta 2006-2011 sampling, sample preparation, security, analytical procedures, and QA/QC protocols meet industry standards. Based on the review conducted by SRK, SRK is of the opinion that the combined Pangea and Invicta assay databases are suitable for combination and are suitable for use in resource estimation. The Invicta 2011 sampling programs employed blanks, duplicates and standards as part of the QA/QC program. SRK recommends that in addition to the current program of insertion of standards, duplicates and blanks, that the addition of outside check assays be included in the QA/QC program going forward. This can be accomplished by randomly selecting 10 to 20% of the total sample population, for check assays at a second analytical lab. This can be completed with the original sample pulps from the primary laboratory.

SRK recommends that Invicta conduct a compilation of all current and historic QA/QC results in digital format, for a global reassessment of the entire database. Although the 2006-2008 QA/QC programs have been previously reviewed by Discover Geological Consultants (Jamarillo, 2009), a global analysis of the entire dataset should be re-conducted, so that the project staff maintains a current database that can be readily updated with new data, and has familiarity with all such data for ongoing project purposes.





# 10 Data Verification (Item 12)

Project data verifications have been completed by several methods:

- Visual on-site examination of lithology and structures, mineralized quartz veins, and drillhole collars compares with mapped data;
- Assay certificates were checked against the database of assay information to verify the drillhole database:
- Comparison of Invicta work programs and data results with previous work conducted by predecessor companies; and
- Examination of QA/QC data for confirmation of assay data quality.

# 10.1 Procedures

## **Invicta Verification**

In the period 2006-2008, Invicta geologists conducted a re-logging and re-assaying program of the original Pangea core. The assaying program included both the re-assaying of existing intervals in smaller subintervals as well as new assaying of zones external to the currently defined mineralized zones. Although some slight differences were found in terms of widths and bulk densities, Invicta determined that there was good correlation with Pangea's original data and confirmed a portion of the original Pangea assay, and re-assayed a total of 288.31 m of Pangea core or approximately 9% of the historic database.

#### **SRK Verification**

SRK geologists have conducted site visits to verify the geology model, geological mapping, structural interpretations, and identified areas of mineralization. Mineralized quartz veins are observable in the field as mapped.

A validation of the assay data for the Pangea database was performed by random manual checks of ten percent of the digital assay database against the original CIMM Peru S.A. certificates provided by the client. The ten percent random assay comparisons were conducted for Au, Ag and Cu assays only.

SRK notes that all Au results reported at below detection (detection limit = <0.015 and <0.005) were recorded in the provided database at the detection limit, which is not customary procedure. Customary procedure is to use half the detection limit (0.0075 and 0.0025 respectively). The records for above detection limit for Au (>10.0) were also recorded at the detection limit, not at the customary procedure of 1.5 times the detection limit (15.0).

Tables 10.1.1 through 10.1.3 show the error rates of assays in the database in comparison to assays on the lab certificates for gold, silver and copper, respectively.

An error rate of 6.51% was observed in the ten percent of the drill hole samples checked for gold (338 total checks). An error rate of 2.96% was observed in the ten percent of the drill hole samples checked for silver (338 total checks). An error rate of 2.96% was observed in the ten percent of the drillhole samples checked for copper (338 total checks). These errors are all related to data entry errors. The errors detected in the checked gold assays are primarily related to the second decimal place and appear to be related purely to rounding. SRK does not view these errors as material, and

SRK is of the opinion that the data from the Pangea drilling campaign as provided are suitable for the use in resource estimation.

Although not a direct SRK data verification, SRK notes that work by Invicta has generally replicated work done by predecessor companies as to geology and general analytical results, providing a general comparison with historical data.

In addition, QA/QC procedures stated in Section 9.4 include the use of standard reference material, blacks, and duplicate assays to provide verification of the accuracy of the analytical database, and the results indicate the database is sufficient for use in resource estimation.

Table 10.1.1: Assay Database Verification against Analytical Lab Assay Certificates – Gold

Data	Errors			
Dala	Data Entry   Total Errors   Total Da			
1996-1998 Pangea	6.51%	22	338	

Note: Detection limit for gold is 0.015 g/t - detection limit rounding errors are not considered material errors

Table 10.1.2: Assay Database Verification against Analytical Lab Assay Certificates – Silver

Data	Errors			
Data	Data Entry   Total Errors   Total D			
1996-1998 Pangea	2.96%	10	338	

Note: Detection limits for silver are reported as 1 g/t and 0.5 g/t, dependent on the date of analysis – detection limit rounding errors are not considered material errors

Table 10.1.3: Assay Database Verification against Analytical Lab Assay Certificates – Copper

Data	Errors			
Data	Data Entry	Total Errors	Total Data	
1996-1998 Pangea	2.96%	10	338	

Note: Detection limit for copper is reported as 5ppm - detection limit rounding errors are not considered material errors

## 10.2 Limitations

SRK did not verify gold content by independently sampling and analysis; the multiple programs and checks conducted by previous workers suggest that this level of checking is not necessary for the advanced stage of the Invicta Project.

It is SRK's opinion that there are no identified limitations to the resource database that will have a material effect on the resource estimation process or stated mineral resources.

# 10.3 Data Adequacy

SRK concludes that the Invicta deposit database is sufficiently well defined, documented, and verified, to allow for use in resource estimation.

# 11 Mineral Processing and Metallurgical Testing (Item 13)

Extensive process development studies have been performed in several test laboratories for the Invicta Project. The highlights of these studies are briefly discussed in this section.

# 11.1 Testing and Procedures

Initial test programs, discussed in detail in the 2008 Feasibility Study for the Invicta Project, focused on an unconventional process flow sheet consisting of recovery of gold and silver by gravity followed by cyanidation of the gravity concentrate. The leach residue was washed and subjected to sequential flotation to recover copper, lead and zinc concentrates.

Recently, the objective of the metallurgical test program was modified to incorporate a conventional processing flow sheet to recover two concentrates, namely copper concentrate which contained most of the gold and some silver and lead, and a lead concentrate which contained some silver and gold.

The recent test work was undertaken at the National University of San Augustine of Arequipa, Peru under the direction of Luis Miguel Panduro Robles, Chief Metallurgist, Invicta Mining Corporation and Dr. Deepak Malhotra, President, Resource Development Inc. (RDi). A large fresh sample, consisting of over 1 t of mineralized material from the Invicta deposit, was provided to the University for the study.

The metallurgical test program followed a systematic process development protocol consisting of evaluating grind size, flotation time, dosage of collectors and depressants, need for regrind for Cu/Pb upgrading and separation of copper and lead concentrates. Once the optimum process variables were identified, locked-cycle tests were performed to simulate the metallurgical performance in the plant.

A pilot plant continuous circuit was also run for a few days to demonstrate that the process developed on the bench scale works on a larger scale and to generate concentrates and tailings for additional testing (i.e. filtration, thickening etc.).

Limited test work was undertaken on the lead/copper rougher tailings to demonstrate that it would be possible to recover and produce marketable zinc concentrate if desired. However, it is not incorporated into the process flow sheet at this time.

#### 11.2 Relevant Results

The fresh composite sample employed for the process development program assayed 1.34% Cu, 1.32% Pb. 5.95 g/t Au and 47 g/t Ag. The complete analyses of the sample are given in Table 11.2.1.

Table 11.2.1: Head Analyses of Composite Sample

Element	Assay
Cu %	1.34
Pb %	1.32
Zn %	0.93
Au g/t	5.95
Ag g/t	47
Fe %	14.8
Cu Ox %	0.009
Pb Ox %	0.05
Zn Ox %	0.04

# 11.2.1 Rougher Flotation

The grind size-recovery test results, summarized in Table 11.2.1.1, indicated that  $P_{80}$  of 200 mesh was optimum for maximizing recovery of copper, lead, gold and silver.

Table 11.2.1.1: Bulk Cu/Pb Rougher Concentrate Results for Varying Grind Sizes

Toot	Drimon, Crind				Cu/P	b Rougl	ner Con	ncentrate (8 min)					
Test No.	Primary Grind P <sub>80</sub> mesh		Recovery%					Grade					
NO.	F <sub>80</sub> illesii	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	Au g/t	Ag g/t	
1	100	8.45	53.60	95.35	16.94	75.21	75.23	8.95	14.70	1.79	47.28	481.33	
2	150	8.53	64.70	96.10	17.43	63.89	73.74	10.75	14.80	1.86	45.71	477.16	
3	200	8.19	69.97	96.07	16.40	60.36	80.31	12.17	15.91	1.75	43.08	567.81	

The zinc minerals were depressed in the bulk Cu/Pb circuit with the addition of  $Zn(CN)_2$  in the grinding and rougher flotation circuits. Zinc cyanide dosage of 300 g/t was found to be optimum as shown in Table 11.2.1.2. Higher addition of  $Zn(CN)_2$  resulted in depression of copper, gold and silver minerals.

Table 11.2.1.2: Bulk Cu/Pb Rougher Concentrate Results for Varying ZnCN Addition Rate

Test	ZnCN				Cu/P	b Rougl	ner Con	centrate	(8 min)			
No.	_			Reco	very%			Grade				
NO.	g/t	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	Au g/t	Ag g/t
4	300	9.81	86.96	96.53	21.03	83.60	94.93	13.22	14.18	1.92	50.26	541.94
6	500	9.00	82.35	97.62	17.05	79.13	77.91	12.24	15.36	1.68	43.99	510.49
5	700	8.14	60.26	96.23	15.12	67.00	75.03	10.38	15.58	1.71	46.86	520.46

## 11.2.2 Bulk Cleaner Flotation

Having established the rougher flotation process conditions, two series of tests were performed to determine the need for regrind in the cleaner flotation circuit and the number of cleaner flotation stages needed for upgrading bulk Cu/Pb concentrate.

The test results, summarized in Tables 11.2.2.1 and 11.2.2.2 indicate the following:

- There was no need for regrind milling in the cleaner flotation circuit.
- Two stages of cleaner flotation are sufficient for the bulk Cu/Pb concentrate.

Table 11.2.2.1: Effect of Varying Regrind Time on Bulk Cleaner Flotation

Test	Regrind				С	leaner	No. 1 (	Concen	oncentrate					Rougher Concentrate				
No.	Time			Recov	ery %	•				Grade	)			Re	covery	%		
NO.	min	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	Au g/t	Ag g/t	Cu	Pb	Zn	Au	Ag	
7	0	6.85	89.03	95.34	9.10	74.83	75.29	19.29	18.85	1.47	61.91	702.5	92.28	96.21	13.37	79.79	83.53	
8	10	7.30	92.22	93.97	8.77	72.14	77.88	19.99	19.38	1.18	51.41	682.5	95.85	95.99	29.58	75.63	83.82	
9	20	7.11	86.39	90.50	8.63	66.76	72.38	19.33	19.50	1.19	58.48	645.9	95.82	96.03	26.29	81.04	85.12	

Primary Grind P<sub>80</sub> of 200 mesh.

Table 11.2.2.2: Summary of Metallurgical Results for Varying Bulk Cleaner Flotation Stages

	Test	Cleaner		Bulk Cleaner Concentrate											
	No.	Stages			Reco	very %			Grade						
	NO.	Stages	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	Au g/t	Ag g/t		
ſ	10	1	7.16	87.52	95.09	13.56	79.07	81.47	17.63	19.73	2.05	65.83	738.0		
	11	2	6.89	88.17	95.13	15.20	79.81	81.72	19.84	22.10	2.24	77.79	773.0		
	12	3	5.75	88.54	93.51	15.17	78.17	77.58	22.09	19.31	2.01	57.93	659.88		

Primary Grind P<sub>80</sub> of 200 mesh

# 11.2.3 Copper/Lead Separation

A total of thirty rougher and bulk cleaner flotation tests were performed to generate ±6 kg of bulk Cu/Pb concentrate for separation tests. Several schemes and reagents were evaluated in over thirty separation tests including depression of copper and flotation of lead minerals and depression of lead and flotation of copper minerals. Finally, the latter approach was selected because it resulted in better separation of the two concentrates. The reagents utilized for the depression of lead included sodium hydrosulfite and potassium dichromate.

# 11.2.4 Open Circuit Rougher-Cleaner-Separation Tests

A series of open circuit tests simulating the process flowsheet consisting of Cu-Pb rougher flotation, two-stage bulk cleaner flotation, Cu and Pb separation and upgrading of copper concentrate were performed. Test results from two tests, given in Tables 11.2.4.1 and 11.2.4.2, indicate that good separation of copper and lead was achieved and saleable grade concentrates for copper and lead can be produced. The flowsheet may require one stage of cleaning for the lead concentrate to ensure production of ±50% Pb concentrate.

Table 11.2.4.1: Open-Circuit Flotation Test for Primary Grind of P<sub>80</sub> of 150 Mesh and Rougher Flotation Time of 9 minutes (Test 56)

			Recov	ery %			Grade						
Product	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	g/t Au	g/t Ag		
Pb Concentrate	1.84	4.13	77.21	12.37	5.60	26.35	2.81	54.80	7.56	13.76	693.0		
Cu Concentrate	3.31	80.45	10.90	8.86	74.57	50.18	30.39	4.30	3.01	101.82	733.0		
Bulk Cleaner 2 Tail	0.52	1.92	0.80	3.76	0.40	1.58	4.61	2.00	8.13	3.48	147.0		
Bulk Cleaner 1 Tail	1.70	1.71	1.36	8.39	0.67	2.63	1.26	1.05	5.55	1.77	75.0		
Bulk Rougher Tail	92.63	11.79	9.74	66.61	18.77	19.28	0.16	0.14	0.86	0.92	10.1		
Cal. Feed	100.0	100.0	100.0	100.0	100.0	100.0	1.25	1.31	1.12	4.52	48.39		

Table 11.2.4.2: Open-Circuit Flotation Test for Primary Grind of  $P_{80}$  of 200 Mesh and Rougher Flotation Time of 14 minutes (Test 65)

			Recov	ery %			Grade					
Product	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	g/t Au	g/t Ag	
Pb Concentrate	2.66	5.42	80.19	20.62	4.82	27.53	2.62	40.15	8.25	7.63	490.0	
Cu Concentrate	3.57	85.74	6.96	10.18	82.16	50.08	30.92	2.60	3.04	96.92	665.0	
Bulk Cleaner 2 Tail	1.20	1.67	1.49	8.96	0.60	2.46	1.78	1.65	7.93	2.11	97.0	
Bulk Cleaner 1 Tail	4.61	2.43	2.53	37.58	1.86	5.26	0.68	0.73	8.68	1.70	54.0	
Bulk Rougher Tail	87.96	4.75	8.83	22.65	10.55	14.64	0.07	0.13	0.27	0.50	7.9	
Cal. Feed	100.0	100.0	100.0	100.0	100.0	100.0	1.29	1.33	1.06	4.21	47.34	

# 11.2.5 Locked Cycle Tests

A series of locked-cycle tests were performed to generate data for the plant design. The simplified process flow sheet is given in Figure 11-1 and the results for the duplicate tests are summarized in Tables 11.2.5.1 and 11.2.5.2 and illustrated in Figures 11-1 and 11-2.

The test results indicate the following:

- Copper concentrate assaying 31.4% Cu, 110 g/t Au and 630 g/t Ag was produced in the locked-cycle tests. The recovery of Cu, Au and Ag in the concentrates was 82%, 79% and 45%, respectively.
- The lead concentrate assayed 48% to 57% Pb, 8 g/t to 13 g/t Au and 620 g/t to 644 g/t Ag.
   The recovery of lead, gold and silver in the concentrate was 82.2%, 6% and 34%, respectively.

Table 11.2.5.1: Summary of Locked-Cycle Test No. 89

			Recov	ery %			Grade					
Product	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	g/t Au	g/t Ag	
Pb Concentrate	2.7	6.5	82.2	6.6	6.9	33.8	3.44	57.20	3.03	13.33	644.19	
Cu Concentrate	3.6	79.7	7.1	4.5	77.3	45.5	31.45	3.67	1.53	110.67	645.78	
Bulk 1 <sup>st</sup> Cleaner Tail	3.5	4.3	3.0	11.9	2.9	6.0	1.73	1.59	4.12	4.22	86.65	
Rougher Tail	90.2	9.5	7.7	76.9	12.8	14.7	0.15	0.16	1.04	0.73	8.33	
Cal. Feed	100.0	100.0	100.0	100.0	100.0	100.0	1.42	1.87	1.23	5.17	51.23	

Table 11.2.5.2: Summary of Locked-Cycle Test No. 90

Product		Recovery %						Grade					
Product	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	g/t Au	g/t Ag		
Pb Concentrate	3.1	7.0	82.4	14.3	4.8	34.9	3.25	48.54	5.53	8.31	620.99		
Cu Concentrate	3.9	83.3	6.3	6.2	80.5	45.3	31.25	2.98	1.95	113.18	652.17		
Bulk 1 <sup>st</sup> Cleaner Tail	4.5	5.5	2.8	23.3	2.0	4.9	1.12	1.13	6.19	2.34	59.26		
Rougher Tail	88.5	6.1	8.5	56.2	12.7	14.9	0.10	0.18	0.77	0.78	9.33		
Cal. Feed	100.0	100.0	100.0	100.0	100.0	100.0	1.44	1.83	1.20	5.41	55.33		

## 11.2.6 Miscellaneous Tests

Miscellaneous test work included determination of losses of minerals in the bulk tailings from selected locked-cycle tests, analyses of chromium in recovered water, and increased solids loading in the bulk rougher/scavenger circuit. The test results indicated the following:

- Gold, silver, copper and lead losses in the bulk tailing were predominantly in the minus 325 mesh fraction.
- The Cr<sup>+6</sup> in the recovered water was generally lower than 0.4 ppm as long as the potassium dichromate addition rate was less than 90 g/t.
- Open and locked-cycle tests were also conducted where the solids loading in the bulk rougher/scavenger circuit was increased to 40% from 32%. The results showed increased recovery to the concentrate and decreased reagent consumption in the bulk rougher circuit. Recovery results are summarized in Figure 11.3.

# 11.2.7 Pilot Plant

A pilot plant with a capacity of 125 kg/h was operated with the process flow sheet developed in the bench-scale testing to confirm that the process works and generate concentrates and tailings for sedimentation and filtration testing.

The overall metallurgical balance for the pilot plant operation, given in Table 11.2.7.1, confirms that the results were similar to those achieved in the locked-cycle tests in the laboratory. The concentrate analyses are reported in Tables 11.2.7.2.

Settling and filtration tests were performed on the concentrates and tailings to generate design parameters for full-scale commercial operation.

Table 11.2.7.1: Metallurgical Balance for the Pilot Plant Operation

			Recov	ery %			Grade					
Product	Wt.	Cu	Pb	Zn	Au	Ag	% Cu	% Pb	% Zn	g/t Au	g/t Ag	
Pb Concentrate	2.31	10.94	66.07	17.44	10.57	34.07	5.73	37.49	5.69	22.02	764.0	
Cu Concentrate	3.45	81.89	25.14	8.51	80.08	49.62	28.72	9.55	1.86	111.67	745.0	
Bulk Cleaner 1 Tail	4.40	3.54	2.62	6.95	1.69	4.16	0.97	0.78	1.19	1.85	49.0	
Bulk Rougher Tail	89.84	3.64	6.17	67.10	7.66	12.14	0.05	0.09	0.56	0.41	7.0	
Cal. Feed	100.0	100.0	100.0	100.0	100.0	100.0	1.21	1.31	0.75	4.81	51.8	

Table 11.2.7.2: ICP Analyses of Pilot Plant Concentrates

Element	Unit of Measure	Copper Concentrate	Lead Concentrate
Al	%	0.15	0.71
As	%	0.01	0.01
CaO	%	0.03	0.11
Cu	%	31.3	2.81
Fe	%	28.05	9.22
MgO	%	0.09	0.48
Mn	%	0.01	0.08
Мо	%	0.001	0.003
Ni	%	0.001	0.002
Pb	%	3.47	53.6
S	%	32.2	9.52
SiO <sub>2</sub>	%	1.52	1.52
Zn	%	1.77	3.94
Au	ppm	113	9.75
Ag	ppm	647	623
Ва	ppm	0.0008	12.6
Bi	ppm	<2	0.04
Ce	ppm	13.08	<6
Cd	ppm	0.02	0.06
Co	ppm	11.75	22.5
Cr	ppm	105.7	528.3
Ga	ppm	20.38	<1.6
Hg	ppm	not detected	not detected
In	ppm	90.0	24.3
K	ppm	54.83	325.8
La	ppm	4.15	0.70
Li	ppm	2.45	8.35
Na	ppm	140.3	174.8
Р	ppm	20.9	80.8
Sb	ppm	0.01	0.005
Se	ppm	123.8	686.8
Sn	ppm	0.85	0.85
Sr	ppm	2.35	6.98
Те	ppm	134.5	53.0
Ti	ppm	26.52	81.3
V	ppm	<2	12.6

Notes:

S is determined by the gravimetric method.

SiO<sub>2</sub> is determined by alkaline fusion then gravimetric method.

# 11.3 Recovery Estimate Assumptions

The recoveries of gold, silver, copper and lead minerals were estimated from the locked-cycle tests. The average recoveries and grades of the two concentrates namely copper and lead based on the duplicate locked-cycle tests are given in Table 11.3.1.

The estimated gold and silver recoveries in the plant will be 84.8% and 79.8% respectively. These recoveries are not discounted for the smelter contracts. The plant recoveries, given in Table 11.3.1, are based on the plant feed grade of 1.42% Cu, 1.85% Pb, 1.20% Zn, 5.38 g/t Au and 53.28 g/t Ag.

	C	oncentrat	e
Recovery %	Copper	Lead	Total <sup>(1)</sup>
Wt.	3.75	2.90	
Cu	81.5	6.8	
Pb	6.7	82.3	
Zn	5.4	10.4	
Au	78.9	5.9	84.8
Ag	45.4	34.4	79.8
	Grade	)	
% Cu	31.35	3.35	
% Pb	3.33	52.87	
% Zn	1.74	4.28	
g/t Au	111.93	10.82	
g/t Ag	648.98	632.59	

Table 11.3.1: Projected Metal Recoveries and Concentrate Grades for the Project

# 11.4 Sample Representativity

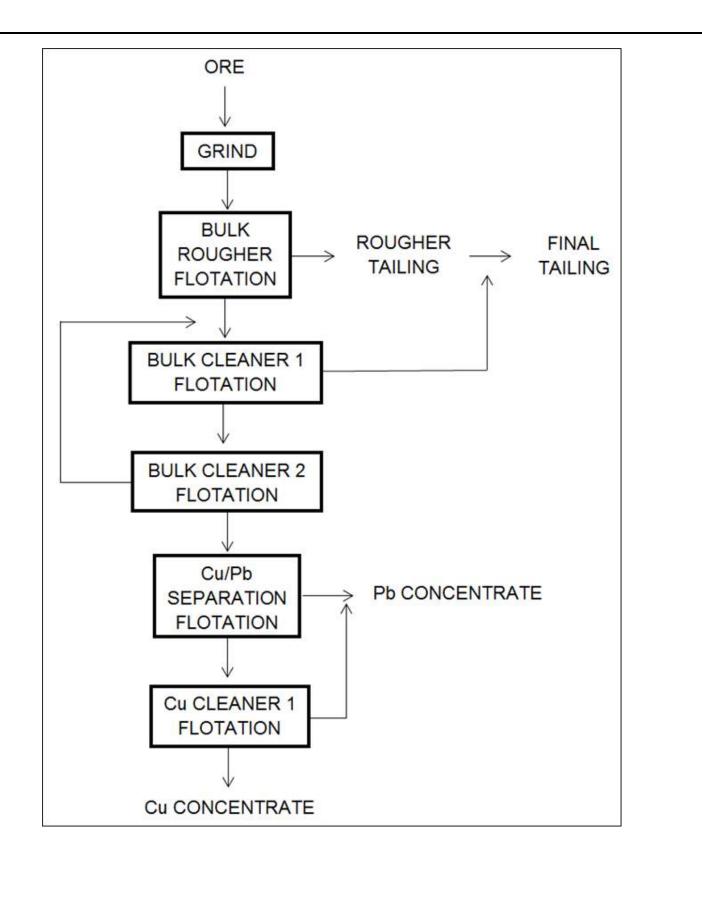
The samples for the present study were collected from several areas of the deposit in order to have the samples represent the gold, silver and copper values similar to the average grade of the resource. RDi is of the opinion that the mineral samples used in the metallurgical testwork programs were representative of the mineral deposit, and were adequate for the purposes of the technical studies conducted so far.

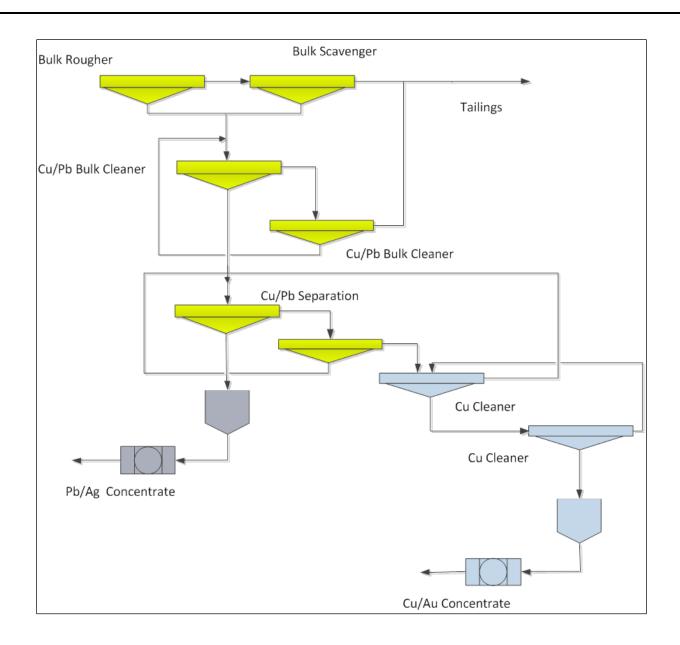
While the test work has been conducted on samples considered to be representative of the resource as defined, the mineralization is variable in grade and content and it is recommended that additional testing of samples in the developed flowsheet be performed to confirm robustness of metallurgical performance.

# 11.5 Significant Factors

Extensive test work with earlier samples ranging in grade from 1.5% g/t Au to 10 g/t Au, 0.5% Pb to 13% Pb and 0.5% Cu to 2% Cu had indicated that a differential flotation process will work. The test results were not properly documented and hence were not used in the present study.

<sup>(1)</sup> Total recovery of gold and silver without taking into account the smelter contract penalties





Pb Concentrate						
Element	% Recovery					
Au	6.9					
Ag	33.8					
Cu	6.5					
Pb	82.2					

Г							
Cu Concentrate							
Element	% Recovery						
Au	77.3						
Ag	45.5						
Cu	79.7						
Pb	7.1						

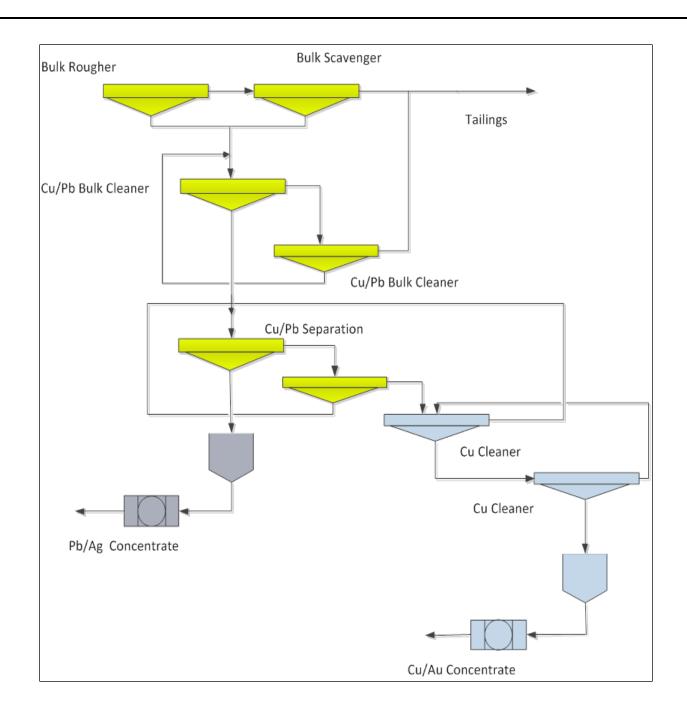


NI 43-101 Technical Report on Resources Invicta Gold Project, Peru

Source: Invicta, 2012

Figure 11-2

Locked -Cycle Recovery to Cu and Pb Concentrates - 32% Solids in Bulk Rougher Scavenger - Test #89



Pb Concentrate								
Element	% Recovery							
Au	4.8							
Ag	34.9							
Cu	7.0							
Pb	82.4							

Cu Concentrate									
Element	% Recovery								
Au	80.5								
Ag	45.3								
Cu	83.3								
Pb	2.8								



NI 43-101 Technical Report on Resources Invicta Gold Project, Peru Source: Invicta, 2012

Figure 11-3

Locked -Cycle Recovery to Cu and Pb Concentrates - 40% Solids in Bulk Rougher-Scavenger - Test #90

# 12 Mineral Resource Estimate (Item 14)

SRK has noted in the History Section (Section 4.0), that recent resource estimations were completed for the Invicta Project in 2008, updated in 2009, and a Feasibility Study was done in 2010 based on the 2009 updated resources. The mineral resource estimate below supersedes all previous estimates and should be considered the current estimate.

# 12.1 Sample Database

A final sample database was provided to SRK on November 10, 2010. This database consisted of separate csv files with collar survey, downhole survey, analytical results, lithology, geotechnical, core recovery and specific gravity for all of the Pangea and Invicta drillholes and underground samples. A summary table of the types and quantities of collar data is provided in Table 12.1.1.

Table 12.1.1: Summary of Collar Data by Drill Campaign and Sample Type

			Length (m)				
Drill Campaign	Sample Type	Number	Total	Min	Max	Avg	
Pangea (1997-1998)	Core	112	12,475.88	1.00	390.40	111.39	
Invicta (2006-2008)	Core	53	15,128.97	69.00	682.60	285.45	
Invicta (2007-2008)	Underground Channel Samples	11	568.84	6.30	245.96	51.71	

# 12.2 Coordinate System

All topography, drillhole data, topography and 3D solids of underground workings was provided to SRK by Invicta in the Provisional South American Datum 1956 (PSAD 56). This projected system forms the basis for both block model construction and subsequent grade estimation. Invicta is in the process of converting all data to the World Geodetic System 84 (WGS 84), which has been adopted as a standard throughout most of the world and is the reference coordinate system for the Global Positioning Satellite (GPS) system. The resource models and all other data will eventually be converted to WGS 84.

# 12.3 Topography

Topography was provided to SRK by Invicta in DXF format. The source of this data is an aerial Lidar survey conducted by Horizons South America S.A.C. located in Lima, Peru. The surveys were flown in March-April 2011, using a laser Leica camera with a 2m x 2m resolution. Horizon produced a 1m contour map which was tied in to 4 surveyed reference points. SRK conducted a visual comparison of the provided topographic surface with drillhole collar elevations and found generally close agreement.

# 12.4 Geology and Grade Modeling

SRK constructed gold equivalent grade solids at nominal 0.5 g/t Au equivalent cut-off for all mineralized zones using capped raw data as a basis. These solids were constructed manually in cross section at variable section spacings. A plan view projection showing the spatial distribution of the modeled solids is provided in Figure 12-1, and a summary of the zone number assignments for each of the solids is provided in Table 12.4.1. The metal price assumptions utilized for the gold equivalent calculation are provided in Table 12.4.2, and are based on 12 month trailing averages in Q1, 2011. No metallurgical recovery was incorporated into the gold equivalent calculation. No

geologic model was constructed for use in resource estimation, although the construction of a simplified geologic model is currently in progress by Invicta geology staff.

Given the numerous generations of grade solid construct, overlap between the Dany Zone solid and both Ydalias and Zone 4 solids were observed. In order to not summarize overlap tonnage more than once, all block tonnages within both Zone 4 and Ydalias were set to zero for resource summary tables.

Table 12.4.1: Zone Number Assignments in Block Model and Composite Data

Zone Name	Zone Number
Atenea Vein 1	1
Atenea Vein 2	2
Atenea Vein 3	3
Atenea Vein 4	4
Atenea Vein 6	6
Atenea Vein 7	7
Atenea Vein 8	8
Atenea Vein 9	9
Pucamina	10
Dany	11
Ydalias	12
Zone 4	14

Table 12.4.2: Metal Price Assumptions for Gold Equivalent Calculation

Metal	Unit	US\$/Unit
Au	Oz	1,203.36
Ag	Oz	19.18
Cu	Lb	3.34
Pb	Lb	0.97
Zn	Lb	0.98

# 12.5 Exploration Data Analysis

Exploratory Data Analysis (EDA) was conducted using the raw metal assays grouped by the various gold equivalent solids. This data was analyzed above both global and incremental cutoffs in order to assess the metal distribution on a zonal basis. Basic statistics for the gold, silver, copper, lead and zinc assay data provided by Invicta are shown in Tables 12.5.1 through 12.5.5, respectively. It can be observed that on a grade-thickness basis, the majority of contained metal occurs in the Atenea zones, with Pucamina being the second most important zone. SRK also notes that a significant number of assays lie external to the wireframes and occur as isolated but often high grade intercepts. SRK is of the opinion that additional targeted drilling may help to better define continuity in some of these zones, and recommends design and implementation of a focused drilling program to assess the potential for resource expansion.

Table 12.5.1: Summary Gold Statistics by Zone: All Raw Data

			Statistic		Incremen	tal Statistics	Between	Cutoffs				
	Cutoff			Max	Mean	Grade-					Mean	Grade-
Zone	(g/t)	Total Meters	Incremental Percent	Grade (g/t)	Grade (g/t)	Thickness (g/t-m)	Incremental Percent	Standard Deviation	Coeff. of Variation	Total Meters	Grade (g/t)	Thickness (g/t-m)
	0.01	7,041	92.26%	178.90	0.55	3,847	18.8%	3.59	6.57	6,496	0.11	723
A 11 D . (	1.00	545	5.34%		5.73	3,124	21.0%	11.71	2.04	376	2.15	807
All Data	5.00	169	1.26%		13.69	2,317	15.7%	18.65	1.36	89	6.79	604
	10.00	80	1.14%		21.35	1,712	44.5%	24.90	1.17	80	21.35	1,712
	0.01	1,469	81.71%	178.90	1.55	2,281	9.2%	7.09	4.56	1,200	0.18	210
Atenea -	1.00	269	11.31%	170.50	7.71	2,071	16.1%	15.10	1.96	166	2.21	368
All Zones	5.00	103	2.97%		16.61	1,703	13.3%	21.63	1.30	44	6.96	304
7 111 201100	10.00	59	4.01%		23.76	1,399	61.3%	26.32	1.11	59	23.76	1,399
	1			1			1		- 1-		1	
	0.01	205	91.11%	10.00	0.41	83	43.7%	0.99	2.43	187	0.19	36
Dany	1.00	18	7.02%		2.58	47	24.9%	2.32	0.90	14	1.44	21
,	5.00	4	1.56%		6.83	26	23.7%	1.53	0.22	3	6.18	20
	10.00	1	0.32%		10.00	7	7.8%	0.00	0.00	1	10.00	7
	0.01	351	65.06%	14.80	1.52	535	18.4%	2.22	1.46	229	0.43	98
Pucamina	1.00	123	26.32%		3.56	437	37.7%	2.75	0.77	92	2.18	202
Fucamina	5.00	30	6.39%		7.75	235	28.3%	2.17	0.28	22	6.75	152
	10.00	8	2.23%		10.61	83	15.6%	1.60	0.15	8	10.61	83
	0.01	30	77.12%	12.81	1.50	46	15.9%	2.99	1.99	23	0.31	7
Ydalias -	1.00	7	12.50%	12.01	5.52	38	17.0%	4.23	0.77	4	2.04	8
All Zones	5.00	3	3.29%		9.72	31	13.8%	2.61	0.27	1	6.29	6
7 <b>_</b>	10.00	2	7.09%		11.31	24	53.3%	1.40	0.12	2	11.31	24
				ı			T			ı	ı	
	0.01	4,842	98.04%	19.25	0.13	652	53.5%	0.63	4.67	4,748	0.07	349
External to	1.00	95	1.63%		3.20	304	24.4%	3.16	0.99	79	2.02	159
Wireframes	5.00	16	0.21%		8.97	145	10.5%	3.87	0.43	10	6.75	68
	10.00	6	0.12%		12.74	76	11.7%	3.83	0.30	6	12.74	76

Table 12.5.2: Summary Silver Statistics by Zone: All Raw Data

		Statistics Above Cutoff						Incremental statistics between cutoffs					
	Cutoff			Max	Mean	Grade-					Mean	Grade-	
		Total	Incremental	Grade	Grade	Thickness	Incremental	Standard	Coeff. of	Total	Grade	Thickness	
Zone	(g/t)	Meters	Percent	(g/t)	(g/t)	(g/t-m)	Percent	Deviation	Variation	Meters	(g/t)	(g/t-m)	
	0.01	7,041	92.26%	178.90	0.55	3,847	18.8%	3.59	6.57	6,496	0.11	723	
All Data	1.00	545	5.34%		5.73	3,124	21.0%	11.71	2.04	376	2.15	807	
/ III Data	5.00	169	1.26%		13.69	2,317	15.7%	18.65	1.36	89	6.79	604	
	10.00	80	1.14%		21.35	1,712	44.5%	24.90	1.17	80	21.35	1,712	
ļ	1			[			T				1		
	0.01	1,469	81.71%	178.90	1.55	2,281	9.2%	7.09	4.56	1,200	0.18	210	
Atenea -	1.00	269	11.31%		7.71	2,071	16.1%	15.10	1.96	166	2.21	368	
All Zones	5.00	103	2.97%		16.61	1,703	13.3%	21.63	1.30	44	6.96	304	
	10.00	59	4.01%		23.76	1,399	61.3%	26.32	1.11	59	23.76	1,399	
	0.04	005	04.440/	40.00	0.44	00	40.70/	0.00	0.40	407	0.40	00	
	0.01	205	91.11%	10.00	0.41	83	43.7%	0.99	2.43	187	0.19	36	
Dany	1.00	18	7.02%		2.58	47	24.9%	2.32	0.90	14	1.44	21	
	5.00	4	1.56%		6.83	26	23.7%	1.53	0.22	3	6.18	20	
	10.00	1	0.32%		10.00	7	7.8%	0.00	0.00	1	10.00	7	
	0.01	351	65.06%	14.80	1.52	535	18.4%	2.22	1.46	229	0.43	98	
	1.00	123	26.32%	14.00	3.56	437	37.7%	2.75	0.77	92	2.18	202	
Pucamina	5.00	30	6.39%		7.75	235	28.3%	2.13	0.77	22	6.75	152	
	10.00	8	2.23%		10.61	83	15.6%	1.60	0.28	8	10.61	83	
	10.00	0	2.2370		10.01	03	13.070	1.00	0.13	U	10.01	03	
	0.01	30	77.12%	12.81	1.50	46	15.9%	2.99	1.99	23	0.31	7	
Ydalias -	1.00	7	12.50%		5.52	38	17.0%	4.23	0.77	4	2.04	8	
All Zones	5.00	3	3.29%		9.72	31	13.8%	2.61	0.27	1	6.29	6	
	10.00	2	7.09%		11.31	24	53.3%	1.40	0.12	2	11.31	24	
	0.01	4,842	98.04%	19.25	0.13	652	53.5%	0.63	4.67	4,748	0.07	349	
External to	1.00	95	1.63%		3.20	304	24.4%	3.16	0.99	79	2.02	159	
Wireframes	5.00	16	0.21%		8.97	145	10.5%	3.87	0.43	10	6.75	68	
	10.00	6	0.12%		12.74	76	11.7%	3.83	0.30	6	12.74	76	

Table 12.5.3: Summary Copper Statistics by Zone: All Raw Data

			Statist	ics Above C	utoff		Incremental Statistics Between Cutoffs					
	Cutoff			Max	Mean	Grade-					Mean	Grade-
		Total	Incremental	Grade	Grade	Thickness	Incremental	Standard	Coeff. of	Total	Grade	Thickness
Zone	(g/t)	Meters	Percent	(g/t)	(g/t)	(g/t-m)	Percent	Deviation	Variation	Meters	(g/t)	(g/t-m)
	0.01	7,041	92.26%	178.90	0.55	3,847	18.8%	3.59	6.57	6,496	0.11	723
All Data	1.00	545	5.34%		5.73	3,124	21.0%	11.71	2.04	376	2.15	807
All Data	5.00	169	1.26%		13.69	2,317	15.7%	18.65	1.36	89	6.79	604
	10.00	80	1.14%		21.35	1,712	44.5%	24.90	1.17	80	21.35	1,712
	0.01	1,469	81.71%	178.90	1.55	2,281	9.2%	7.09	4.56	1,200	0.18	210
Atenea - All	1.00	269	11.31%	170.00	7.71	2,071	16.1%	15.10	1.96	166	2.21	368
Zones	5.00	103	2.97%		16.61	1,703	13.3%	21.63	1.30	44	6.96	304
	10.00	59	4.01%		23.76	1,399	61.3%	26.32	1.11	59	23.76	1,399
							1			T T	T	
	0.01	205	91.11%	10.00	0.41	83	43.7%	0.99	2.43	187	0.19	36
Dany	1.00	18	7.02%		2.58	47	24.9%	2.32	0.90	14	1.44	21
Dany	5.00	4	1.56%		6.83	26	23.7%	1.53	0.22	3	6.18	20
	10.00	1	0.32%		10.00	7	7.8%	0.00	0.00	1	10.00	7
	0.01	351	65.06%	14.80	1.52	535	18.4%	2.22	1.46	229	0.43	98
	1.00	123	26.32%		3.56	437	37.7%	2.75	0.77	92	2.18	202
Pucamina	5.00	30	6.39%		7.75	235	28.3%	2.17	0.28	22	6.75	152
i	10.00	8	2.23%		10.61	83	15.6%	1.60	0.15	8	10.61	83
											1	
	0.01	30	77.12%	12.81	1.50	46	15.9%	2.99	1.99	23	0.31	7
Ydalias - All	1.00	7	12.50%		5.52	38	17.0%	4.23	0.77	4	2.04	8
Zones	5.00	3	3.29%		9.72	31	13.8%	2.61	0.27	1	6.29	6
	10.00	2	7.09%		11.31	24	53.3%	1.40	0.12	2	11.31	24
	0.01	4,842	98.04%	19.25	0.13	652	53.5%	0.63	4.67	4,748	0.07	349
External to	1.00	4,042 95	1.63%	13.20	3.20	304	24.4%	3.16	0.99	79	2.02	159
Wireframes	5.00	16	0.21%		8.97	145	10.5%	3.10	0.43	10	6.75	68
vviiciiaiiies	10.00	6	0.12%		12.74	76	11.7%	3.83	0.43	6	12.74	76
	10.00	U	U. 12 /0		12.74	70	11.70	5.05	0.50	U	14.14	70

Table 12.5.4: Summary Lead Statistics by Zone: All Raw Data

			Statist	ics Above C	utoff		Incremental Statistics Between Cutoffs					
	Cutoff			Max	Mean	Grade-					Mean	Grade-
		Total	Incremental	Grade	Grade	Thickness	Incremental	Standard	Coeff. of	Total	Grade	Thickness
Zone	(g/t)	Meters	Percent	(g/t)	(g/t)	(g/t-m)	Percent	Deviation	Variation	Meters	(g/t)	(g/t-m)
	0.01	7,041	92.26%	178.90	0.55	3,847	18.8%	3.59	6.57	6,496	0.11	723
All Data	1.00	545	5.34%		5.73	3,124	21.0%	11.71	2.04	376	2.15	807
All Data	5.00	169	1.26%		13.69	2,317	15.7%	18.65	1.36	89	6.79	604
	10.00	80	1.14%		21.35	1,712	44.5%	24.90	1.17	80	21.35	1,712
			1	T T		T	T					
	0.01	1,469	81.71%	178.90	1.55	2,281	9.2%	7.09	4.56	1,200	0.18	210
Atenea -	1.00	269	11.31%		7.71	2,071	16.1%	15.10	1.96	166	2.21	368
All Zones	5.00	103	2.97%		16.61	1,703	13.3%	21.63	1.30	44	6.96	304
	10.00	59	4.01%		23.76	1,399	61.3%	26.32	1.11	59	23.76	1,399
							1					
	0.01	205	91.11%	10.00	0.41	83	43.7%	0.99	2.43	187	0.19	36
Dany	1.00	18	7.02%		2.58	47	24.9%	2.32	0.90	14	1.44	21
Daily	5.00	4	1.56%		6.83	26	23.7%	1.53	0.22	3	6.18	20
	10.00	1	0.32%		10.00	7	7.8%	0.00	0.00	1	10.00	7
				1							1	
	0.01	351	65.06%	14.80	1.52	535	18.4%	2.22	1.46	229	0.43	98
Pucamina	1.00	123	26.32%		3.56	437	37.7%	2.75	0.77	92	2.18	202
i dodinina	5.00	30	6.39%		7.75	235	28.3%	2.17	0.28	22	6.75	152
	10.00	8	2.23%		10.61	83	15.6%	1.60	0.15	8	10.61	83
			1	T T		T	T					
	0.01	30	77.12%	12.81	1.50	46	15.9%	2.99	1.99	23	0.31	7
Ydalias -	1.00	7	12.50%		5.52	38	17.0%	4.23	0.77	4	2.04	8
All Zones	5.00	3	3.29%		9.72	31	13.8%	2.61	0.27	1	6.29	6
	10.00	2	7.09%		11.31	24	53.3%	1.40	0.12	2	11.31	24
			1	T T		T	T					
	0.01	4,842	98.04%	19.25	0.13	652	53.5%	0.63	4.67	4,748	0.07	349
External to	1.00	95	1.63%		3.20	304	24.4%	3.16	0.99	79	2.02	159
Wireframes	5.00	16	0.21%		8.97	145	10.5%	3.87	0.43	10	6.75	68
	10.00	6	0.12%		12.74	76	11.7%	3.83	0.30	6	12.74	76

Table 12.5.5: Summary Zinc Statistics by Zone: All Raw Data

			Statist	ics Above C	utoff			Incremen	tal Statistics	s Between	Cutoffs	
	Cutoff			Max	Mean	Grade-					Mean	Grade-
		Total	Incremental	Grade	Grade	Thickness	Incremental	Standard	Coeff. of	Total	Grade	Thickness
Zone	(g/t)	Meters	Percent	(g/t)	(g/t)	(g/t-m)	Percent	Deviation	Variation	Meters	(g/t)	(g/t-m)
	0.01	7,041	92.26%	178.90	0.55	3,847	18.8%	3.59	6.57	6,496	0.11	723
All Data	1.00	545	5.34%		5.73	3,124	21.0%	11.71	2.04	376	2.15	807
All Data	5.00	169	1.26%		13.69	2,317	15.7%	18.65	1.36	89	6.79	604
	10.00	80	1.14%		21.35	1,712	44.5%	24.90	1.17	80	21.35	1,712
				1			T	1				
	0.01	1,469	81.71%	178.90	1.55	2,281	9.2%	7.09	4.56	1,200	0.18	210
Atenea -	1.00	269	11.31%		7.71	2,071	16.1%	15.10	1.96	166	2.21	368
All Zones	5.00	103	2.97%		16.61	1,703	13.3%	21.63	1.30	44	6.96	304
	10.00	59	4.01%		23.76	1,399	61.3%	26.32	1.11	59	23.76	1,399
	0.04	205	04.440/	40.00	0.44	0.2	43.7%	0.00	0.40	407	0.40	200
	0.01		91.11%	10.00	0.41	83		0.99	2.43	187	0.19	36
Dany	1.00	18	7.02%		2.58	47	24.9%	2.32	0.90	14	1.44	21
	5.00	4	1.56%		6.83	26	23.7%	1.53	0.22	3	6.18	20 7
	10.00	1	0.32%		10.00	7	7.8%	0.00	0.00	1	10.00	
	0.01	351	65.06%	14.80	1.52	535	18.4%	2.22	1.46	229	0.43	98
	1.00	123	26.32%		3.56	437	37.7%	2.75	0.77	92	2.18	202
Pucamina	5.00	30	6.39%		7.75	235	28.3%	2.17	0.28	22	6.75	152
	10.00	8	2.23%		10.61	83	15.6%	1.60	0.15	8	10.61	83
			1					•				
	0.01	30	77.12%	12.81	1.50	46	15.9%	2.99	1.99	23	0.31	7
Ydalias -	1.00	7	12.50%		5.52	38	17.0%	4.23	0.77	4	2.04	8
All Zones	5.00	3	3.29%		9.72	31	13.8%	2.61	0.27	1	6.29	6
	10.00	2	7.09%		11.31	24	53.3%	1.40	0.12	2	11.31	24
				1				T		1	1	
	0.01	4,842	98.04%	19.25	0.13	652	53.5%	0.63	4.67	4,748	0.07	349
External to	1.00	95	1.63%		3.20	304	24.4%	3.16	0.99	79	2.02	159
Wireframes	5.00	16	0.21%		8.97	145	10.5%	3.87	0.43	10	6.75	68
	10.00	6	0.12%		12.74	76	11.7%	3.83	0.30	6	12.74	76

## 12.6 Assay Capping

The raw drillhole datasets were inspected for the presence of high-grade outlier values that could adversely impact grade estimation. After review of log probability plots, all raw assays were capped as summarized in Table 12.6.1. The log probability plots that form the basis for capping determinations for gold, silver, copper, lead and zinc are provided in Figures 12-2 through 12-6, respectively. All raw assay data was capped prior to compositing.

Table 12.6.1: Summary of Assay Capping Statistics

Metal	Assay Cap	Total Meters Capped	Percentile of Distribution	Reduction in Grade- Thickness (%)	CV - Uncapped	CV - Capped
Au	50.0 g/t	9	99.66	7.81	5.69	4.10
Ag	250.0 g/t	130	99.81	26.95	15.58	2.39
Cu	5.0 %	8	99.51	2.49	3.08	2.75
Pb	3.0 %	38	96.44	21.53	5.29	2.67
Zn	5.0 %	9	99.49	3.03	3.20	2.80

CV = Coefficient of Variation

### 12.7 Compositing

All raw data was composited into equal 3 m down hole lengths, with composites broken along the individual zone boundaries. Composites were flagged with zone numbers for retrieval during grade estimation. SRK manually checked several of computer generated composites and found no errors.

## 12.8 Specific Gravity Measurements

Both Pangea and Invicta submitted samples for specific gravity determinations during their active drilling campaigns, for a total of 4,173 samples. According to Invicta geology personnel, specific gravity determinations were made by Actlabs using the wax immersion method. The procedure requires drying the sample, weighing it in air, coating the sample with paraffin wax, weighing the sample in air again, submerging the sample in water, and collecting and measuring the water displaced by the sample.

SRK examined these data statistically above a 0.5 gold equivalent cut-off to assign average density by mineralized zone. Summary statistics of these density data are provided in Table 12.8.1. Sufficient data was collected in all zones but Zone 4 to assign average densities on a zonal basis. For Zone 4, the average of all data above a 0.5 g/t gold equivalent cut-off was assigned.

**Table 12.8.1: Summary Statistics of Density Measurements** 

Model Zone	Length (m)	Number of Samples	Min (g/cm³)	Max (g/cm <sup>3</sup> )	Weighted Avg (g/cm <sup>3</sup> )
Atenea All Zones	696.02	710.00	2.07	3.85	2.76
Dany	125.05	146.00	2.48	3.15	2.75
Pucamina	279.15	257.00	2.18	2.90	2.50
Ydalias - All Zones	20.59	20.00	2.10	3.05	2.66
Zone 4	0.00	0.00	0.00	0.00	N.A.
All Mineralized Zones	1,120.81	1,133.00	2.07	3.85	2.69
External to wireframes	3,565.60	3,043.00	2.06	3.25	2.69

## 12.9 Variogram Analysis and Modeling

SRK attempted to produce variogram models using a number of different estimators (semi-variograms, correlograms and pair-wise relative variograms) with the 3.0 m composite dataset. Given the multiple orientations of veins mineralized zones and the relative paucity of data, SRK was unable to produce any meaningful and interpretable directional variograms.

#### 12.10Block Model

A sub-celled block model was constructed in Datamine Studio 3 for the individual model areas using the model limits and extents provided in Tables 12.10.1 through Table 12.10.5. The block models were not rotated. Blocks were coded by the individual zone solids in a similar fashion to the composites for retrieval during grade estimation. Block sizes were selected to represent a reasonable selective mining unit (SMU) at the project resource stage.

Table 12.10.1: Block Model Origin and Extent - All Atenea Zones

Axis	Origin (m)	Maximum (m)	Extent (m)	Parent Block Size (m)	Subcell Size (m)	No. of Parent Blocks
Χ	279,900	280,830	930	3	1.5	310
Υ	8,779,400	8,780,201	801	3	1.5	267
Z	2,680	4,000	1,320	3	1.5	440

Table 12.10.2: Block Model Origin and Extent - Pucamina

Axis	Origin (m)	Maximum (m)	Extent (m)	Parent Block Size (m)	Subcell Size (m)	No. of Parent Blocks
Χ	280,590	281,211	621	3	1.5	207
Υ	8,779,800	8,780,340	540	3	1.5	180
Z	3,350	3,740	390	3	1.5	130

Table 12.10.3: Block Model Origin and Extent - Dany

Axis	Origin (m)	Maximum (m)	Extent (m)	Parent Block Size (m)	Subcell Size (m)	No. of Parent Blocks
Χ	279,200	279,920	720	3	1.5	240
Υ	8,779,600	8,779,960	360	3	1.5	120
Z	3,000	3,615	615	3	1.5	205

Table 12.10.4: Block Model Origin and Extent - Zone 4

Axis	Origin	Maximum	Extent	Parent Block Size	Subcell Size	No. of Parent
AXIS	(m)	(m)	(m)	(m)	(m)	Blocks
Χ	279,370	279,700	330	3	1.5	110
Υ	8,779,600	8,779,855	255	3	1.5	85
Z	3,190	3,598	408	3	1.5	136

Table 12.10.5: Block Model Origin and Extent - Ydalias

Origin (m)	Maximum (m)	Extent (m)	Parent Block Size (m)	Subcell Size (m)	No. of Parent Blocks
279,100	280,030	930	3	1.5	310
8,779,600	8,780,401	801	3	1.5	267
3,000	4,320	1,320	3	1.5	440

### 12.11 Estimation Methodology

Grades were estimated for individual metals in Datamine using the inverse distance weighting (IDW – power = 2) interpolation method using a 3 pass search with increasingly expanded search radii. Search orientations were oriented using the dynamic anisotropy process. A description of this process is provided below.

#### **Dynamic Anisotropy**

Determining the preferential orientation to the continuity of mineralization with structural complexities is problematic given the variations over short distances. The dynamic anisotropy option in Datamine Studio3® allows the anisotropy rotation angles for defining the search volume to be defined individually for each cell in the model. The search volume is oriented precisely and follows the trend of the mineralization. The rotation angles are assigned to each cell in the model; it is assumed that the dimensions of the ellipsoid, the lengths of the three axes, remain constant. A point file, where each point has a value for dip and dip direction, is created from wireframes and is intended to represent the preferential down dip direction, which varies locally, over the vertical and horizontal extent of the wireframes. Since the three axes of the search volume are orthogonal and only two rotations are used (dip and dip direction) the orientation of all axes are explicitly defined. SRK took the point values from the orientation of the triangular facets that comprise the surface of the wireframes constructed by SRK. The dynamic anisotropy points for each of the Invicta veins were established from the facets of the relevant wireframes of mineralization (Figures 12-7 and 12-8). The point values (rotations consisting of dip & dip direction in degrees) are interpolated into model block positions. This process constitutes a geological control used in concurrence with the Domain envelopes (the primary geological control) to model a style of mineralization where the assumption is that the orientation of the primary continuity of grades can be related to geology as expressed by the wireframe shape.

A summary of the composite selection criteria and search ranges is provided in Table 12.11.1. In addition to the IDW estimate, a nearest neighbor (NN) estimate was also conducted for use in model validations. Although underground channel samples were used to construct the gold equivalent solids, they were not utilized in grade estimation due to their spatially restrictive locations.

Table 12.11.1: Search Ranges and Composite Retrieval Criteria – All Zones

	Search	ange (m)	N	o. Comp	osites	Ellipsoid Rotation Axes					
Search Pass	х	Υ	Z	Min	Max	Max/hole	Z	X'	Y'		
1 (all WF zones)	40	30	6	3	5	1	Dynamic Anisotropy (TRDIP and TRDIPDIR)				
2 (all WF zones)	120	90	18	2	5	1					
3 (all WF zones)	160	120	24	1	5	1		,			

### 12.12 Model Validation

Various measures have been implemented to validate the resultant resource block models. The focus of these validation measures have been mainly on Atenea, as this zone comprises in excess of 67% of the resource tonnage and in excess of 75% of the resource gold equivalent metal. These measures include the following:

- Comparison of drillhole composites with resource block grade estimates from all zones both visually in plan and section;
- Statistical comparisons between block and composite data using histogram and cumulative distribution analysis;
- Generation of a comparative NN model; and
- Swath plot analysis (drift analysis) comparing the IDW model with the NN model.

### 12.12.1 Visual Inspection

Visual comparisons between the block grades and the underlying composite grades in plan and section at Atenea show close agreement, which would be expected considering the estimation methodology employed. An example cross section and level plan from Atenea showing block gold grades, gold composite grades and gold equivalent grade solids are provided in Figures 12-9 and 12-10, respectively. An example cross section and level plan from Atenea showing block silver grades, silver composite grades and gold equivalent solids are provided in Figures 12-11 and 12-12, respectively. An example cross section and level plan from Atenea showing block copper grades, copper composite grades and gold equivalent solids are provided in Figures 12-13 and 12-14, respectively. Model and composite grades match closely, and the grade continuity respects the hanging wall and foot wall boundaries of the gold equivalent solid, reflecting the effective implantation of the Datamine Dynamic Anisotropy function.

### 12.12.2 Block-Composite Statistical Comparison

SRK also conducted statistical comparisons between the IDW blocks contained within the Atenea gold equivalent solids and the underlying composite grades. Histogram comparisons between block and composite gold, silver, copper, lead and zinc grades is provided in Figures 12-15 through 12-19, respectively. Overall, these comparisons show that the model grade distributions for all metals are appropriately smoothed when compared with the underlying composite distributions, and that the comparisons of average grade and percentage above absolute and incremental cut-offs show close agreement.

### 12.12.3 Comparison of Interpolation Methods

The results of the NN model are compared to the IDW model at a 0 g/t gold equivalent cut-off grade for the Atenea and Pucamina mineralized zones in Tables 12.12.3.1 through 12.12.3.4 for combined measured and indicated, and inferred, respectively. These comparisons confirm the conservation of metal at a zero cut-off, and shows close agreement on both a tonnage and grade basis for the combined zones. As would be expected, grades are similar in the IDW model as compared with the NN model, due to the parameters and methods utilized in the IDW estimate.

Table 12.12.3.1: Comparison of IDW and NN Tonnage and Grade at a Zero Gold Equivalent Cut-off – Atenea Zone All Measured and Indicated Blocks

		Contained Metal (000's)											
Model	Tonnes (000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq Oz	Au Oz	Ag Oz	Cu Lbs	Pb Lbs	Zn Lbs
IDW	13,263	2.04	1.18	10.35	0.27	0.17	0.21	871	502	4,412	78,623	49,253	62,345
NN	13,263	2.01	1.16	10.08	0.27	0.16	0.21	859	495	4,299	78,100	47,366	62,366
Percent Diff	0.00	1.38	1.42	2.56	0.66	3.83	0.03	1.38	1.42	2.56	0.66	3.83	-0.03

Table 12.12.3.2: Comparison of IDW and NN Tonnage and Grade at a Zero Gold Equivalent Cut-off – Atenea Zone All Inferred Blocks

						Meta	al Grade	Contained Metal (000's						
Model	Tonnes (000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq Oz	Au Oz	Ag Oz	Cu Lbs	Pb Lbs	Zn Lbs	
IDW	9,601	0.84	0.45	3.92	0.15	0.05	0.06	260	139	1,210	31,476	10,170	13,394	
NN	9,601	0.83	0.45	3.77	0.14	0.04	0.06	255	139	1,164	30,464	9,295	12,983	
Percent Diff	0.00	1.79	0.20	3.78	3.21	8.60	3.07	1.79	0.20	3.78	3.21	8.60	3.07	

Table 12.12.3.3: Comparison of IDW and NN Tonnage and Grade at a Zero Gold Equivalent Cut-off – Pucamina Zone All Measured and Indicated Blocks

				Metal G	rade			Contained Metal (000's)						
Model	Tonnes (000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq Oz	Au Oz	Ag Oz	Cu Lbs	Pb Lbs	Zn Lbs	
IDW	2,151	1.67	1.25	4.87	0.07	0.16	0.24	116	86	336	3,509	7,581	11,463	
NN	2,151	1.74	1.30	5.08	0.08	0.17	0.24	121	90	351	3,640	7,989	11,555	
Percent Diff	0.00	-4.10	-4.33	-4.40	-3.75	-5.38	-0.80	-4.10	-4.33	-4.40	-3.75	-5.38	-0.80	

Table 12.12.3.4: Comparison of IDW and NN Tonnage and Grade at a Zero Gold Equivalent Cut-off – Pucamina Zone All Inferred Blocks

				Metal G	rade				Co	ntained M	etal (000's	)	
Model	Tonnes (000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq Oz	Au Oz	Ag Oz	Cu Lbs	Pb Lbs	Zn Lbs
IDW	606	1.15	0.70	6.45	0.12	0.10	0.13	22	14	126	1,557	1,384	1,683
NN	606	1.20	0.73	6.69	0.12	0.11	0.13	23	14	130	1,656	1,427	1,673
Percent Diff	0.00	-4.00	-3.82	-3.64	-6.34	-3.11	0.64	-4.00	-3.82	-3.64	-6.34	-3.11	0.64

### 12.12.4 Swath Plots (Drift Analysis)

A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated in several directions through the deposit. Grade variations from the IDW model are compared (using the swath plot) to the distribution derived from the NN grade model.

On a local scale, the NN model does not provide reliable estimations of grade, but on a much larger scale it represents an unbiased estimation of the grade distribution based on the underlying data.

Therefore, if the IDW model is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend should be similar to the NN distribution of grade.

Swath plots have been generated in three orthogonal directions for distribution of gold, silver and copper in the Atenea Zone. Swath plots for gold along the NS, EW, and vertical directions are shown in Figures 12-20 through 12-22, respectively. Swath plots for silver along the EW, NS and vertical directions are shown in Figures 12-23 through 12-25, respectively. Swath plots for copper along the EW, NS and vertical directions are shown in Figures 12-26 through 12-28, respectively.

There is good correspondence between both models for the metals examined in all orthogonal directions at Atenea, which has the majority of the contained metal for the Invicta Project. The degree of smoothing in the IDW model is evident in the peaks and valleys shown in the swath plots, however, this comparison shows close agreement between the IDW and NN models in terms of overall grade distribution as a function of X, Y and Z location.

### 12.13 Resource Classification

The Resources at the Invicta Project are classified under the categories of Measured, Indicated and Inferred according to standards as defined by the "CIM Definition Standards - For Mineral Resources and Mineral Reserves", prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on December 17, 2010.

Classification of the resources reflects the relative confidence of the grade estimates. This is based on several factors including; sample spacing relative to geological and geostatistical observations regarding the continuity of mineralization, mining history, specific gravity determinations, accuracy of drill collar locations, quality of the assay data and many other factors which influence the confidence of the mineral estimation.

The classification parameters are defined in relation to the block-composite separation distance and continuity of mineralization. These classification criteria are intended to encompass zones of reasonably continuous mineralization. Only blocks in the Atenea Zone 1 have been classified as Measured Resources based on the fact that underground development and sampling has been conducted there.

**Measured Mineral Resources** – Blocks in the model which have been estimated using a minimum of three drillholes, which are at maximum block-composite separation distance within a anisotropic search of 40 m x 30 m x 6 m oriented parallel to the plane of the individual vein grade solids (first estimation search pass).

**Indicated Mineral Resources** – Blocks in the model which have been estimated using a minimum of two drillholes, which are at maximum block-composite separation distance within an isotropic search of 120 m x 90 m x 18 m oriented parallel to the plane of the individual vein grade solids (second estimation search pass).

**Inferred Mineral Resources** – Blocks in the model that do not meet the criteria for Indicated resources and have been estimated using a minimum of one drillhole which are at a maximum block-composite separation distance within an isotropic search of 160 m x 160 m x 160 m oriented parallel to the plane of the individual grade wireframes (third estimation search passes).

#### 12.14Mineral Resource Statement

The mineral resources for the Invicta gold-silver-copper-lead-zinc deposit, located in Huaura Province, Peru, is estimated by SRK at 8,644 kt grading an average of 2.13 g/t gold, 15.90 g/t silver, 0.43% copper, 0.24% lead and 0.29% zinc, classified as Measured and Indicated mineral resources; with an additional 2,534 kt grading an average of 1.61 g/t gold, 12.02 g/t silver, 0.46% copper, 0.27% lead and 0.18% zinc classified as Inferred mineral resources.. The resource is stated above a 1.30 g/t gold equivalent cut-off and contained within potentially economically mineable mineralized solids. Metal prices assumed for the gold equivalent calculation are US\$1,500/oz for gold, US\$32.50/oz for silver, US\$3.90/lb for copper, US\$1.05/lb for lead and US\$1.00/lb for zinc. The gold equivalent calculation assumes 100% metallurgical recovery, and does not account for any smelting, transportation or refining charges. The resource model has not been depleted for historical artisanal mining, as the location and extent of these workings are largely undocumented. Based on field observations, SRK is of the opinion that the historic mining volumes were minimal and not material to the resource statement.

The mineral resources are reported in accordance with Canadian Securities Administrators (CSA) National Instrument 43-101 (NI 43-101) and have been estimated in conformity with generally accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserves. The resource estimate was completed by Frank Daviess, MAuslMM under the direction of Jeffrey Volk, CPG, FAuslMM, a Principal Resource Geologist with SRK. Mr. Volk has more than 25 years of operational and consulting experience in the minerals industry, specifically in mineral resource estimation, production geology, feasibility studies and economic evaluations. He has completed resource modeling, due diligence, acquisition and evaluations assignments for precious and base metals, platinum group metals, and uranium in Russia and the Former Soviet Union, Australia, Africa, Peru, Mexico, Chile, Europe and North America.

Mr. Volk is independent of the issuer and an independent Qualified Person, as this term is defined in NI 43-101. The effective date of this resource estimate is April 6, 2012 and is based on data received by SRK in November, 2010. The mineral resource statement for the Invicta gold-silver-copper-lead-zinc deposit is presented in Table 12.14.1. The resources for the Invicta Project are derived from DataMine block models using density values assigned by zone using measurements as described in Section 12.8.

Table 12.14.1: Mineral Resource Statement for the Invicta Gold-Silver-Copper-Lead-Zinc Deposit, Huaura Province, Peru, SRK Consulting (Inc.), April 6, 2012\*

	Resource	Tonnes			Metal Gr	ade				Con	tained I	Metal (00	0's)	
Zone	Category	(000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq Oz	Au Oz	Ag Oz	Cu Lbs	Pb Lbs	Zn Lbs
	Measured	131	6.65	4.29	31.71	0.73	0.39	0.38	28	18	133	2,119	1,110	1,105
Atenea -	Indicated	5,696	3.83	2.34	17.99	0.45	0.28	0.34	701	429	3,294	56,848	35,251	43,094
All Zones	M+I	5,827	3.89	2.39	18.29	0.46	0.28	0.34	729	447	3,427	58,967	36,361	44,198
	Inferred	1,533	3.56	2.35	10.93	0.46	0.13	0.19	175	116	539	15,574	4,495	6,373
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Dany	Indicated	868	1.97	0.54	13.45	0.58	0.11	0.09	55	15	375	11,151	2,153	1,723
Daily	M+I	868	1.97	0.54	13.45	0.58	0.11	0.09	55	15	375	11,151	2,153	1,723
	Inferred	668	1.72	0.14	12.66	0.53	0.58	0.16	37	3	272	7,876	8,496	2,387
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Pucamina	Indicated	1,064	2.53	1.97	6.98	0.10	0.23	0.28	87	67	239	2,277	5,315	6,614
i ucamina	M+I	1,064	2.53	1.97	6.98	0.10	0.23	0.28	87	67	239	2,277	5,315	6,614
	Inferred	202	1.96	1.38	8.68	0.14	0.14	0.18	13	9	56	625	605	781
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Ydalias -	Indicated	12	7.16	3.63	34.89	1.43	0.29	0.19	3	1	13	379	77	51
All Zones	M+I	12	7.16	3.63	34.89	1.43	0.29	0.19	3	1	13	379	77	51
	Inferred	35	2.66	0.41	58.19	0.21	1.25	0.04	3	0	65	159	951	27
	Measured	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Zone 4	Indicated	872	3.31	2.15	12.94	0.44	0.12	0.10	93	60	363	8,393	2,375	2,000
2016 4	M+I	872	3.31	2.15	12.94	0.44	0.12	0.10	93	60	363	8,393	2,375	2,000
	Inferred	95	2.74	0.87	15.37	0.78	0.16	0.14	8	3	47	1,645		285
	Measured	131	6.65	4.29	31.71	0.73	0.39	0.38	28	18	133	2,119	1,110	1,105
Total - All	Indicated	8,513	3.43	2.09	15.65	0.42	0.24	0.28	939	573	4,285	79,048	45,171	53,482
Zones	M+I	8,644	3.48	2.13	15.90	0.43	0.24	0.29	967	591	4,418	81,167	46,281	54,587
	Inferred	2,534	2.90	1.61	12.02	0.46	0.27	0.18	236	131	979	25,879	14,891	9,854

\*Notes

- Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources estimated will be converted into Mineral Reserves estimate;
- Resources stated as contained within potentially economically minable underground solids stated above a 1.3g/t Au Equivalent cut-off.
- The resource is stated above a 1.30 g/t gold equivalent cut-off and contained within potentially economically mineable mineralized solids. Metal prices assumed for the gold equivalent calculation are US\$1,500/oz for gold, US\$32.50/oz for silver, US\$3.90/lb for copper, US\$1.05/lb for lead and US\$1.00/lb for zinc. The gold equivalent calculation assumes 100% metallurgical recovery, and does not account for any smelting, transportation or refining charges.
- Mineral resource tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding;
- Mineral resource tonnage and grade are reported as diluted to reflect a potentially minable underground SMU of 3.0m; and
- The resource model has not been depleted for historical artisanal mining, as location and extent of these workings are largely undocumented. Based on field observations, SRK is of the opinion that the historic mining volumes were minimal and not material to the resource statement.

# 12.15 Mineral Resource Sensitivity

In order to assess the sensitivity of the resource to changes in gold equivalent cut-off grade, SRK summarized tonnage and grade above cut-off at a series of increasing gold equivalent cut-offs by resource category. The sensitivity analysis for Measured plus Indicated blocks and Inferred category blocks are provided in Tables 12.15.1 and 12.15.2, respectively. It can be observed that the resource is relatively sensitive to cut-off grades in the increment between 1.0 to 2.0 g/t gold equivalent, which is likely the grade range of interest.

Table 12.15.1: Cut-off Grade Sensitivity Analysis – All Measured and Indicated Blocks

AuEq				Metal G	rade				(	Containe	d Metal (00	00's)	
CoG (g/t)	Tonnes (000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (oz)	Au (oz)	Ag (oz)	Cu (lb)	Pb (lb)	Zn (lb)
0.50	15,750	2.30	1.32	11.14	0.31	0.17	0.22	1,164	670	5,639	107,074	60,757	76,704
1.00	10,881	3.00	1.79	14.01	0.38	0.22	0.26	1,049	626	4,903	91,608	51,938	62,619
1.50	7,531	3.79	2.35	17.08	0.45	0.26	0.30	917	569	4,135	75,053	42,696	50,111
2.00	5,572	4.51	2.88	19.83	0.51	0.29	0.34	808	516	3,552	62,665	35,304	41,267
2.50	4,299	5.18	3.37	22.43	0.57	0.31	0.36	716	466	3,100	53,836	29,443	34,424
3.00	3,401	5.83	3.86	24.67	0.61	0.33	0.39	637	422	2,698	46,023	24,886	29,252
3.50	2,778	6.41	4.31	26.52	0.65	0.36	0.42	572	385	2,368	39,909	21,861	25,420
4.00	2,290	6.98	4.75	28.44	0.69	0.38	0.44	514	349	2,094	34,881	19,335	22,302
4.50	1,893	7.55	5.17	30.57	0.74	0.41	0.47	460	315	1,861	30,701	17,074	19,554
5.00	1,586	8.10	5.58	32.48	0.77	0.43	0.49	413	285	1,656	26,974	15,169	17,240

Table 12.15.2: Cut-off Grade Sensitivity Analysis – All Inferred Blocks

AuEq				Metal G	rade			Contained Metal (000's)						
CoG (g/t)	Tonnes (000's)	AuEq (g/t)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (oz)	Au (oz)	Ag (oz)	Cu (lb)	Pb (lb)	Zn (lb)	
0.50	5,870	1.72	0.83	8.57	0.32	0.17	0.12	324	156	1,618	41,044	21,885	15,990	
1.00	3,390	2.45	1.28	11.06	0.42	0.24	0.16	268	139	1,206	31,280	18,161	11,828	
1.50	2,111	3.20	1.86	12.84	0.50	0.18	0.19	218	126	871	23,382	8,191	8,810	
2.00	1,604	3.68	2.25	13.69	0.55	0.14	0.19	190	116	706	19,494	4,801	6,839	
2.50	1,286	4.05	2.57	14.20	0.59	0.10	0.16	168	106	587	16,722	2,891	4,614	
3.00	858	4.71	3.47	12.91	0.47	0.09	0.17	130	96	356	8,845	1,748	3,294	
3.50	556	5.46	4.92	8.51	0.13	0.11	0.15	98	88	152	1,625	1,332	1,794	
4.00	497	5.66	5.14	8.61	0.12	0.11	0.15	90	82	138	1,308	1,197	1,627	
4.50	377	6.10	5.59	6.38	0.13	0.12	0.17	74	68	77	1,077	974	1,425	
5.00	190	7.36	6.71	8.70	0.18	0.11	0.19	45	41	53	750	466	802	

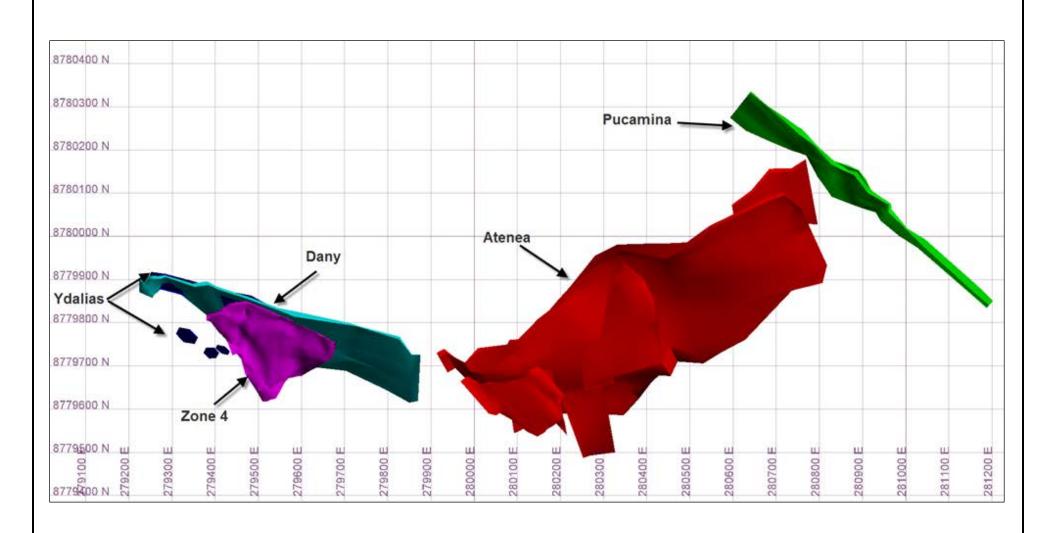
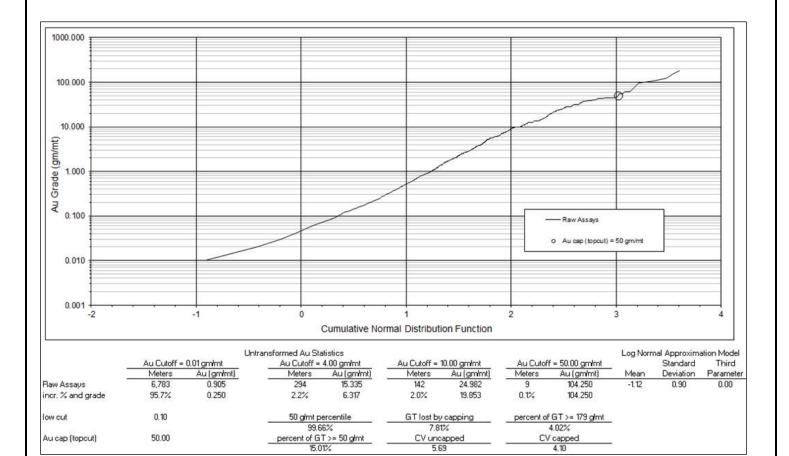




Figure 12-1

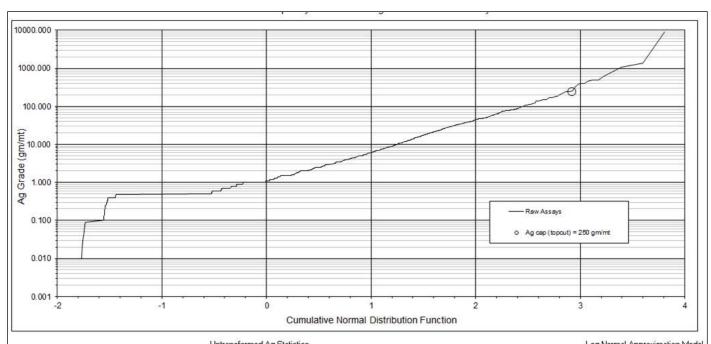
Plan View Projection Showing Triangulations for the Individually Modeled Gold Equivalent Grade Solids





Source: SRK, 2012

Cumulative Probability Plot Showing Statistics for Gold – All Data



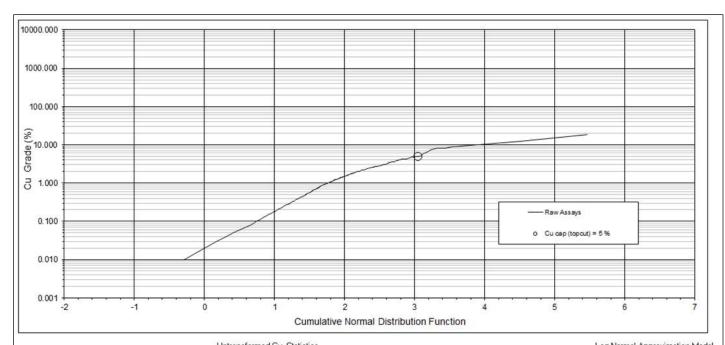
		Un	transformed Ag St	atistics					Log Norr	nai Approxim	ation Model
	Ag Cutoff =	0.01 gm/mt	Ag Cutoff =	4.00 gm/mt	Ag Cutoff =	10.00 gm/mt	Ag Cutof	f = 50.00 gm/mt		Standard	Third
	Meters	Ag (gm/mt)	Meters	Ag (gm/mt)	Meters	Ag (gm/mt)	Meters	Ag (gm/mt)	Mean	Deviation	Parameter
Raw Assays	7,109	7.642	1,607	29.952	761	56.476	130	223.476	-1.12	0.90	0.00
incr. % and grade	77.4%	1.129	11.9%	6.108	8.9%	21.914	1.8%	223.476			
low cut	0.10		250 g/mt p	percentile	GT lost b	y capping	percent of	GT >= 9000 g/mt			
			99.8	31%	26.9	95%	·	19.05%			
Ag cap (topcut)	250.00		percent of G	T >= 250 g/mt	CV un	capped	C/	/ capped			
			33.0	04%	15.	58		2.39			



Source: SRK, 2012

Figure 12-3

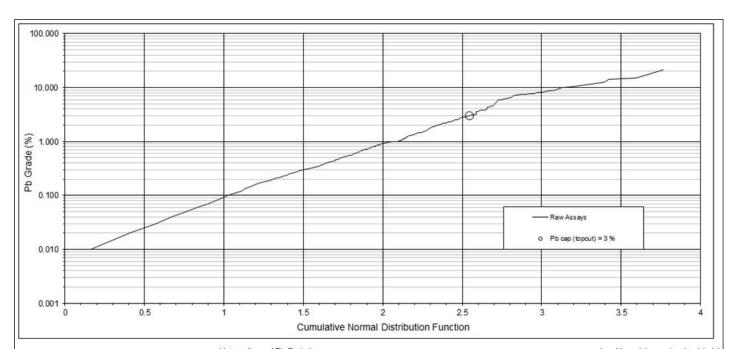
Cumulative Probability Plot Showing Statistics for Silver – All Data



		U	ntransformed Cu Sta	tistics					Log Norn	nal Approxim	ation Model
	Cu Cutoff	= 0.01%	Cu Cutoff	= 0.50 %	Cu Cutoff	= 1.00 %	Cu Cut	off = 5.00 %		Standard	Third
	Meters	Cu (%)	Meters	Cu (%)	Meters	Cu (%)	Meters	Cu (%)	Mean	Deviation	Parameter
Raw Assays	6,722	0.163	503	1.435	264	2.094	- 8	7.875	-1.12	0.90	0.00
incr. % and grade	92.5%	0.060	3.6%	0.711	3.8%	1.905	0.1%	7.875			
low cut	0.10		5 g/mt per	rcentile	GT lost by	capping	percent of	GT >= 18 g/mt			
Mark Mark Code			99.5	1%	2.49	%	(	0.05%			
Cu cap (topcut)	5.00		percent of G	T>=5g/mt	CV unca	apped	CV	capped			
20,000 500 500			6.55	%	3.0	8	7	2.75			



Source: SRK, 2012



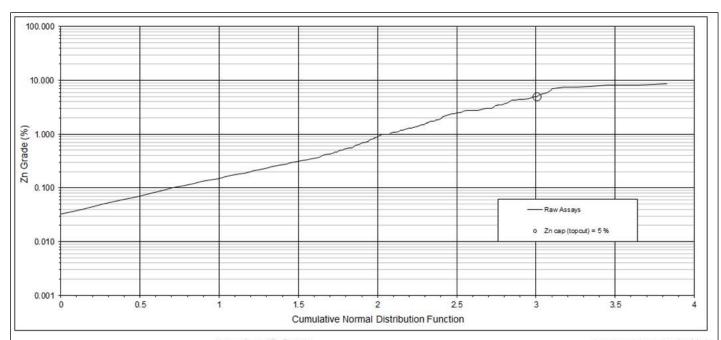
		Ur	ntransformed Pb Sta	tistics					Log Norr	nal Approxim	ation Model
	Pb Cutoff	= 0.01%	Pb Cutoff	= 0.50 %	Pb Cutoff	= 1.00 %	Pb Cut	off = 3.00 %		Standard	Third
	Meters	Pb (%)	Meters	Pb (%)	Meters	РЬ (%)	Meters	Pb (%)	Mean	Deviation	Parameter
Raw Assays	6,728	0.121	279	1.882	134	3.157	38	6.927	-1.12	0.90	0.00
incr. % and grade	95.9%	0.044	2.2%	0.708	1.4%	1.641	0.6%	6.927			
low cut	0.10		3 g/mt pe	rcentile	GT lost by	capping	percent of	GT >= 22 g/mt			
and the same that			96.44	1%	21.53	3%	3	3.42%	50		
Pb cap (topcut)	3.00		percent of G	T>=3g/mt	CV unc	apped	CV	capped			
2005 N 22			37.97	7%	5.2	9	- 2	2.67	10.		



Source: SRK, 2012

Figure 12-5

Cumulative Probability Plot Showing Statistics for Lead – All Data



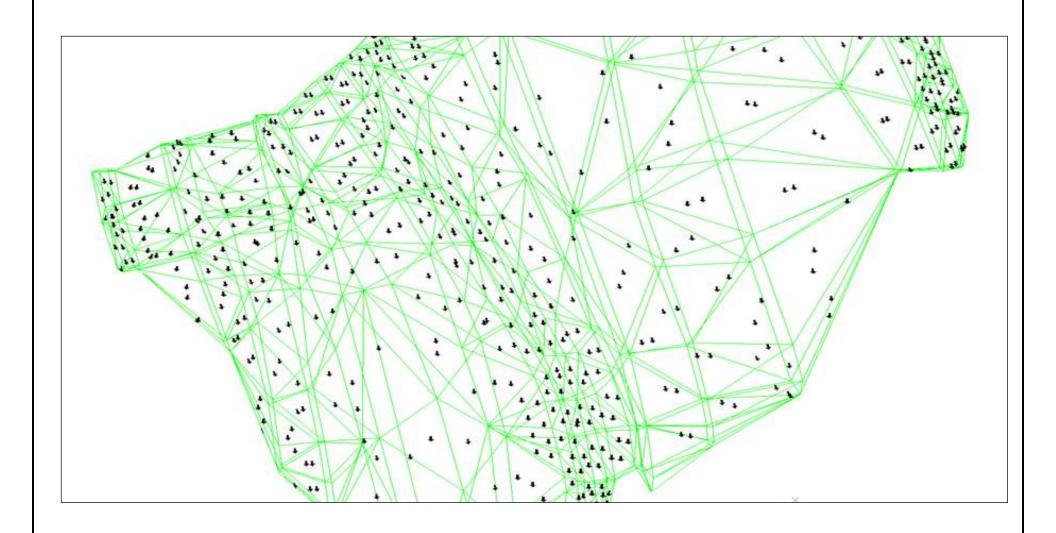
		Ur	ntransformed Zn Stal	tistics					Log Norr	nal Approxim	ation Model
	Zn Cutoff	= 0.01%	Zn Cutoff	= 0.50 %	Zn Cutoff	= 1.00 %	Zn Cut	off = 5.00 %		Standard	Third
	Meters	Zn (%)	Meters	Zn (%)	Meters	Zn (%)	Meters	Zn (%)	Mean	Deviation	Parameter
Raw Assays	6,909	0.128	274	1.508	147	2.236	9	7.351	-1.12	0.90	0.00
incr. % and grade	96.0%	0.071	1.8%	0.668	2.0%	1.895	0.1%	7.351			
low cut	0.10		5 g/mt pe	rcentile	GT lost by	capping	percent of	GT>= 9 g/mt	_		
2007 MA 0707 F			99.49	3%	3.03	1%	127	1.17%	7		
Zn cap (topcut)	5.00		percent of G	T>= 5 g/mt	CV unc	apped	CV	capped			
1,000,000,000			9.48	%	3.2	0		2.80			



Source: SRK, 2012

Figure 12-6

Cumulative Probability Plot Showing Statistics for Zinc – All Data





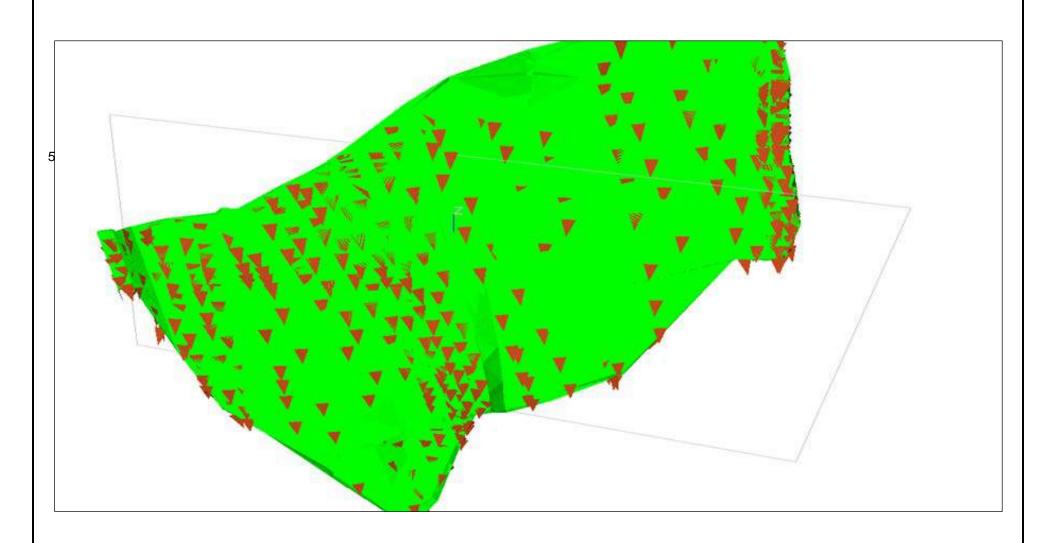




Figure 12-8

Dynamic Anisotropy Model – Atenea Vein 1 Wireframe Showing Ellipse Dip Orientation

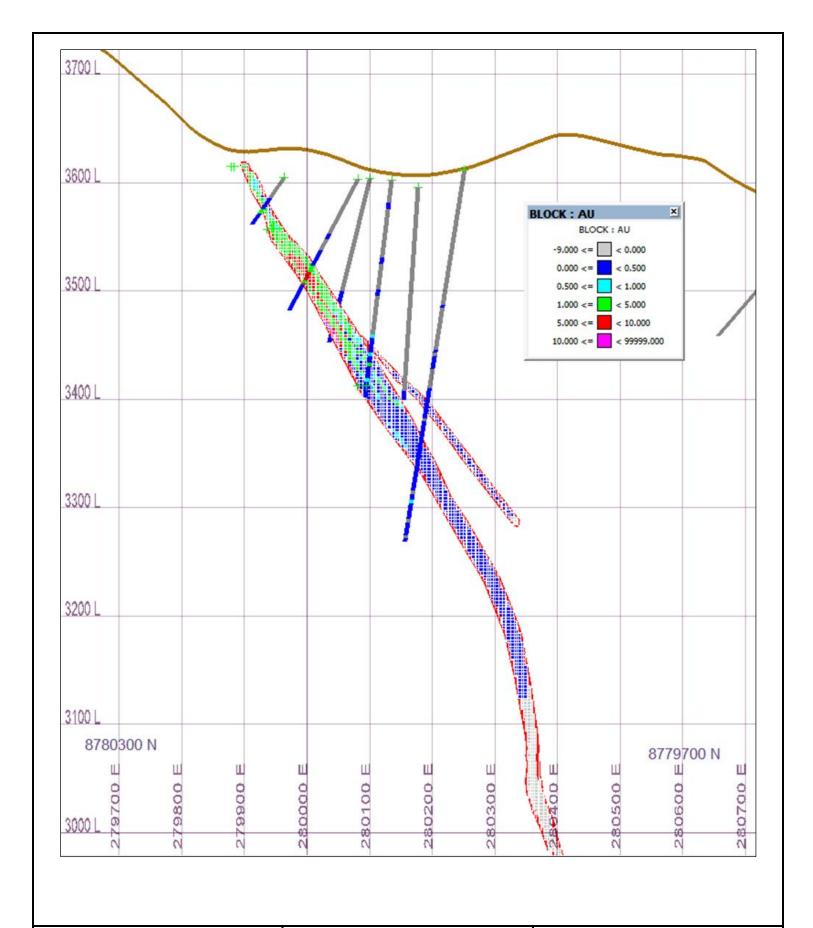
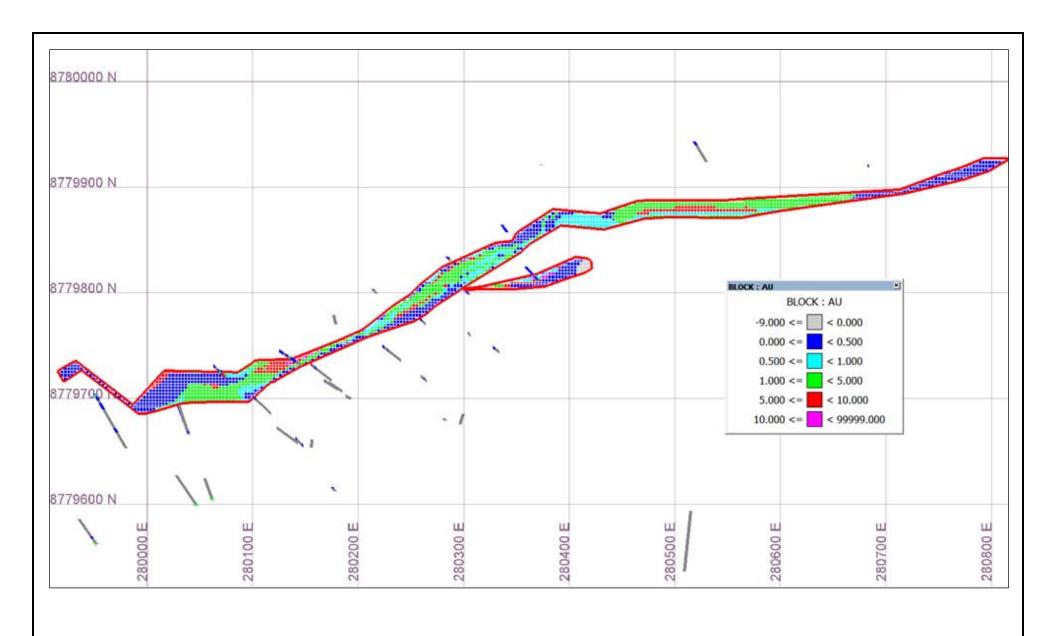




Figure 12-9

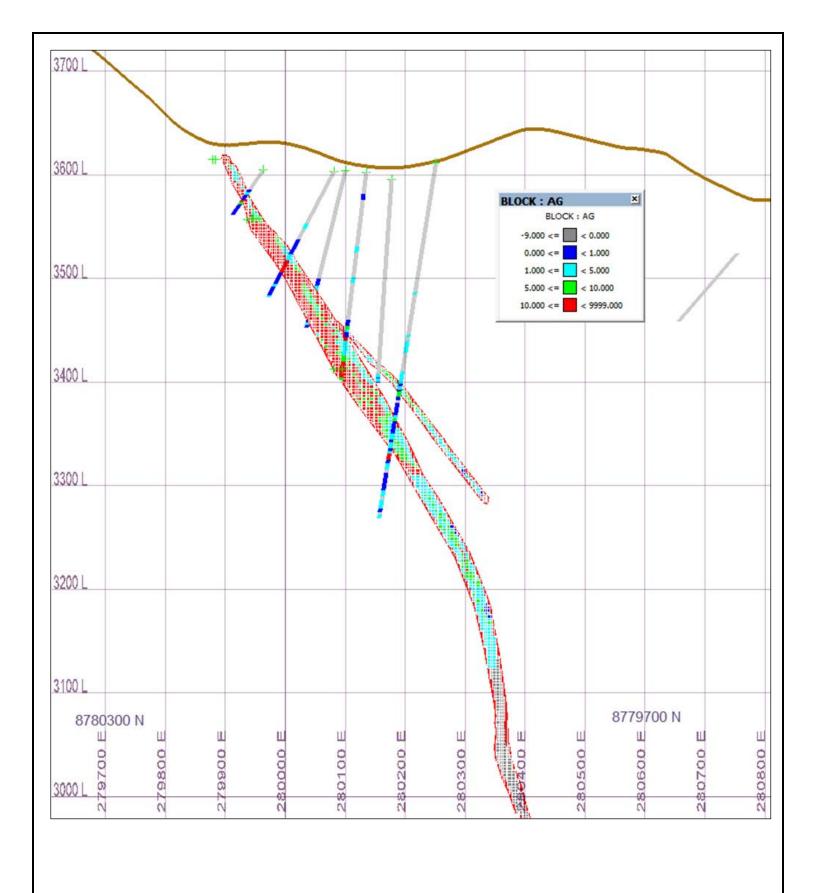
Northwest-Southeast Cross Section through Atenea, Showing Block and Composite Gold Grades and Gold Equivalent Solids





**Figure 12-10** 

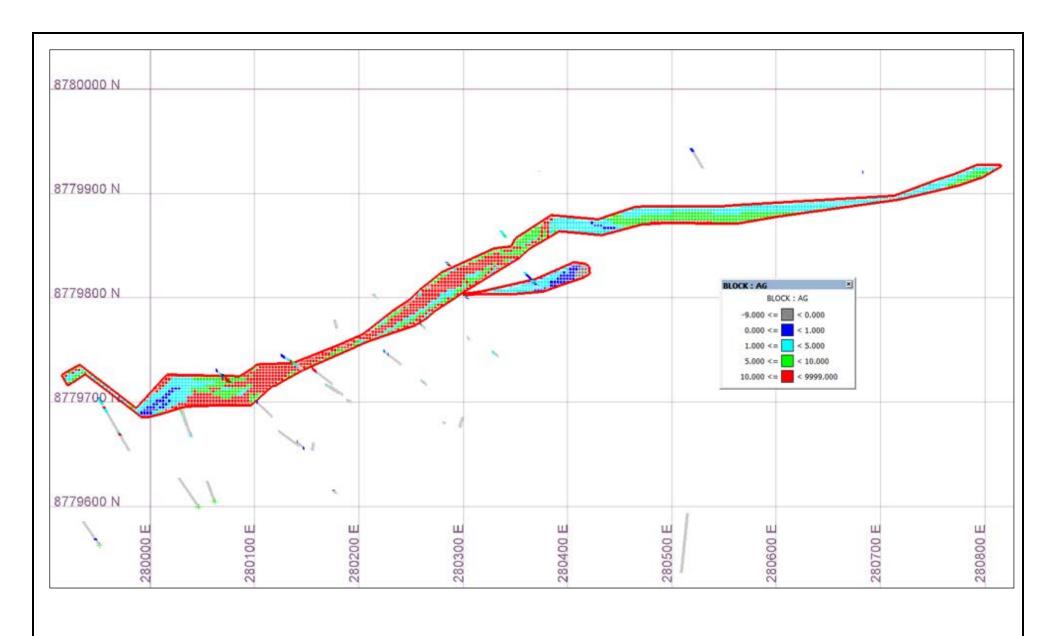
Example Level Plan at the 3,450 m Elevation through Atenea, Showing Block and Composite Gold Grades and Gold Equivalent Solids





**Figure 12-11** 

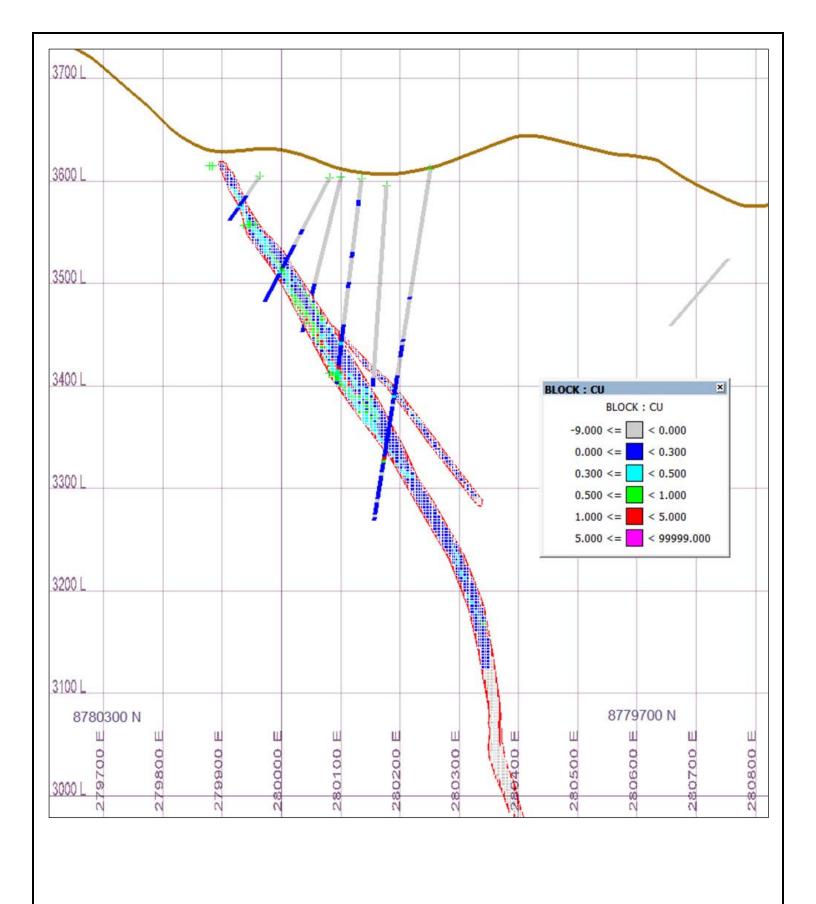
Northwest-Southeast Cross Section through Atenea, Showing Block and Composite Silver Grades and Gold Equivalent Solids





**Figure 12-12** 

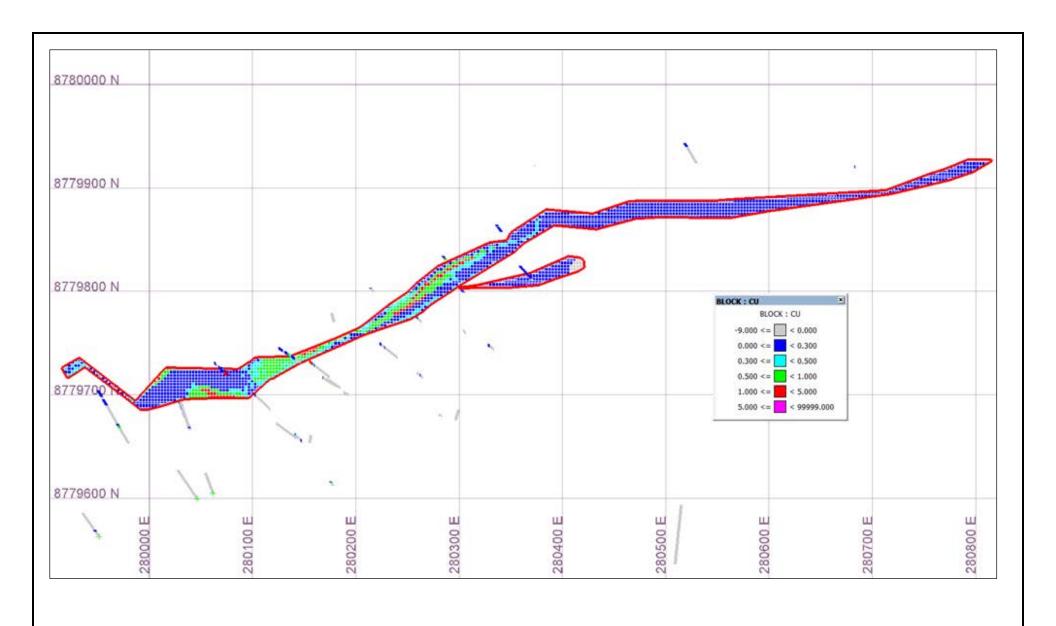
Example Level Plan at the 3,450 m Elevation through Atenea, Showing Block and Composite Silver Grades and Gold Equivalent Solids





**Figure 12-13** 

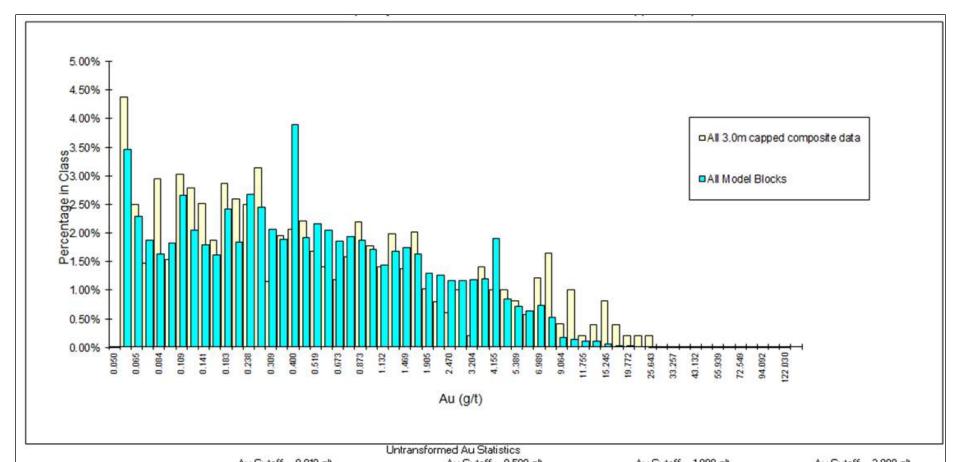
Northwest-Southeast Cross Section through Atenea, Showing Block and Composite Copper Grades and Gold Equivalent Solids





**Figure 12-14** 

Example Level Plan at the 3,450 m Elevation through Atenea, Showing Block and Composite Copper Grades and Gold Equivalent Solids



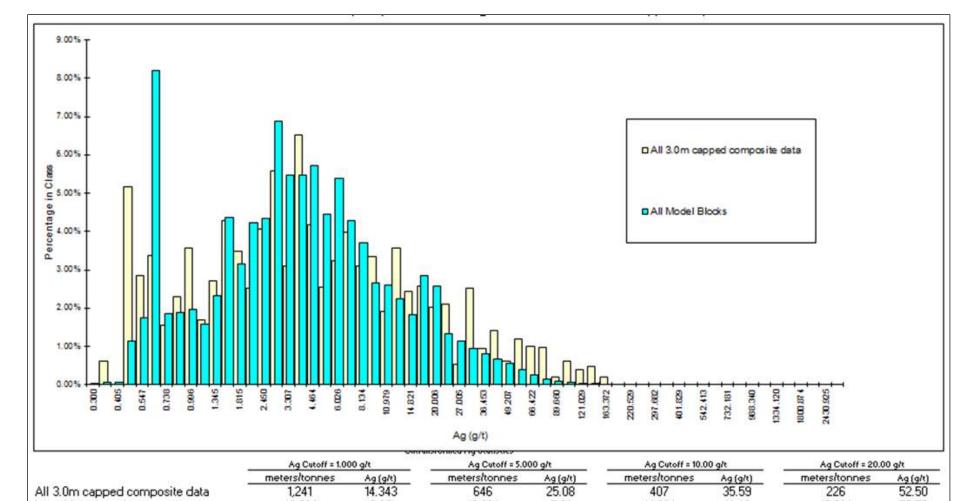
	Au Cutoff = 0	.010 g/t	Ontransformed Au Statistics Au Cutoff = 0.5	Vision marks	Au Cutoff = 1.0	000 g/t	Au Cutoff =	2.000 g/t
	meteraltonnes	Au (g/t)	meteraltonnes	Au (g/t)	meteraltonnes	Au (g/t)	meteraltonnes	Au (g/t)
All 3.0m capped composite data	1,488	1.406	483	4.067	353	5.308	222	7.586
incr. % and grade	67.5%	0.126	8.8%	0.719	8.8%	1.430	14.9%	7.586
All Model Blocks	22,863,879	0.872	7,288,513	2.461	4,904,422	3.311	2,924,222	4.586
incr. % and grade	68.1%	0.128	10.4%	0.713	8.7%	1.429	12.8%	4.586



Source: SRK, 2012

## **Figure 12-15**

Composite-Block Histogram Comparison for Gold – All Measured, Indicated and Inferred Blocks at Atenea, All Zones



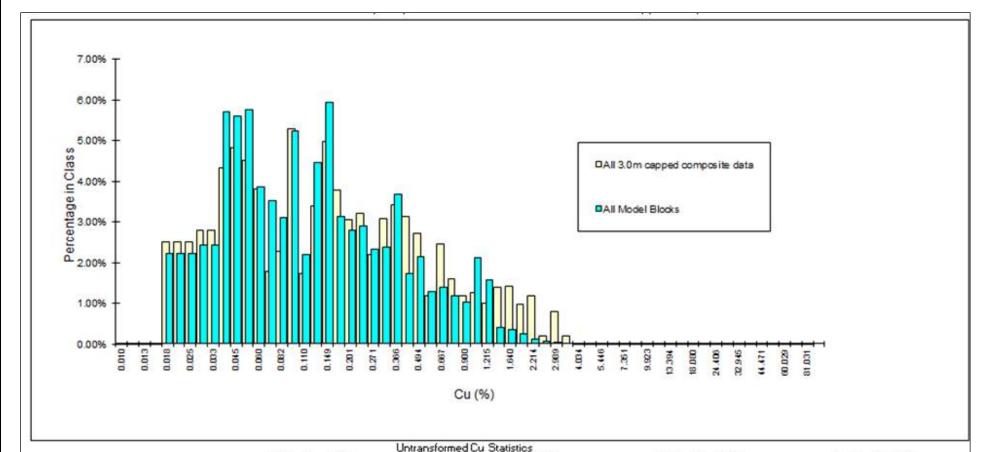
	Ag Cutoff = 1.0	00 g/t	Ag Cutoff = 5.00	00 g/t	Ag Cutoff = 10.0	00 g/t	Ag Cutoff = 20.	00 g/t
All 3.0m capped composite data	meters/tonnes	Ag (g/t)	meters/tonnes	Ag (g/t)	meters/tonnes	Ag (g/t)	meters/tonnes	Ag (g/t)
All 3.0m capped composite data	1,241	14.343	646	25.08	407	35.59	226	52.50
incr. % and grade	48.0%	2.69	19.3%	7.21	14.6%	14.42	18.2%	52.50
All Model Blocks	19,355,830	8.91	9,182,871	15.60	4,631,313	24.03	2,077,718	35.80
incr. % and grade	52.6%	2.87	23.5%	7.03	13.2%	14.45	10.7%	35.80



Source: SRK, 2012

## **Figure 12-16**

Composite-Block Histogram Comparison for Silver – All Measured, Indicated and Inferred Blocks at Atenea, All Zones



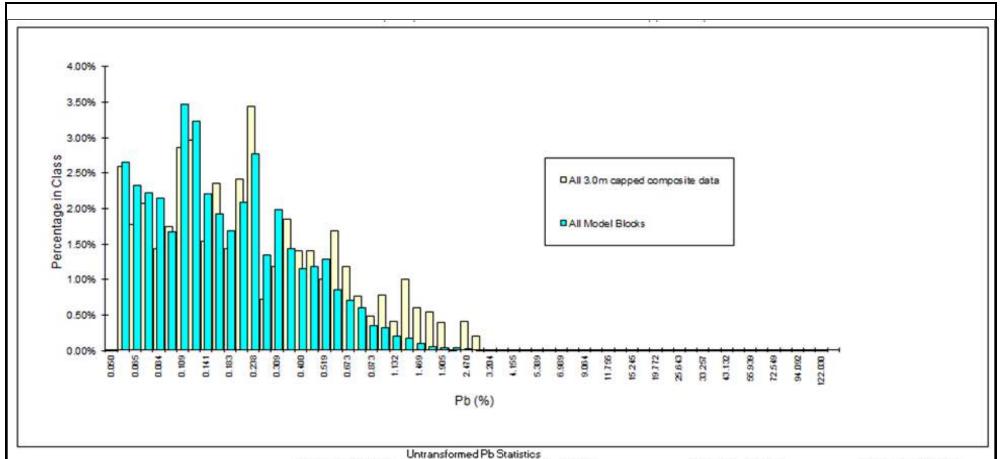
		Untr	ansformed Cu Statistics					
	Cu Cutoff = 0.	.010%	Cu Cutoff = 0.3	00%	Cu Cutoff = 0.	500%	Cu Cutoff = 1.	000%
	meters/tonnes	Cu(%)	meters/tonnes	Cu(%)	meters/tonnes	Cu(%)	meters/tonnes	Cu(%)
All 3.0m capped composite data	1,488	0.33	421	0.95	262	1.28	129	1.89
incr. % and grade	71.7%	0.09	10.7%	0.39	9.0%	0.70	8.6%	1.89
All Model Blocks	22,863,954	0.22	4,768,963	0.72	2,746,360	0.97	1,209,938	1.34
incr. % and grade	79.1%	0.09	8.8%	0.38	6.7%	0.69	5.3%	1.34



Source: SRK, 2012

# **Figure 12-17**

Composite-Block Histogram Comparison for Copper – All Measured, Indicated and Inferred Blocks at Atenea, All Zones



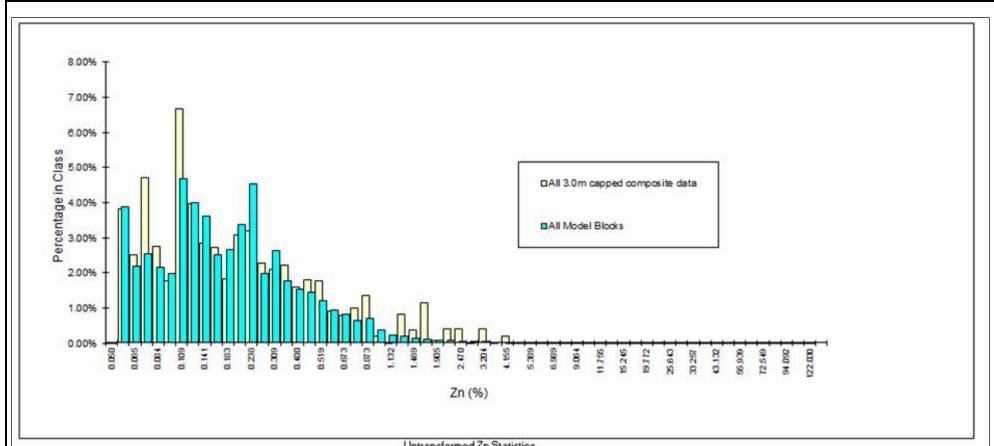
		Untrans	formed Pb Statistics						
	Pb Cutoff = $0$ .	010%	Pb Cutoff = 0.3	00%	Pb Cutoff = 1.0	000%		Pb Cutoff = 2.	000%
	meters/tonnes	Pb(%)	meters/tonnes	Pb(%)	meters/tonnes	Pb(%)		meters/tonnes	Pb(%)
All 3.0m capped composite data	1,485	0.18	231	0.85	65	1.64		15	2.458
incr. % and grade	84.5%	0.06	11.2%	0.54	3.3%	1.39		1.0%	2.46
All Model Blocks	22,806,987	0.12	2,491,446	0.57	215,323	1.36	-	17,736	2.32
incr. % and grade	89.1%	0.06	10.0%	0.50	0.9%	1.28		0.1%	2.32



Source: SRK, 2012

# **Figure 12-18**

Composite-Block Histogram Comparison for Lead – All Measured, Indicated and Inferred Blocks at Atenea, All Zones



·-		Untransf	ormed Zn Statistics					= = =
	Zn Cutoff = 0.010 %		Zn Cutoff = 0.200 %		Zn Cutoff = 0.700 %		Zn Cutoff = 2.000 %	
Construction on the section	meters/tonnes	Zn(%)	meters/tonnes	Zn (%)	meters/tonnes	Zn (%)	meters/tonnes	Zn (%)
All 3.0m capped composite data	1,488	0.23	398	0.67	101	1.59	22	2.97
incr. % and grade	73.3%	0.07	19.9%	0.36	5.3%	1.20	1.5%	2.97
All Model Blocks	22,863,954	0.15	5,525,679	0.44	748,817	1.12	55,047	2.59
incr. % and grade	75.8%	0.06	20.9%	0.34	3.0%	1.01	0.2%	2.59

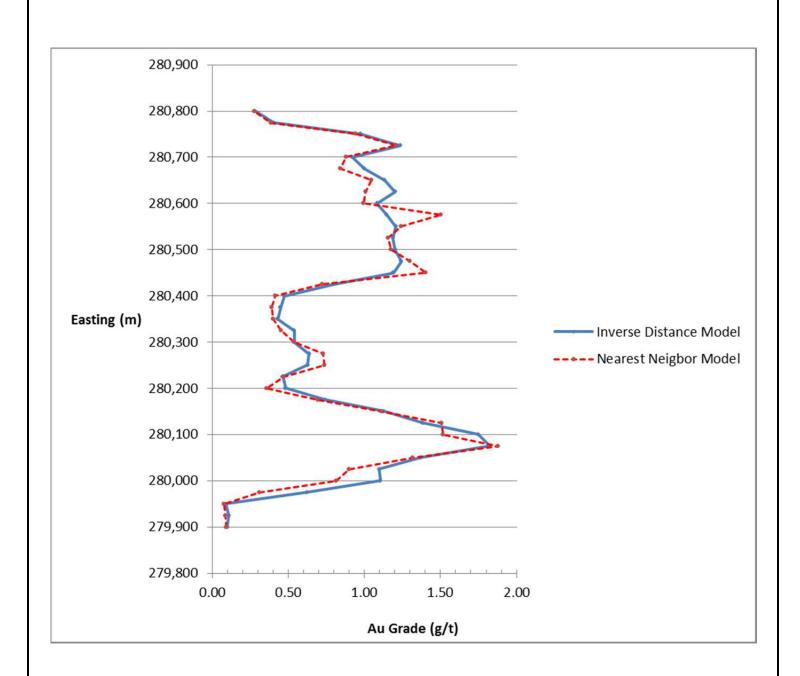


Source: SRK, 2012

# **Figure 12-19**

Composite-Block Histogram Comparison for Zinc

– All Measured, Indicated and Inferred Blocks at
Atenea, All Zones

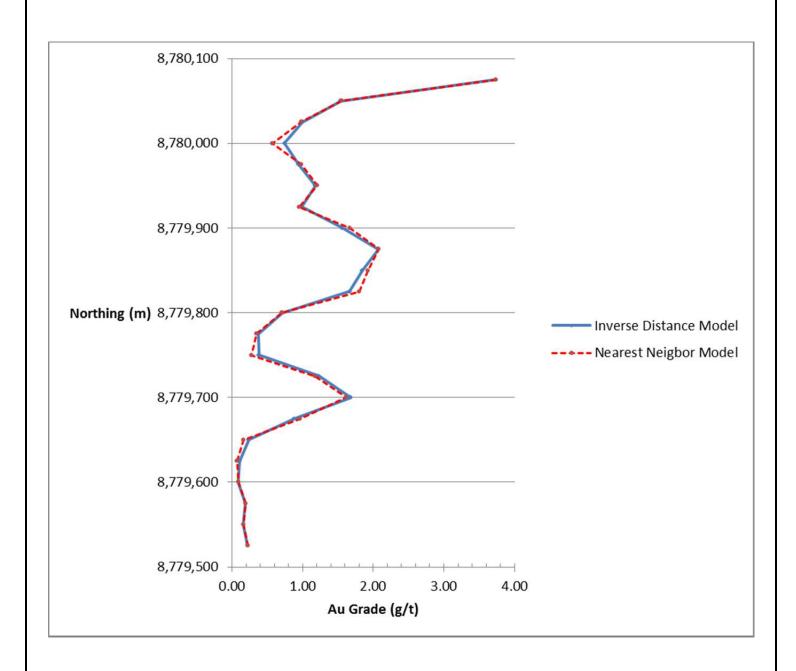




Source: SRK, 2012

## **Figure 12-20**

Atenea North-South Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Gold

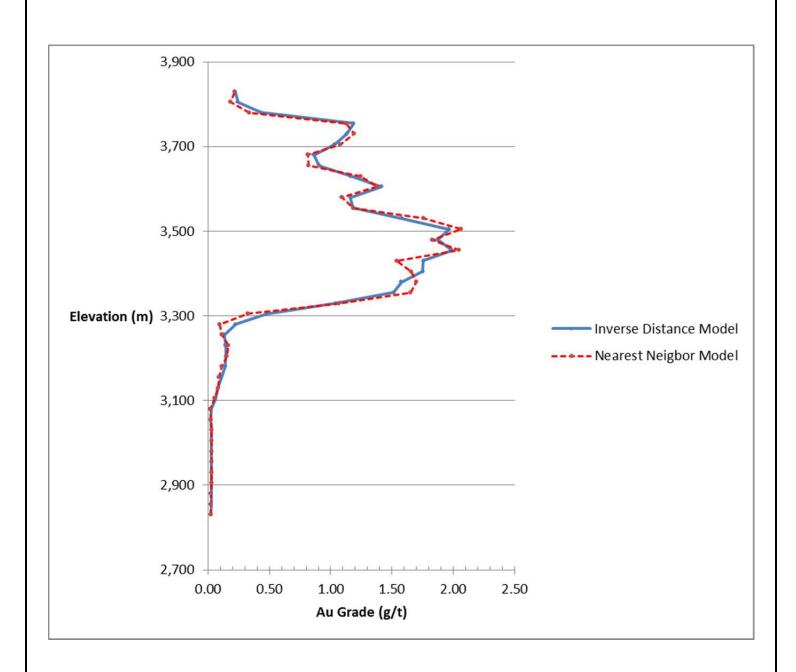




Source: SRK, 2012

## **Figure 12-21**

Atenea East-West Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Gold

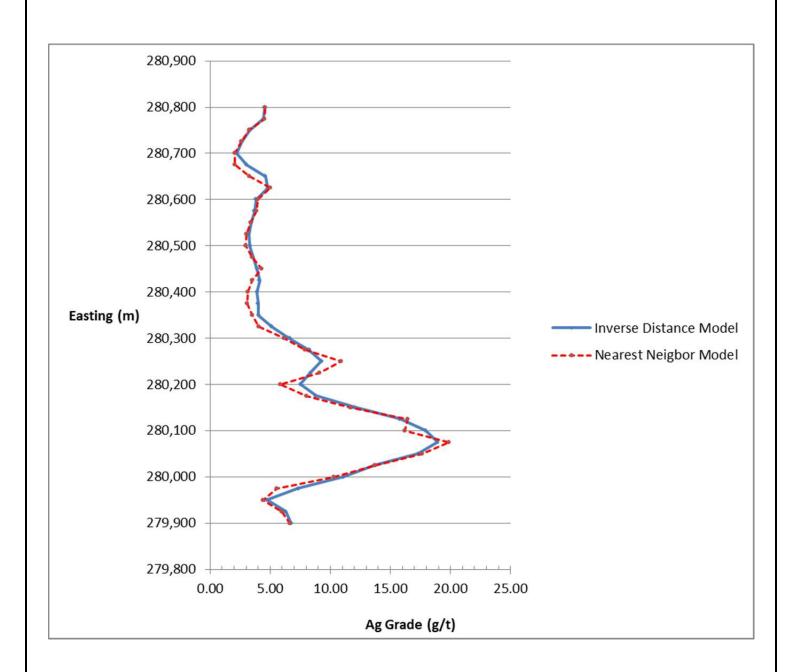




Source: SRK, 2012

## **Figure 12-22**

Atenea Vertical Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades – Gold

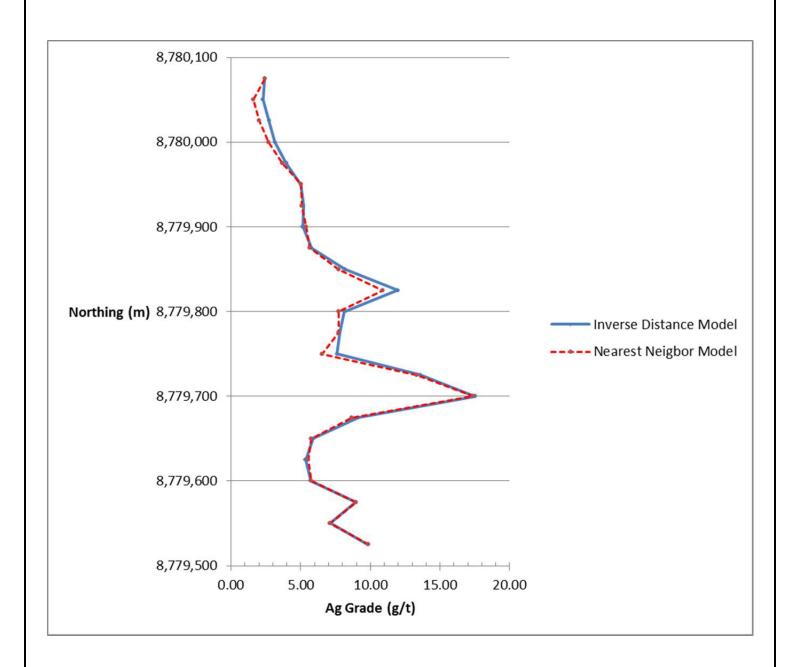




Source: SRK, 2012

## **Figure 12-23**

Atenea North-South Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Silver

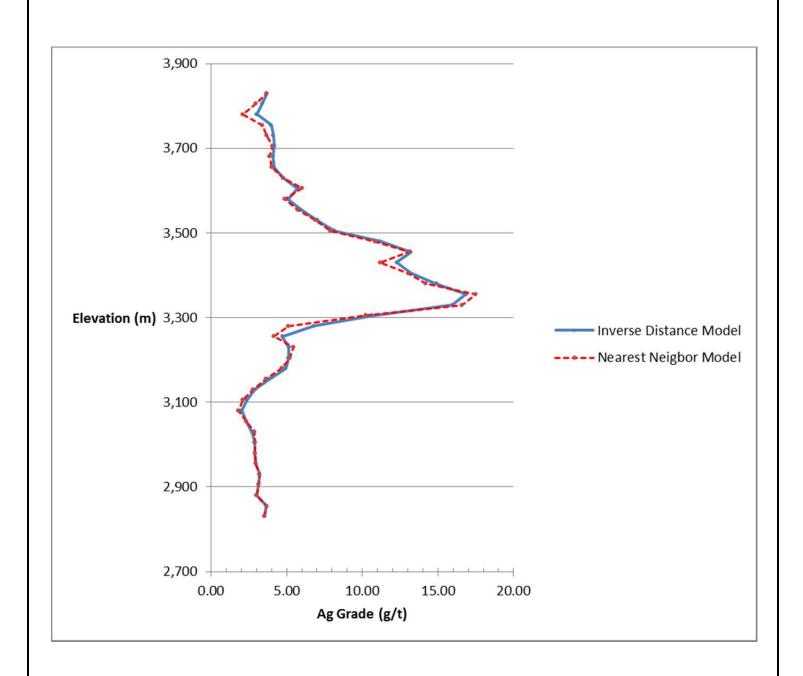




Source: SRK, 2012

## **Figure 12-24**

Atenea East-West Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Silver

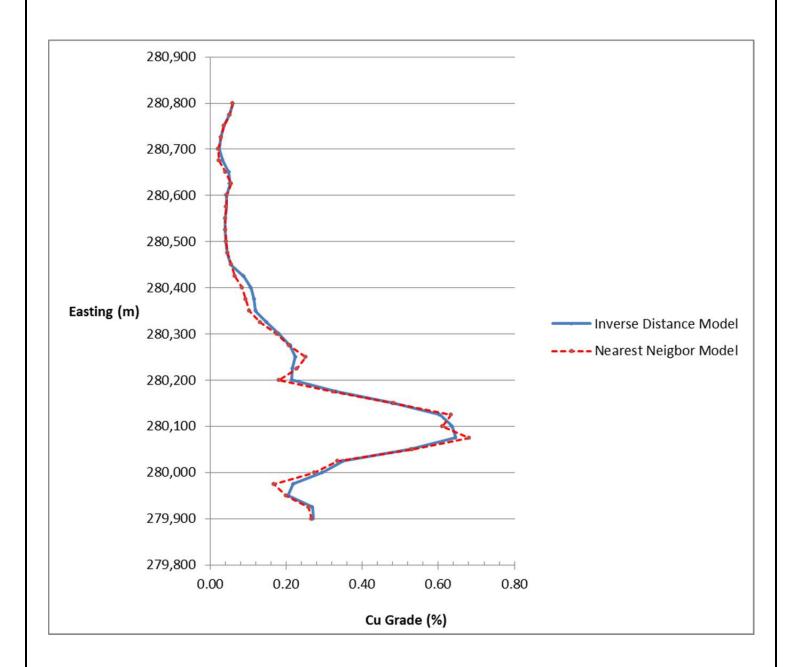




Source: SRK, 2012

## **Figure 12-25**

Atenea Vertical Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades – Silver

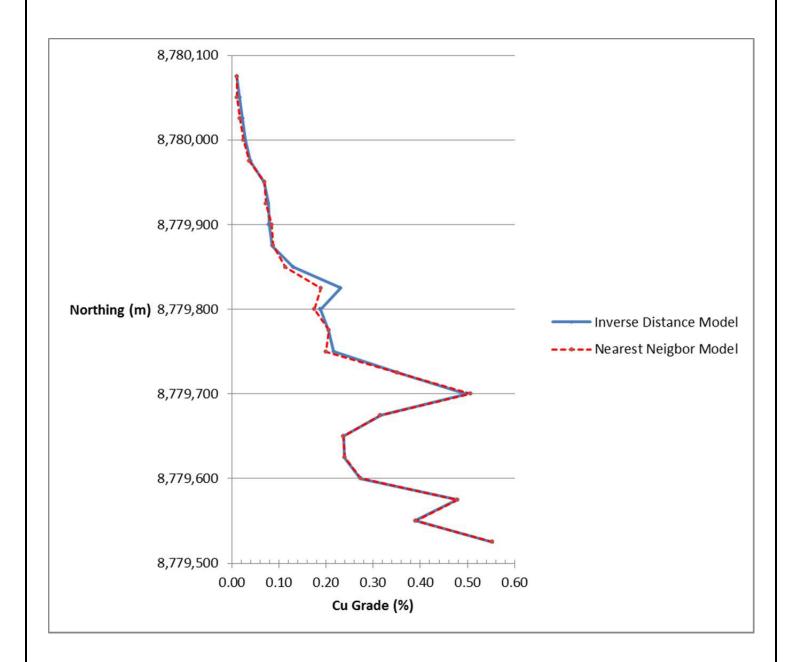




Source: SRK, 2012

## **Figure 12-26**

Atenea North-South Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Copper



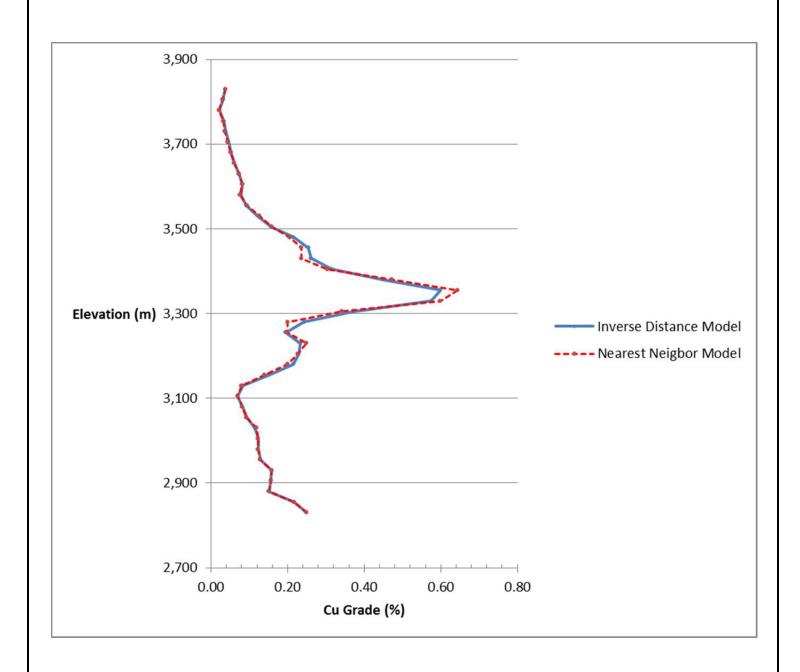


NI 43-101 Technical Report on Resources Invicta Gold Project, Peru

Source: SRK, 2012

# **Figure 12-27**

Atenea East-West Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Copper





NI 43-101 Technical Report on Resources Invicta Gold Project, Peru

Source: SRK, 2012

# **Figure 12-28**

Atenea Vertical Swath Plot, Comparing Inverse Distance and Nearest Neighbour Model Grades -Copper

# 13 Mineral Reserve Estimate (Item 15)

In October 2011, Andean announced that the initial capital cost to build an underground mine at Invicta would be considerably higher than forecast in the July 2010 Feasibility Study, partly due to increases in the estimates for infrastructure. Andean's management and Board of Directors decided to delay completion of the SRK Feasibility Study on the Invicta Project in October 2011, and indicated that the (then ongoing) engineering studies would not be completed to a feasibility level at that stage. The SRK Feasibility Study on the Invicta Project was discontinued at that time.

Given that neither a Pre-Feasibility Study (PFS) nor Feasibility Study (FS) currently exists for the Invicta Project, which incorporates all presently applicable Invicta Project cost estimates, there is no currently valid PFS or FS. It follows that there are no current mineral reserves for the Invicta Project, in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, November 27, 2010 (CIM).

Andean has agreed to reclassify the (previous) mineral reserves as mineral resources. Mineral resources are stated in Section 12. Andean's press release (dated February 13, 2012) announced this reclassification. In summary, there are no current mineral reserves estimated for the Invicta Project.

# 14 Market Studies and Contracts (Item 19)

# 14.1 Summary of Information

The Invicta deposit contains gold, silver, copper, lead and zinc. Copper, lead, and zinc concentrates containing gold and silver have been produced from metallurgical samples taken from the deposit. More recent metallurgical test work has focused on the production of copper and lead concentrates. Andean relies on third party metal consumption and commodity price forecasts, many of which are in the public domain, as its source of consumption and commodity price forecasts. The Invicta Project has not completed any market studies or commodity price projections.

#### 14.2 Contracts and Status

The Invicta Project is not currently in production. Off-take contracts are in place for base metals concentrates for copper, lead and zinc with Consorcio Minero S.A. (CORMIN). Precious metals are expected to be contained in the base metal concentrates, although there is an opportunity to produce a precious metal doré from the copper concentrate, which would have no existing off-take contract.

# 15 Environmental Studies, Permitting and Social or Community Impact (Item 20)

Mining in Peru is subject to a well-developed system of environmental regulation that applies from the period of mine exploration, to mine development and operation (e.g., exploitation) and ultimately through mine closure. In 2008, Cesel Ingenieros S.A. (CESEL) completed an environmental Impact Assessment (EIA) on behalf of Invicta, the EIA and was submitted to the Ministry of Energy and Mines for approval. The study was based on a production rate of 5,100 t/d. The EIA was used as the basis to obtain the Environmental Permit in 2010. Invicta is currently evaluating various plant production rates and processing plant locations in order to optimize the Invicta Project economics. The following discussion is referenced from the Invicta EIA.

# 15.1 Environmental Study Results

To comply with current Peruvian environmental law, Invicta contracted CESEL to perform an EIA to evaluate the environmental and socio-economic impacts related to the Invicta Project and appropriate mitigation measures. The EIA evaluated relevant environmental components in accordance with the requirements set forth by the Ministry of Energy and Mines. The components identified were found to have relatively minimal environmental and socio-economic impacts.

Detailed discussion of potential environmental impacts associated with the Invicta Project was presented in the 2009 approved EIA for the Invicta Project. A summary discussion of primary environmental impacts and mitigation measures follows.

### 15.1.1 Air Quality

Construction and operation activities may affect air quality through the generation of combustion gases, noise and vibration, volatile organic compounds, and primarily, dust. Dust suppression through watering of roads and enforcing low vehicle speeds will be the primary dust control methods. Vehicles and machinery will also be checked daily and subject to maintenance programs in order to minimize harmful emissions. The Invicta Project will engage in preventative measures to avoid spills of potentially volatile materials.

The detailed program of mitigation measures relating to air quality are detailed in the Environmental Management and Contingency plans.

## 15.1.2 Water Quality

#### Acid Rock Drainage

Testing results indicate that waste rock materials are not likely to generate acid rock drainage due to the high content of limestone (94.2%) which will potentially neutralize acid producing sulfides that are present.

#### **Water Management Plan**

The 2009 approved EIA presents a detailed water management plan aimed at preserving the existing ecosystem of the area and eliminating, or minimizing, the potential impacts of Invicta Project activities. Water destined for agriculture, livestock and human consumption, is subject to Federal water quality standards, and will be monitored as detailed in the Water Management Plan.

#### 15.1.3 Water Quantity

The Water Management Plan identifies measures to appropriately treat water, control flows, avoid contamination, and contain waste.

### 15.2 Operating and Post Closure Requirements and Plans

The Invicta Project currently has an approved closure plan, which is subject to change and may be updated. The appropriate post-performance and reclamations bonds are discussed in Section 15.5.

## 15.3 Required Permits and Status

The 2009 approved EIA satisfied the context of Peruvian national legislation aimed at the protection of the environment and mitigation of potential impacts. The following is a summary of permits obtained by the Invicta Project:

- Environmental Impact Assessment was approved by the Ministry of Energy and Mines in December 2009;
- Water Use License was approved by the Ministry of Agriculture in October 2009;
- Agreements or Arrangements with the Population: Invicta registered ownership for the property required for well and water pumping station in 2010; and
- Certification of the Absence of Archeological Ruins (CIRA): the Invicta Project has obtained Certificates covering more than 400 ha. Additional CIRAs will be required before initiation of construction activities.

The following Federal permits or approvals will be required before construction activities commence:

- Domestic and Industrial Waste Treatment and Sanitary Disposal System;
- Operation of a dump yard for the treatment of domestic solid waste or hazardous waste;
- Mine Plan
- Various authorizations related to the use, transportation and manipulation of explosives;
- Authorization to Commence Exploitation Activities; and
- Concession de Beneficio (plant operating License).

Additionally, Invicta must obtain Municipal or Provincial authorization to construct access roads to mine facilities.

# 15.4 Social and Community

There are three neighboring communities within 12 km of the Invicta Project area: Paran, Lacsanga and San Domingo de Apache. The main economic activity of each of these rural villages is agriculture, particularly growing peaches and avocados. The largest community, Paran, has a population of 600 and has road access to the Invicta camp area.

These three communities are in the area of direct influence of the Invicta Project and are titleholders of the surface lands where Invicta Project development would occur. By adopting the "Equator Principles", the Invicta Project has committed to obtaining and maintaining good relationships with nearby and affected communities.

Where possible, Invicta supports health and education programs, employment and promotes the improvement of infrastructure. In general, there is a positive perception of the Invicta Project, and

the majority of community members are in favor of its development. Invicta staff continues to advance negotiations, strengthen trust and communicate the potential benefits and details of the Invicta Project to the communities.

#### 15.5 Mine Closure

Klohn Crippen Berger S.A prepared a detailed closure plan for the Invicta Project. The Closure plan was formally approved by the Ministry of Energy and Mines in January 2012. Invicta is required to post a pre-tax guarantee of US\$16,349,682. The first pre-tax payment (US\$2,756,089) of this guarantee is payable in January 2013.

# 16 Adjacent Properties (Item 23)

There are two nearby concessions: Flor de Loto Este and Flor de Loto Sur, previously held by Esperanza Silver, followed by Compañia Minera Las Camelias S.A. A geo-structural survey was carried out under Esperanza Silver, and the lithology was found to be very similar to that of Invicta.

The Flor de Loto Este and Flor de Loto Sur concessions have been extinguished and have been replaced by Yancao XXI, held by Frank Antonio Ruiz Sanchez, and Yancao XXII held by Caroline Ruiz Ramirez. These concessions are slightly smaller than the original concessions and are currently in the approval process.

Yancao XXI and Yancao XXII are almost completely surrounded by Invicta XX, Invicta XIX and Invicta XXXVI and share common borders. At present these properties do not have any bearing on the Invicta Project.

# 17 Other Relevant Data and Information (Item 24)

Some engineering studies for the Invicta Project were undertaken previously and may have bearing on the "potential for economic extraction" of the current mineral resources stated in Section 12 of this report. Brief references to relevant data are summarized here.

## 17.1 Mining Methods

The Invicta Project currently has only Mineral Resource estimates and there are currently no Mineral Reserve estimates. Completion of this section is not a requirement in this report.

As referred to in Section 4.3.6, (July 2010 Feasibility Study) previous feasibility studies have developed mining plans for the Invicta Project utilizing several conventional underground mining methods. An underground mine design would be likely to include a mine access decline, and involve trackless mining methods. Investigation of a suitable production rate and mining methods for the Invicta Project will be performed subsequent to issuance of this report as part of ongoing technical and economic studies for the Invicta Project.

In the Andean press release dated March 1, 2012, Andean management stated that it believes there is potential for a higher grade/lower tonnage operation (compared to the previous project engineering studies conducted).

A conventional process flow sheet was developed for the Invicta Project. The metallurgical test results were discussed in detail in Section 11.

# 17.2 Recovery Methods

#### 17.2.1 Pilot Plant Results

Based on the locked-cycle test results, overall metallurgical balances were prepared for the two tests. The results were summarized in Tables 11.2.5.1 and 11.2.5.2. The pilot plant, which was operated semi-continuously with several tonnes of representative samples, produced two concentrates, namely copper concentrate and lead concentrate. The test results for the pilot plant were summarized in Table 11.2.7.1.

The overall recoveries and grades of the saleable metals in copper and lead concentrates, given in Table 11.3.1, were as follows:

- The lead concentrate assayed 52.87% Pb, 3.35% Cu, 4.28% Zn, 10.82 g/t Au, and 632.59 g/t Ag. The lead, gold and silver recoveries in the concentrate were 82.3%, 5.9% and 34.4%, respectively.
- The copper concentrate assayed 31.35% Cu, 3.33% Pb, 1.74% Zn, 111.93 g/t Au, and 648.98 g/t Ag. The copper, gold and silver recoveries in the concentrate were 81.5%, 78.9% and 45.4%, respectively.
- The overall gold and silver recoveries before discounting for smelter deductions were 84.8% and 79.8%, respectively.

#### 17.2.2 Processing Methods

The conventional processing method was used for the recovery of copper, lead, gold and silver minerals. The mineralized material was ground to  $P_{80}$  of 200 mesh (75 micrometers) with the addition of zinc depressants in the mill and bulk Cu-Pb concentrate floated in the rougher-scavenger circuit.

The bulk concentrate was cleaned twice with the first cleaner tailing sent to the final tailing and the second cleaner tailing recycled back to bulk first cleaner flotation. The second bulk cleaner concentrate was processed in the separation circuit where lead minerals were depressed and copper minerals were floated. The copper concentrate was cleaned once to reject additional lead minerals.

The two concentrates will be filtered, transported and sold.

#### 17.2.3 Flow Sheet

The process flow sheet was developed based on the metallurgical test results. The process flow sheet is given in Figure 17-1.

# 17.3 Project Infrastructure

Infrastructure includes items such as the primary access road, water systems, and electrical power distribution.

#### 17.3.1 Access Roads

Access to Sayan from Lima is along the Pan-American Highway North and a paved road from Huacho to Sayan. The minimum width along the Huacho to Sayan section is measured to be 6 m.

Access to Huamboy or Picunche from Sayan is along a gravel road that runs from Sayan to Churin; with a minimum width of 4.5 m. This road is used daily by concentrate trucks and heavy transports. Weight is limited to 30 t due to weight restrictions crossing the bridge at Cuñay.

The (original) primary selection for the plant site location (elevation 2,300 m) would require 15.8 km of new road construction from Choques to the plant site and from Paran to the plant site. The Paran plant site road would be a temporary road used for construction purposes during the estimated seven months that the Choques-Paran route would be in construction. In addition 27.5 km of road upgrades would be required with the most work being required on the 15 km section of the road from Paran to the mine site.

A potential (alternative) secondary plant site location, Location B (elevation 3,400 m) would require between 8 and 13 km of new road construction from just before La Perla to Location B (as this site has been named). A trade off study would be required to determine the optimum routing. In addition upgrades would be required to the existing road from Picunche to La Perla. Phase I upgrades have been budgeted in the 2012 annual budget for the district of Paccho. Invicta has also identified a third potential plant site location, Location C; however, a detailed examination of this alternative has not been completed.

#### 17.3.2 Fresh Water Pumping System

Water supply to the primary (original) selection for the plant site (2,300 m elevation) would be via a 9.6 km overland pipeline from the wellhead at Huamboy to the plant. A study conducted by

Patterson Cooke/DRA Americas indicated that a single pumping station located at the wellhead would be sufficient to supply 40 l/s to the plant site. The pipe required would be a mixture of schedule 80 and schedule 40 depending on the static head in the pipeline at the location. A secondary pumping station at the plant site would supply water to the mine. A treatment facility to supply potable water would also be required.

Several routing options exist for water supply to the potential (alternative) secondary plant site selection (at an elevation of 3,400 m), including following the access route from the well head at Huamboy to the secondary plant location. The optimum single stage pumping route would be 6.8 km with a static pumping head of 2,226 m. Water distribution to the mine would be via a secondary pumping station as required with the primary plant location, however, the static head would be lower.

Invicta has a water use permit for 40 l/s (for 12 h/d) from the Peruvian Ministry of Agriculture through the ATDR (Irrigation District Technical Administration Authority), dated October 27, 2009. A water well has been constructed and the surface rights for the area required for the well have been obtained from a third party and registered.

Well testing studies performed by CESEL Engineering concluded that the well head can supply up to 50 l/s of water during the dry season. Biological and elemental testing has confirmed that the water is suitable as a potable water supply.

#### 17.3.3 Plant Site Electrical Power

#### **66kV Transmission Line**

Invicta currently has an approved Environmental Impact Assessment (EIA) to construct a 29 km, 66 kV, electric transmission line from Andahuasi to the Invicta Project site. From a main project site substation a 10 kV electrical line would transmit power to both the mine site and to the water pumping station in Huamboy.

The transmission routing plan extends from Andahuasi (in the district of Sayan, province of Lima) along a 29 km corridor that runs alongside the Huara River (through the district of Quintay) to the town of Huamboy (in the district of Leoncio Prado in the province of Lima). The transmission line crosses the river close to the town of Huamboy. Servitudes for the transmission line corridor are required from Sayan, and Paran. A further servitude from Quintay is envisaged in the EIA although the routing could be switched in favor of Sayan to simplify the number of communities with agreements.

The altitude of the route gradually increases from 580 m at Andahuasi to 700 m at Sayan, after which it increases to 2,330 m to the terminus at a proposed substation site.

The power supply to Andahuasi is 66 kV, thus new infrastructure requirements would be limited to additional high voltage switching equipment and protection systems in the switch yard. Invicta has obtained permission from ADENELSA (Government of Peru Authority controlling the distribution of electrical power in the region) to connect to the National Grid. Basic engineering studies including harmonic studies have been completed and approved for the infrastructure and tie-in to the Andahuasi substation. The capacity of the substation and the feeding transmission line from Huacho to Anahuasi were upgraded in 2011 to 24 MW.

The engineering for the 66 kV transmission line was completed by CESEL Ingenerios.

At the terminus of the 66 kV transmission line a 66 kV/10 kV step down transformer would be required to provide power for the mine, process plant, and water well site. Two separate 10 kV transmission lines would run from the 66 kV terminus, one along a 5.2 km route to the water pumping station in Huamboy, and a second 3.5 km route to the mine transformer. The 10kV transmission line to the water supply drops from 2,330 m to 1,049 m at Huamboy, while the mine transformer is located at 3,400 m.

In addition to the approved EIA, Invicta has obtained approval for the pre-operating study for the entire power load from (Comité de Operación Económica del Sistema Interconectado) C.O.E.S., the national grid agency responsible for monitoring compliances.

Once detailed engineering is complete, Invicta requires operating study approval from C.O.E.S.

#### 220kV Transmission Line

In parallel to the design, engineering, EIA processing and approval of the Invicta 66 kV transmission, SN Power Perú S.A. has obtained environmental approval to construct a 220 kV transmission line for the Cheves hydroelectric facility, now under construction up-river from the Invicta site. The SN Power Perú S.A. power line runs eastward another 14 km to the Cheves construction site in the region of Churin. The 220 kV transmission line will connect to the National Grid at the city of Huacho.

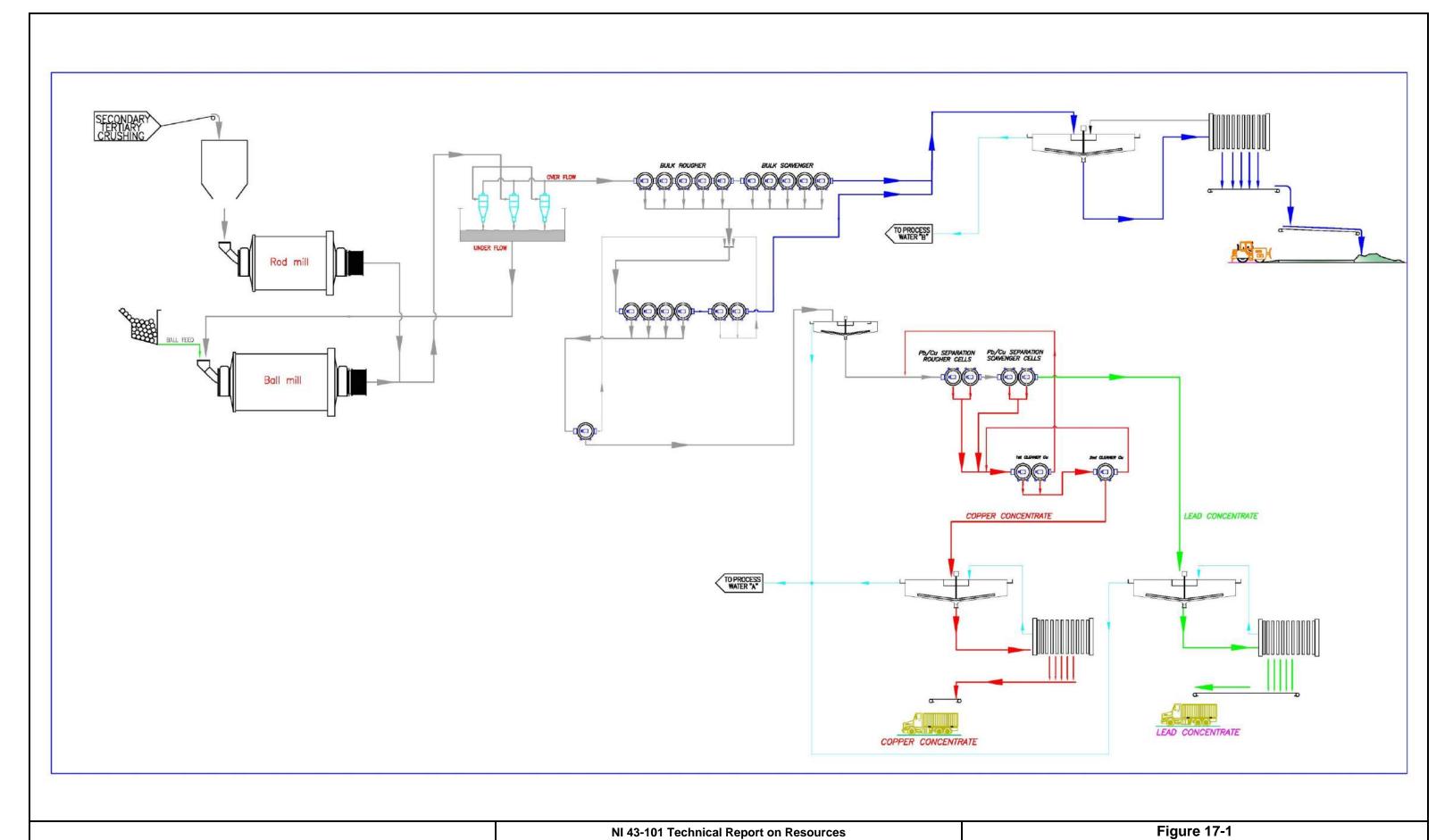
SN Power Perú S.A. started construction of the 220 kV line in January 2012. The Cheves hydroelectric facility is scheduled to begin electrical generation in 2014, with plans to provide power to the construction site starting in 2013.

The SN Power Perú S.A. 220 kV electrical transmission line provides an alternative power source to the 66 kV transmission line. Discussions have been held with S.N. Power Perú S.A. to allow for a potential tie-in to the 220 kV electrical line. Although the transformer would need to be larger for the 220 kV/22.9 kV arrangement, the distance of the electrical transmission line would be reduced to approximately a range of 6.8 to 9.8 km. I.E.B. Engineering completed a pre-feasibility study in December 2011 on behalf of the Invicta Project for this alternative in order to provide S.N. Power Perú S.A. information to allow for a potential future tie-in to their transmission line. Approval from S.N. Power Perú S.A. is still required for this tie-in.

From an Invicta 220 kV substation, a 22.9 kV transmission corridor (6.8 km to 9.8 km) would be required to supply power to the project site. Servitudes for this alternative would be required from either or both Paran and Lacsanga depending on the final route selection.

#### 17.3.4 Other Relevant Data

There is no additional relevant data, that SRK is aware of that would materially impact the conclusions of this report.



# 18 Interpretation and Conclusions (Item 25)

#### 18.1 Results

#### 18.1.1 Exploration, Drilling and Analytical

The current structural-geological model for the Atenea Vein shows that the extent of the vein system known to date is cut-off to the north by an approximately east-west-trending reverse-dextral fault that post-dates mineralization. This suggests that the block to the north of this fault moved down and up, and therefore likely exposes a higher crustal level at surface. Coupled with vertical metal zoning which is common in epithermal vein systems, and the observation of breccia zones at the surfaces along the projected continuation of the Atenea Vein, SRK suggests that there is potential for mineralization similar to the Atenea Vein at depth below the breccia zones (as illustrated in Figure 21-1). It is SRK's opinion that this is a high priority exploration target that requires drilling to 1) test the presence of potential mineralization similar to the Atenea Vein at depth; and 2) if mineralization is encountered, determine the strike, dip and plunge extent of economic zones of mineralization.

The following comprise further conceptual exploration targets in the Invicta Project:

- Bends along the Pucamina and Dany Faults associated with dilational / compressional jogs;
- Extensional zones sub-parallel to the Atenea Vein may exist, since linking extensional zones in strike-slip systems commonly exhibit a periodicity;
- Potential intersections between principal strike-slip faults and linking extensional zones; and
- Potential extensions of the Atenea Vein (and similar systems) may be offset and continue north of the Pucamina Fault, and south of the Dany Fault.

Based on the presence of gold and copper within the under-explored quartz-sulfide vein zones at the Invicta Project (e.g. Juan, Manuel, Zone 3, and Zone 7) as outlined in Section 5.4, it is SRK's opinion that the Invicta Project has good potential for expansion of the current resource base. In particular, the implementation of diligent structural geology mapping procedures will aid in delimiting the strike, dip and plunge extent of additional vein zones. A program of focused trenching coupled with targeted drilling is required to test the economic potential of these known as well as other vein zones that may potentially exist in the area. Careful examination of trenches and drillholes may further assist in determining whether a stage of mineralization and deformation that may pre-date the dominant gold-silver-copper mineralization occurred in the area.

### 18.1.2 Quality Assurance/Quality Control

The QA/QC programs in place during the drilling in 2008 and 2009 included insertion of standards, duplicates and blanks. Variance analysis showed good correlation between the lab analyses and the expected values for the standards used. Blank sample results lie within acceptable limits and duplicate samples show good correlation. SRK has not reviewed the raw data that supports the QA/QC graphs presented in a previous NI 43-101 (Jaramillo, 2009) which support the validity of the drillhole database. However, SRK 's opinion is that the QA/QC program in place for the drilling programs was adequate, and the reported results are satisfactory to verify data qualify, and thus the drillhole database is sufficient for use in resource estimation.

Invicta currently has similar QA/QC procedures in place for exploration sampling that should be carried forward and implemented with future exploration and in-fill drilling programs.

#### 18.1.3 Data Verification

SRK completed data verification by several means, including visual examination on site, verification of the assay database against laboratory assay certificates, and review of past and current QA/QC procedures and results.

SRK geologists have conducted site visits to verify the geology model, geological mapping, structural interpretations, and identified areas of mineralization. Mineralized quartz veins are observable in the field as mapped.

A validation of the assay data for the Pangea database was performed by random manual checks of ten percent of the digital assay database against the original CIMM Peru S.A. certificates provided by the client. The ten percent random assay comparisons were conducted for Au, Ag and Cu assays only. SRK notes that all Au results reported at below detection (detection limit = <0.015 and <0.005) were recorded in the provided database at the detection limit, which is not customary procedure. Customary procedure is to use half the detection limit (0.0075 and 0.0025 respectively). The records for the above detection limit for Au (>10.0) were also recorded at the detection limit, not at the customary procedure of 1.5 times the detection limit (15.0). An error rate 4.62% was observed in the ten percent of the drillhole samples checked (693 total checks). When SRK looked at only the errors for sample assays above 0.1gpt, an error rate of 1.6 % was observed (11 samples out of the total 693 samples checked). SRK believes that the error rate is not material, and concludes that the data from the drilling campaign as provided are suitable for the use in resource estimation.

In addition, QA/QC procedures included the use of standard reference material, blanks, and duplicate assays to provide verification of the accuracy of the analytical database. It is SRK's opinion that there are no identified limitations to the resource database that will have a material effect on the resource estimation process or stated mineral resources.

#### 18.1.4 Resource

SRK has estimated the resources for the project using industry accepted practices and concludes that the sample data are of sufficient spacing to classify the resources into Measured, Indicated and Inferred resource categories. SRK is of the opinion that the potential to increase the resources with additional step-out and down dip drilling in the existing resource areas is good. SRK recommends that Invicta geology personnel construct a detailed 3-D geology and structural model based on additional information and interpretations carried out during the 2011 field programs to assist in targeting the resource expansion campaign.

#### 18.1.5 Metallurgy and Processing

Sufficient metallurgical test work has been undertaken to demonstrate that conventional processing method consisting of grinding the mineralized material to liberation size (P<sub>80</sub> of 74 microns) followed by bulk rougher and cleaner flotation produces a good Cu-Pb concentrate. The copper and lead concentrates can be separated by depressing lead minerals and floated copper minerals. The majority of the gold and half of silver reported to the copper concentrate and some gold and the other half of silver reported to the lead concentrate.

Based on the detailed metallurgical program results, overall recoveries and grades of the saleable metals in copper and lead concentrates were as follows:

- The lead concentrate assayed 52.87% Pb, 3.35% Cu, 4.28% Zn, 10.82 g/t Au, and 632.59 g/t Ag. The lead, gold and silver recoveries in the concentrate were 82.3%, 5.9% and 34.4%, respectively.
- The copper concentrate assayed 31.35% Cu, 3.33% Pb, 1.74% Zn, 111.93 g/t Au, and 648.98 g/t Ag. The copper, gold and silver recoveries in the concentrate were 81.5%, 78.9% and 45.4%, respectively.
- The overall gold and silver recoveries before discounting for smelter deductions were 84.8% and 79.8%, respectively.

### 18.2 Significant Risks, Uncertainties and Opportunities

#### 18.2.1 Exploration

Based on the presence of gold and copper within the under- explored quartz-sulfide vein zones at the Invicta Project (as outlined in Section 5.4), it is SRK's opinion that the Invicta Project has good potential for expansion of the current resource base.

#### 18.2.2 Mineral Resource Estimate

As previously discussed, SRK is of the opinion that opportunity exists to expand the current resource with additional step out and down dip drilling. The only risk associated with the current resource estimate is metal price volatility. As the resource statement is based on a gold equivalency cut-off and the contained metal value is primarily gold driven, material decreases in gold price will impact the resource tonnage and grade above cut-off.

#### 18.2.3 Mining

Previous studies have shown that mining can be accomplished by conventional underground mining methods, and therefore no particular risks or uncertainties are posed by the underground mining requirements for the Invicta Project. Mining studies, yet to be performed, will determine the optimum mining methods that will be commensurate with the nature of the mineralization and project economics.

#### 18.2.4 Metallurgy and Processing

Lead and copper separation in the current conventional circuit can be further optimized. Alternative reagents and test conditions are variables that will continue to be refined at bench scale for subsequent locked cycle testing with the established flowsheet. Work on increasing solids density from 32 to 40% showed promise on recoveries and reagent consumption, as indicated in Figures 11-2 and 11-3. Increasing the solids density in the rougher scavenger increased gold recovery from 84.9 to 86.7% and copper from 87.5 to 92.2% in the bulk recovery circuit.

While the test work has been conducted on samples considered to be representative of the resource as defined, the orebody is variable in grade and content and it is recommended that additional testing of samples in the developed flowsheet be performed to confirm robustness of metallurgical performance.

Trade off studies considered the use of a further alternative flowsheet as a means of mitigating capital and operating cost pressures, but no work was completed on this option. The direct leach of the Invicta mineralized material to produce a precious metal doré only remains an interesting alternative and test work was planned but not executed in this last phase of work. While gold amenability was demonstrated in studies reported in the 2008 feasibility study, new scoping test work on gold amenability to direct leaching on current mineralize material composites is recommended.

### 18.2.5 Project Infrastructure

Viable options for power, water supply and road access have been defined; however, alternatives have been identified that could result in a reduction in capital cost. Trade-off studies to define the best alternative should be completed.

#### 18.2.6 Project Development

Previous studies have indicated that mining for the Invicta Project can be accomplished by conventional underground mining methods, and mineral processing by well-established flotation processing techniques.

The Invicta Project would require delivery of utility services, including power and water to the Invicta Project site. Land transportation routes would require upgrading. Based on field observations, available geologic data, metallurgical test work, previous studies, and available environmental data, SRK's opinion is that there are no serious technical or logistical flaws to the Invicta Project.

A land use agreement was finalized with Santo Domingo de Apache in October 2010. It is necessary to either formulate a plan to have all surface works in Santo Domingo de Apache, or finalize agreements with one or more of the other two communities of Paran and Lacsanga. Comprehensive offers targeting a land use agreement with Invicta have been tabled formally to both communities and engagement continues.

Currently the EIA and closure plans envisage a Paran based solution with the metallurgical facility and tailings enclosure in the area of Pariacoto Puñocoto. Based on trade-off studies conducted so far, this remains an alternative although not the preferred solution. A facility location identified in Lacsanga land has attractive capital and build timeline advantages, while being at least as suitable environmentally. This facility location would require modifications to the EIA and closure plans.

Future activities will include finalizing community agreements that will define the location of the process and tailings facilities. Upon decision to proceed with a feasibility study, work would be completed with the selected option and revisions to the EIA and closure plans will follow logically from that.

#### 18.2.7 Foreseeable Impacts of Risks

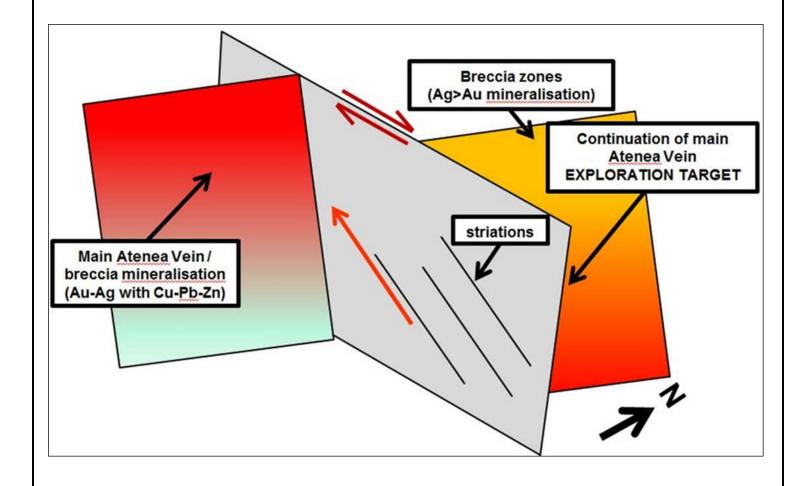
The scope of this study was intended for the use of Andean to further the evaluation of the Invicta Project by providing a mineral resource estimate, and a classification of resources in accordance with the CIM classification system.

Various geotechnical, hydrogeological, mining, metallurgical, infrastructure and environmental studies have been undertaken, or are still in progress. The objectives moving forward should be

focused on progressing the Invicta Project through a defined set of trade-off studies to set key project design criteria, and pending positive economic results at that stage, onto a feasibility study.

Given that a currently valid feasibility study for the Invicta Project has not yet been completed, various uncertainties remain with respect to the Invicta Project, as is normal at this stage of project advancement.

In general, as previously stated in this report, mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserves.



Based on offset by a post-mineralization dextral-reverse fault (colors illustrate vertical metal zoning, where red is the main vein zone)



# 19 Recommendations (Item 26)

SRK recommends the following Phase I Work Program to advance the understanding of the Invicta Project, followed by a Phase II Work Program.

## 19.1 Recommended Phase I Work Program and Costs

#### **Structural Geology**

The possible continuation of the Atenea Vein to the north of the E-W trending dextral-reverse fault is a priority exploration target. It is recommended that the exposed breccia zone be drill tested at depths of 200 to 400 m below surface to determine the presence of economic mineralization.

As part of follow-up exploration, SRK recommends the following tasks be completed:

- Complete detailed structural-geological mapping over the entire Invicta Project;
- Develop a structural and stratigraphic 3D geological model, including cross- and longsections for mineralized zones to identify potential areas of interest for exploration targeting; and
- Complete a regional structural geological interpretation of airborne geophysical and remote sensing data to better define the regional structural framework and identify conceptual targets in the wider region.

The completion of this work will aid in determining the presence and extent of potential vein zones at surfaces, as well as in identifying key geological surface features that could imply the presence of mineralization at depth. These observations can then be used to plan a drill program that targets additional vein zones that could contribute to the resource base at the Invicta Project.

The completion of structural-geological mapping over the entire Invicta Project requires at least another eight weeks of mapping by one or more dedicated and experienced field exploration geologists. The costs for such a program are dependent on personnel expenses coupled with logistical (camp accommodation, meals, transport) expenses. A minimum cost estimate for this program (not including potential sampling costs) is US\$7,000.

Based on the cost of similar studies conducted by SRK, depending on the extent and quality of imagery available, the cost for completion of a regional structural geological interpretation of airborne geophysical and remote sensing data is estimated to be US\$40,000.

#### **Metallurgical Testwork**

Additional metallurgical testing to determine recoveries using direct leaching of precious metals from the ore and/or from flotation concentrate is recommended. This work is expected to take two months and cost US\$40,000.

#### **Preliminary and Trade-off Studies**

The following trade-off studies are recommended as part of Phase I:

- Complete preliminary mining trade-off studies to determine the most suitable mining method and ore production rate;
- Complete preliminary project cash flow modeling to estimate project economics;
- Given satisfactory results from the preliminary project economic study, prepare summary documentation for Andean management approval to advance the Invicta Project to a feasibility study; and
- Future activities will include finalizing community agreements that will define the location of the process and tailings facilities.

Table 22.1.1 provides a breakdown of the total Phase I costs.

Table 22.1.1: Phase I Costs

Item	Cost \$US
Structural-Geological Mapping	7,000
Regional Structural Geological Interpretation	40,000
Metallurgical LeachingTestwork	40,000
Mining Trade-off Studies	40,000
Preliminary Project Economic Study	30,000
Total	US\$157,000

Based on the findings of the Phase I work program, a decision would be made to proceed to either the Phase IIA Work Program for a series of studies leading up to and including a Feasibility Study, or Phase IIB Work Program, or to possibly execute components of both programs.

# 19.2 Recommended Phase IIA Work Program

Contingent upon results from the Phase I work, the Phase IIA program may be justified.

SRK acknowledges that a significant amount of exploration and development work has been conducted on the Invicta Project, and may warrant additional work efforts, which would generally summate to advancing the Invicta Project to a Feasibility Study. The following Phase IIA work programs are recommended:

- The metallurgical program for the Phase IIA Work Program would include variability tests on samples from different areas of the deposit to confirm flexibility of the flotation flowsheet;
- Complete remaining preliminary project infrastructure studies (plant location, tailings, roads, power, water) to assist with early assessment of infrastructure costs;
- The proposed project hydrogeological program cost is expected to include drilling, site supervision, and hydrogeological modelling.
- Conduct a mining geotechnical analysis program to confirm mining design parameters;
- Conduct a mining backfill study, starting from previous work accomplished concerning this
  program, complete complementary mining backfill testwork, and perform a trade-off study to
  determine suitable mining backfill methodology;
- Conduct geotechnical drilling for tailings and key infrastructure sites; and
- Conduct a Feasibility Study for the Invicta Project.

Typically a Feasibility Study (FS) costs approximately US\$500,000 and would take period of six months after completion of the preliminary studies and completion of key field program components, culminating in the decision to proceed with the FS. Additional mining geotechnical, hydrogeological, metallurgical testwork, tailings geotechnical, infrastructure and environmental studies would be contingent on the findings from the Phase I and early Phase IIA studies. Additional field work for the feasibility study would be required as follows: hydrogeological program; and determining geotechnical conditions (from a drilling program) for the selected tailings storage location and certain infrastructure sites, such as the plant site.

Table 22.2.1 provides a breakdown of the total Phase IIA costs.

Table 22.2.1: Total Phase IIA Costs (Contingent upon Phase I and Early Phase IIA Findings)

Item	Cost \$US
Metallurgical Variability Testwork	25,000
Infrastructure Trade-off Studies	215,000
Hydrogeological Program	400,000
Mining Geotechnical Analysis Program	60,000
Mining Backfill Testwork and Trade-off Study	50,000
Geotechnical Site Drilling	100,000
Project Feasibility Study	500,000
Total	US\$1,350,000

## 19.3 Recommended Phase IIB Work Program and Costs

Contingent upon results from the Phase I work, or Phase IIA work, the Phase IIB program may be selected.

#### Infill and Exploration Drilling Program

A 20,000 m drill program consisting of a total of 9,600 m of infill drilling in the Atenea Zone and 10,400 m of exploration drilling in Pucamina, Zone 5 and Zone 7. Total cost for the infill and exploration drilling program is estimated to be US\$4.2 million including access and platform development, water infrastructure, drilling mobilization and demobilization, drilling, core sampling and analysis, energy, contingency and camp administration costs.

Table 22.3.1 provides a breakdown of the Phase IIB infill and exploration drilling program costs.

Table 22.3.1: Infill and Exploration Drilling Program Costs

Item	Cost US\$
Access Roads, Platforms and Water Supply	155,000
Drilling Cost	2,800,000
Logging, Sample Preparation and Assay	500,000
Camp Administration	175,000
Contingency	383,500
Total	US\$4,218,500

#### **Drillhole Sample QA/QC**

SRK recommends that in addition to the current program of insertion of standards, duplicates and blanks, that the addition of outside check assays be included in the QA/QC program going forward with exploration or in-fill drilling. This can be accomplished by randomly selecting 5% to 10% of the

total sample population, for check assays at a second analytical lab. This can be done with the original sample pulps from the primary laboratory.

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# 21 Glossary

#### 21.1 Mineral Resources

The mineral resources and mineral reserves have been classified according to the "CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines" (November 27, 2010). Accordingly, the Resources have been classified as Measured, Indicated or Inferred, the Reserves have been classified as Proven, and Probable based on the Measured and Indicated Resources as defined below.

A Mineral Resource is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes.

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough to confirm both geological and grade continuity.

#### 21.2 Mineral Reserves

A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

A 'Probable Mineral Reserve' is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility

Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

A 'Proven Mineral Reserve' is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

#### 21.3 Definition of Terms

The following general mining terms may be used in this report.

Table 24.3.1: Definition of Terms

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure	All other expenditures not classified as operating costs.
Composite	Combining more than one sample result to give an average result over a larger distance.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the mineralized material.
Crushing	Initial process of reducing mineralized material particle size to render it more amenable for further processing.
Cut-off Grade (CoG)	The grade of mineralized rock, which determines as to whether or not it is economic to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with mineralized material.
Dip	Angle of inclination of a geological feature/rock from the horizontal.
Fault	The surface of a fracture along which movement has occurred.
Footwall	The underlying side of an orebody or stope.
Gangue	Non-valuable components of the mineralized material.
Grade	The measure of concentration of gold within mineralized rock.
Hangingwall	The overlying side of an orebody or slope.
Haulage	A horizontal underground excavation which is used to transport mined mineralized material.
Hydrocyclone	A process whereby material is graded according to size by exploiting centrifugal forces of particulate materials.
Igneous	Primary crystalline rock formed by the solidification of magma.
Kriging	An interpolation method of assigning values from samples to blocks that minimizes the estimation error.
Level	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Lithological	Geological description pertaining to different rock types.
LoM Plans	Life-of-Mine plans.
LRP	Long Range Plan.
Material Properties	Mine properties.
Milling	A general term used to describe the process in which the mineralized material is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mineral/Mining Lease	A lease area for which mineral rights are held.
Mining Assets	The Material Properties and Significant Exploration Properties.
Ongoing Capital	Capital estimates of a routine nature, which is necessary for sustaining operations.
Ore Reserve	See Mineral Reserve.
Pillar	Rock left behind to help support the excavations in an underground mine.
RoM	Run-of-Mine.
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Shaft	An opening cut downwards from the surface for transporting personnel, equipment,

Term	Definition
	supplies, mineralized material and waste.
Sill	A thin, tabular, horizontal to sub-horizontal body of igneous rock formed by the
	injection of magma into planar zones of weakness.
Smelting	A high temperature pyrometallurgical operation conducted in a furnace, in which the
	valuable metal is collected to a molten matte or doré phase and separated from the
	gangue components that accumulate in a less dense molten slag phase.
Stope	Underground void created by mining.
Stratigraphy	The study of stratified rocks in terms of time and space.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal
	plane, always perpendicular to the dip direction.
Sulfide	A sulfur bearing mineral.
Tailings	Finely ground waste rock from which valuable minerals or metals have been
-	extracted.
Thickening	The process of concentrating solid particles in suspension.
Total Expenditure	All expenditures including those of an operating and capital nature.
Variogram	A statistical representation of the characteristics (usually grade).

### 21.4 Abbreviations

The following abbreviations may be used in this report.

Table 24.4.1: Abbreviations

Abbreviation	Unit or Term	
A	ampere	
AA	atomic absorption	
A/m <sup>2</sup>	amperes per square meter	
ANFO	ammonium nitrate fuel oil	
Ag	silver	
Au	gold	
AuEq	gold equivalent grade	
°C	degrees Centigrade	
CCD	counter-current decantation	
CIL	carbon-in-leach	
CoG	cut-off grade	
cm	centimeter	
cm <sup>2</sup>	square centimeter	
cm <sup>3</sup>	cubic centimeter	
cfm	cubic feet per minute	
ConfC	confidence code	
CRec	core recovery	
CSS	closed-side setting	
CTW	calculated true width	
٥	degree (degrees)	
dia.	diameter	
EIS	Environmental Impact Statement	
EMP	Environmental Management Plan	
FA	fire assay	
ft	foot (feet)	
ft <sup>2</sup>	square foot (feet)	
ft <sup>3</sup>	cubic foot (feet)	
g	gram	
gal	gallon	
g/L	gram per liter	
g-mol	gram-mole	
gpm	gallons per minute	
g/t	grams per tonne	

April 16, 2012

Abbreviation	Unit or Term
ha	hectares
h/d	hours per day
HDPE	Height Density Polyethylene
hp	horsepower
HTW	horizontal true width
ICP	induced couple plasma
ID2	
ID3	inverse-distance squared inverse-distance cubed
IFC	International Finance Corporation
ILS	Intermediate Leach Solution
kA	kiloamperes
kg	kilograms
km	kilometer
km <sup>2</sup>	square kilometer
koz	thousand troy ounce
kt	thousand tonnes
kt/d	thousand tonnes per day
kt/y	thousand tonnes per year
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
L	liter
I/s	liters per second
l/s/m	liters per second per meter
lb	pound
LHD	Long-Haul Dump truck
LLDDP	Linear Low Density Polyethylene Plastic
LOI	Loss On Ignition
LoM	Life-of-Mine
m	meter
m <sup>2</sup>	square meter
m <sup>3</sup>	cubic meter
m <sup>3</sup> /s	cubic meter per second
masl	meters above sea level
MARN	Ministry of the Environment and Natural Resources
MDA	Mine Development Associates
mg/L	milligrams/liter
mm	millimeter
mm <sup>2</sup>	square millimeter
mm <sup>3</sup>	cubic millimeter
MME	Mine & Mill Engineering
Moz	million troy ounces
Mt	million tonnes
MTW	measured true width
MW	million watts
m.y.	million years
NĞO	non-governmental organization
NI 43-101	Canadian National Instrument 43-101
OSC	Ontario Securities Commission
OZ	troy ounce
%	percent
PLC	Programmable Logic Controller
PLS	Pregnant Leach Solution
PMF	probable maximum flood
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
RC	rotary circulation drilling
	1.5.c., Shouldholl dilling

Abbreviation	Unit or Term	
RoM	Run-of-Mine	
RQD	Rock Quality Description	
SEC	U.S. Securities & Exchange Commission	
sec	second	
SG	specific gravity	
SPT	standard penetration testing	
st	short ton (2,000 pounds)	
t	tonne (metric ton) (2,204.6 pounds)	
t/h	tonnes per hour	
t/d	tonnes per day	
t/y	tonnes per year	
TSF	tailings storage facility	
TSP	total suspended particulates	
μm	micron or microns	
V	volts	
VFD	variable frequency drive	
W	watt	
XRD	x-ray diffraction	
у	year	·

# **Appendices**

**Appendix A: Certificate of Author Forms** 



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#### **CERTIFICATE OF AUTHOR**

- I, Allan V. Moran, a Registered Geologist and a Certified Professional Geologist do hereby certify that:
- 1. I am a Principal Geologist of:

SRK Consulting (U.S.), Inc. 3275 W. Ina Rd. Tucson, Arizona, USA, 85741

- 2. I graduated with a Bachelors of Science Degree in Geological Engineering from the Colorado School of Mines, Golden, Colorado, USA; May 1970.
- 3. I am a Registered Geologist in the State of Oregon, USA, # G-313, and have been since 1978. I am a Certified Professional Geologist through membership in the American Institute of Professional Geologists, CPG 09565, and have been since 1995.
- 4. I have been employed as a geologist in the mining and mineral exploration business, continuously, for the past 39 years, since my graduation from university. My relevant experience for the purpose of the Technical Report is:
  - Vice President and U.S. Exploration Manager for Independence Mining Company, Reno, Nevada, 1990-1993:
  - Manager, Exploration North America for Cameco Gold Inc., 1998-2002;
  - Exploration Geologist for Freeport McMoRan Gold, 1980-1990;
  - Uranium exploration experience, as an exploration geologist, from 1975 to 1980 with Kerr McGee Resources, and Freeport Exploration; and as a geologist consultant from 2006 to 2010 with SRK Consulting (U.S.) Inc.;
  - Experience in the above positions working with and reviewing resource estimation methodologies, in concert with resource estimation geologists and engineers; and
  - As a consultant, I completed several NI 43-101 Technical reports, 2003 2010.
- 5. 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.
- I am responsible for the preparation of Sections 7, 8, 9, and 18.1.2 of the technical report titled NI 43-101
  Technical Report on Resources, Invicta Gold Project, Huaura Province, Peru, Effective Date of April 6,
  2012, and dated April 16, 2012 (the "Technical Report") relating to the Invicta Project. I did not visit the
  Invicta Project.

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- 7. I have not had prior involvement with the property that is the subject of the Technical Report.
- 8. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
- 11. As of April 6, 2012, to the best of my knowledge, information and belief, Sections 7, 8, 9, and 18.1.2 contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

, ,	
"Signed"	"Sealed" CPG - 09565
Allan V. Moran	<u> </u>

Dated this 16th Day of April, 2012



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#### **CERTIFICATE OF AUTHOR**

I, Ivo Vos, Ph.D., P.Geo. do hereby certify that:

1. I am Senior Consultant (Structural Geology) of:

SRK Consulting (Canada), Inc. 25 Adelaide Street East, Suite 2100 Toronto, ON, Canada, M5C 3A1

- 2. I graduated with a Master of Science degree in Geology from Utrecht University, The Netherlands in 2001. In addition, I obtained a Doctoral degree in Earth Sciences from Monash University, Australia in 2006.
- 3. I am a Practising Member of the Association of Professional Geoscientists of Ontario, APGO#1770 and have been since 2010. I am also a member of the Society of Economic Geologists since 2003 and the Society for Geologists Applied to Mineral Deposits since 2004.
- 4. I have been employed as a geologist in the mining and mineral exploration business, continuously, for the past 6 years. My relevant experience includes:
  - Exploration Geologist (Technical Specialist) for Resolute Mining Ltd, Tanzania, 2006-2008;
  - Gold (and other metal) exploration experience, as a consulting geologist, from 2009 through present as a senior consultant (structural geology) with SRK Consulting (Canada) Inc.;
- 5. 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.
- 6. I am responsible for the preparation of Sections 5, 6, 18.1.1 and 18.2.1 of the technical report titled, *NI* 43-101 Technical Report on Resources, *Invicta Gold Project*, *Huaura Province*, *Peru*, Effective Date of April 6, 2012, and dated April 16, 2012 (the "Technical Report") relating to the Invicta Project. I visited the Invicta Project from November 23 to 30, 2011.
- 7. I have not had prior involvement with the property that is the subject of the Technical Report.
- 8. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

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Tucson	520.544.3688				South America

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10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

11. As of April 6, 2012, to the best of my knowledge, information and belief, Sections 5, 6, 18.1.1 and 18.2.1 of the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this12 <sup>th</sup> Day of April, 2012.	
"Signed"	APGO#1770 [Sealed]
Ivo Vos, Ph.D., P.Geo.	



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#### **CERTIFICATE OF AUTHOR**

I, Jeffrey Volk, CPG, FAusIMM, MSc, do hereby certify that:

1. I am Principal Resource Geologist with:

I am Principal Resource Geologist with: SRK Consulting (U.S.), Inc. 7175 W. Jefferson Ave, Suite 3000 Denver, CO, USA, 80235

- 2. I graduated with a Master of Science degree in Structural Geology from the Washington State University in 1986. In addition, I have obtained a Bachelor of Arts degree in geology from the University of Vermont in 1983.
- 3. I am a fellow of the Society of Economic Geologists and a Certified Professional Geologist and member of the American Institute of Professional Geologists (AIPG). I am also a fellow and member of the Australian Institute of Mining and Metallurgy (FAusIMM).
- 4. I have 25 years of operational and consulting experience in the minerals industry, specifically in mineral resource estimation, production geology, feasibility studies and economic evaluations. Before joining SRK in 2007, he was employed for 19 years by Barrick Gold Corporation in a number of senior operational and development roles. I am knowledgeable in all aspects of public reserve/resource disclosure and compliance. I have completed resource modeling, due diligence, acquisition and evaluations assignments for precious and base metals, platinum group metals, laterite and uranium in Russia and the Former Soviet Union, Australia, Africa, Peru, Philippines, Mexico, Chile and North America
- 5. 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.
- 6. I am responsible for the preparation of Sections 10, 12, 16, 18.1.3, 18.1.4 and 18.2.2 technical report titled *NI 43-101 Technical Report on Resources, Invicta Gold Project, Huaura Province, Peru*, Effective Date of April 6, 2012, and dated April 16, 2012 (the "Technical Report") relating to the Invicta Project. I visited the Project on September 12 to 14, 2011. I visited the Invicta property on September 12 through the 14, 2011.
- 7. I have not had prior involvement with the property that is the subject of the Technical Report. .
- 8. I am independent of the issuer applying all of the tests in section 1.4 of National Instrument 43-101.

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9. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

- 10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
- 11. As of April 6, 2012, to the best of my knowledge, information and belief, Sections 10, 12, 16, 18.1.3, 18.1.4 and 18.2.2 of the Technical Report contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signed"	"Sealed"
Jeffrey Volk, CPG, FAusIMM, MSc	CPG#10835

Dated this 16th Day of April, 2012.



#### **CERTIFICATE OF AUTHOR**

- I, Deepak Malhotra, Ph.D., RM-SME, do hereby certify that:
- 1. I am Processing Engineer of:

Resource Development Inc. (RDi) 11475 W I-70 Frontage Road North Wheat Ridge, CO, 80033

- 2. I graduated with a degree in Master of Science in Metallurgical Engineering from Colorado School of Mines in 1973. In addition, I have obtained a PhD in Mineral Economics from Colorado School of Mines in 1977.
- 3. I am a Registered Member of SME. (Member #2006420)
- 4. I have worked as an Engineer for a total of 36 years since my graduation from university. My relevant experience includes managing projects in research, process development for new properties, plant troubleshooting, plant audits, detailed engineering, and overall business management for metallic/non-metallic minerals and precious metals.
- 5. 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.
- 6. I am responsible for the preparation of Sections 11, 17.2, 18.1.5 and 18.2.4 of the technical report titled NI 43-101 Technical Report on Resources, Invicta Gold Project, Huaura Province, Peru, with an Effective Date of April 6, 2012, and dated April 16, 2012, (the "Technical Report") relating to the Invicta Gold Project. I visited the Invicta property in April 2010 for 2 days.
- 7. I have had prior involvement with the property that is the subject of the Technical Report. I was the Metallurgy QP for the *Invicta Gold Project Optimized Feasibility Study*, by the Lokhorst Group, July 2010.
- 8. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
- 11. As of April 6, 2012, to the best of my knowledge, information and belief, Sections 11, 17.2, 18.1.5 and 18.2.4 of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this	12th Day	of April,	2012.
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"signed"	"sealed"
Deepak Malhotra	SME#2006420



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#### **CERTIFICATE OF AUTHOR**

- I, Terry Braun, M.S., P.E. (Colorado) do hereby certify that:
- 1. I am a Practice Leader with:

SRK Consulting (U.S.), Inc. 7175 W. Jefferson Ave, Suite 3000 Denver, CO, USA, 80235

- 2. I graduated with a degree in Civil Engineering from University of Colorado, Boulder in 1988. In addition, I have obtained a Masters of Science degree in Environmental Science and Engineering with the Colorado School of Mines in 1993.
- 3. I am a Professional Engineer (Civil), registered in the State of Colorado.
- 4. I have worked as an engineer for a total of 23 years since my graduation from university. My relevant experience includes various environmental permitting projects throughout the United States as well as detailed review and assessment of environmental aspects of projects outside of the U.S, including South America. I have also prepared and/or reviewed cost estimates for operations and closure of various in-situ extraction facilities and associated infrastructure.
- 5. 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.
- 6. I am responsible for the preparation of Section 15 of the technical report titled *NI 43-101 Technical Report on Resources, Invicta Gold Project, Huaura Province, Peru*, Effective Date April 6, 2012, and dated April 16, 2012 (the "Technical Report") relating to the Invicta property. I visited the property on October 14, 2010.
- 1. I have had prior involvement with the property that is the subject of the Technical Report. In December 2010, I assisted Andean American with review of a proposed closure program and cost estimate for a prior mine plan for the project.
- 2. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 3. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

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Tucson	520.544.3688				South America

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4. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

5. As of April 6, 2012, to the best of my knowledge, information and belief, Section 15 contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16 <sup>th</sup> Day of April 2012.		
"Signed"	"Sealed"	
Terry Braun, M.S., P.E.		



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#### **CERTIFICATE OF AUTHOR**

- I, Peter Clarke, B.Sc., MBA, P. Eng. do hereby certify that:
- 1. I am a Principal Mining Engineer of:

SRK Consulting (U.S.), Inc. 7175 W. Jefferson Ave, Suite 3000 Denver, CO, USA, 80235

- 2. I graduated with a B.Sc. degree in Mining Engineering granted by the University of Leeds in 1975 and an MBA granted by the University of Phoenix in 2002.
- 3. I am a registered member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia since 1982.
- 4. I have worked as a mining engineer for a total of 28 years since my graduation from university. experience as an open-pit mining engineer in mining operations and mine engineering consulting. Experience includes mining of precious metals, copper, lead, zinc, nickel, and industrial minerals in North America and overseas. I have an extensive background in open-pit mine design, planning, production scheduling, equipment selection and cost estimating. Studies conducted include property evaluations, scoping studies, feasibilities, mine planning optimizations, and due diligence.
- 5. 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.
- 6. I am responsible for the preparation of Sections 1 through 4, 13, 14, 17.1, 17.3, 18.2.3, 18.2.5, 18.2.6, 18.2.7 and 19, and report compilation for the technical report titled *NI 43-101 Technical Report on Resources, Invicta Gold Project, Huaura Province, Peru*, Effective Date of April 6, 2012, and dated April 16, 2012 (the "Technical Report") relating to the Invicta Project.
- 7. I have not had prior involvement with the Invicta property that is the subject of the Technical Report.
- 8. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
- 9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

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10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

11. As of April 6, 2012, to the best of my knowledge, information and belief, Sections 1 through 4, 13, 14, 17.1, 17.3, 18.2.3, 18.2.5, 18.2.6, 18.2.7 and 19 contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 16th Day of April, 2012.	
"Signed"	"Sealed"
Peter Clarke B Sc. MBA P Eng	P Fng Registration No : 13473

# Appendix B: Pangea and Invicta Drillhole Data

[Data not provided in this report version]