Cerro Jumil Project, Mexico

NI 43-101 Technical Report

Prepared for:
Esperanza Silver Corporation

Prepared by:

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1.0 SUMMARY

William D. Bond is the Vice President for Esperanza and is the Qualified Person under the requirements of National Instrument 43-101 (NI 43-101) responsible for all work completed on the Cerro Jumil property since its acquisition by Esperanza Silver de México, S.A. de C.V. (ESM), a wholly owned Esperanza subsidiary, on October 25, 2003. Dean D. Turner is an independent Qualified Person under the requirements of National Instrument 43-101 (NI 43-101) and is responsible for the Cerro Jumil mineral resource estimate.

At a 0.3 g/t gold equivalent cutoff, the independent gold-silver resource estimate reports 642,000 gold equivalent ounces in the measured and indicated categories, and 442,000 gold equivalent ounces in the inferred category (Table 1.1). The Cerro Jumil resource is currently delineated in three zones, named the Southeast, Las Calabazas and West Zones. Gold is hosted in all three zones, while silver is concentrated in the West and Las Calabazas Zones.

Table 1.1 Cerro Jumil Resources Reported at 0.3 g/t Gold Equivalent Cutoff

Category	Zone	Tonnes (000)	Au g/t	Ag g/t	Au Equiv g/t	Au oz (000)	Ag oz (000)	Au Equiv Oz (000)
Measured	SEZ	7,852	0.90	-	0.90	228	-	228
	LCZ & WZ	150	0.80	0.70	0.80	4	4	4
	Subtotal	8,003	0.90	0.01	0.90	232	4	232
Indicated	SEZ	12,434	0.82	-	0.82	329	-	329
	LCZ & WZ	2,791	0.85	5.3	0.91	76	476	81
	Subtotal	15,225	0.83	1.0	0.84	405	476	410
M & I	**Total**	23,227	0.85	0.6	0.86	636	479	642
Inferred	SEZ	3,885	0.86	-	0.86	107	-	107
	LCZ & WZ	11,925	0.71	15.83	0.88	271	6,068	334
	Total	15,810	0.74	11.94	0.87	378	6,068	442

The property, centered at 18°46’ N, 99°16’ W is located 80 kilometers south of Mexico City and 12 kilometers from Cuernavaca in the State of Morelos. The property is 3 kilometers from a paved road and is easily accessible year round.

The property consists of the La Esperanza (437 hectares), Esperanza II (1,270 hectares), Esperanza III (1,359 hectares), and Esperanza IV (1,338 hectares) mining concessions. Subject to the payment of taxes and work requirements, the concessions are valid until the anniversary dates in 2052, 2053, 2056 and 2058 respectively and can be renewed for an additional 50 year period if necessary. ESM signed an agreement with the owner, Recursos Cruz del Sur S.A. de C.V. (RCS) on October 25, 2003 whereby it can acquire a 100% ownership interest, subject to a 3% Net Smelter Return Royalty (NSR), by making payments totalling US $2,000,000, and issuing 170,000 shares over 5 years in addition to completing US $100,000 in expenditures in each of the initial 2 years. On October 2, 2006, ESM announced that it reached agreement with RCS to amend its existing agreement allowing for the early exercise of its option to complete the purchase of the Cerro Jumil property. Per the amended agreement, Esperanza paid CDN$417,375 in cash and issued 500,000 shares of the corporation to RCS. RCS will maintain a 3% net smelter return royalty on production from the property.

RCS investigated the region in 1993 and subsequently filed for and received an exploration concession covering the Cerro Jumil area in 1994. Rock chip sampling and geological mapping were carried out by RCS in 1994 and in late 1995 the property was optioned to Minera Teck S.A. de C.V (Teck). Teck continued with surface mapping, sampling, and completed airborne magnetic and radiometric surveys and a limited induced polarization and resistivity (IP) survey in 1996 and 1997 respectively. In 1998 Teck completed four diamond drill holes totalling 822 metres. Teck returned the property to RCS in late 1998.

In 2002, Geo Associados S.A. de C.V., a geophysical survey contractor, completed 20 kilometers of gradient time domain induced polarization and resitivity (GTDIPR) surveys for RCS in order to expand on the IP survey completed by Teck in 1996.

During 2004 through April 2006 ESM completed additional geological mapping and sampling programs identifying two primary gold skarn targets named the West and Southeast Zones. Concurrently, ESM completed 4,864 metres of core drilling including 1,369 and 3,495 metres in the West and Southeast Zones, respectively. Subsequent drilling programs during 2007 and 2008 included an additional 7,086 metres of core and 19,470 metres of reverse circulation drilling. Total core and reverse circulation drilling to date is 31,420 metres. All geological exploration on behalf of ESM has been completed by Resource GeoSciences de Mexico S.A. de C.V. (RGM), a geological services organization, under the supervision of Bond.

Work required for environmental reports and exploration permits have been contracted through Consultores Ambientales Asociados (CAA), an environmental and remediation consulting company.

Total expenditures are reported to be US $272,500 expended by Teck, US $94,000 expended by RCS and US $8,023,500 by ESM (as of June 2008).

The Cerro Jumil project is located within the Sierra Madre del Sur metallogenic province which is a NW-SE-trending orogenic belt 800 kilometers long. The property is located in a erosional window through Upper Tertiary and Quaternary rocks exposing the Morelos Platform rocks, a sequence of shallow marine sedimentary rocks deposited unconformably over the basement rocks consisting of high grade metamorphic phyllites and schists (Phanerozoic or early Jurrasic). These shallow marine sedimentary rocks are unconformably overlain by the Upper Tertiary to Quaternary Cuernavaca formation consisting of continental volcanic, volcaniclastic, and sedimentary rocks.

The oldest rocks exposed on the property are the Lower Cretaceous Xochicalo formation consisting of grey limestone, a unit in the Morelos Platform rocks. The surface exposure of a 500 by 900 metre multi-phase intrusive, dominated by porphyritic leucocratic granite, has intruded the limestone. Near the intrusive contact the limestone has been recrystallized into marble and varied mineral assemblages that may include tremolite, wollastonite, diopside, garnet, and other skarn minerals. Weak to intense silicification (jasperoids), retrograde alteration, and iron oxide replacement occurs locally within the skarn zone. Sporadic jasperoid outcrops are exposed along the intrusive contact defining the northeasterly trend of the skarn zone.

Gold mineralization is spatially related to the skarn zone where retrograde alteration resulted in the development of epidote, actinolite-tremolite, chlorite, calcite, clays, iron oxide replacement, and jasperoids at the expense of the primary skarn minerals and sulphides. Gold mineralization is best developed in the exoskarn where one or more mineralized zones tend to be sub parallel to the intrusive contact. Strong fracturing, faulting, and brecciation are associated with the zones of retrograde alteration and gold mineralization.

ESM has taken over 350 samples from pre-existing trenches, old dumps, and outcrop exposures in the area within and surrounding the intrusive at Cerro Jumil. Mapping has partially delineated two gold skarn zones referred to as the West and Southeast Zones that parallel the intrusive contact along its northwest and southeast contacts. The Las Calabazas Zone, which may be an extension of the West Zone towards the southwest although separated by a NW-SE trending structural break, has been partially defined by core drilling. Skarn outcrop exposures are difficult to follow due to overburden, vegetation, and locally well-developed caliche that covers much of the area. However, surface sampling and mapping have adequately defined the trend and location of the two mineralized zones allowing for an effectively designed and implemented drill program that has partially delineated the subsurface extent of gold mineralization. ESM has completed 31,420 metres of drilling in the West, Las Calabazas and Southeast Zones and as a result thereof has been able to trace these zones for 350, 550 and 650 metres of strike length, respectively. All three zones have variable drill-defined thicknesses of gold mineralization ranging from 3 metres to over 100 metres true thickness. In the mineralized zones, gold grades typically range between 0.1 and 5 g/t although local variability can be significant as noted in DHE-06-28 where sample numbers 673501 and 672525 returned gold values of 127.0 and 53.1 g/t, respectively, over 1-meter intervals.

Initial metallurgical testing, including bottle roll and column leach tests, returned satisfactory results indicating that gold could be recovered using standard heap leach techniques. Bottle rolls were completed on samples from both the West and Southeast Zones with gold extraction rates varying from 88 to 96%. One column leach test was done on a composite from the Southeast Zone and results for 1" minus material indicate 72% and 67% extraction rates for gold and silver respectively over a 61 day leach period.

ESM has implemented stringent quality control measures that have confirmed that sampling, sample preparation, sample security and analytical methods have met industry standards.

Positive results from the completed work justify continued exploration to delineate the extent and grade of gold mineralization in the West, Las Calabazas and Southeast Zones at Cerro Jumil. Therefore, it is recommended that a combination of core and reverse circulation (RC) drilling be implemented in order to define the extent and grade of the mineralization. The recommended drill program includes 15,000 metres of combined core and RC drilling. The objective of this program would be to obtain adequately spaced data that could be utilized for an updated resource estimate and economic assessment. The proposed budget to complete this work would be approximately US$3,305,000. Additional drilling, permitting, environmental, metallurgical, and engineering studies would likely be justified in order to gather the required data needed to complete a feasibility analysis for the Cerro Jumil deposit.

2.0 INTRODUCTION AND TERMS OF REFERENCE

William D. Bond, Vice President of Esperanza Silver Corporation and Qualified Person for the Cerro Jumil project, and Dean D. Turner an independent QP and consulting geologist, completed this Technical Report to meet the requirements of National Instrument 43-101 (NI 43-101) on the Cerro Jumil Property in Mexico. This report conforms to Form 43-101F1 for technical reports.

William D. Bond, P.Geo. (Bond) visited the property numerous times (over 300 day's total) from October 2003 until present and is responsible for the supervision of all exploration activities completed by ESM. During this period, extensive geological mapping, sampling outcrops and trenches, and three phases of drilling, totalling 31,400 metres, were completed. Previous exploration work by Teck and RCS have been reviewed and integrated into the current geologic database where appropriate. Data integrity has been verified utilizing various quality assurance and control programs. Bond reviewed available company reports and discussions were held with RCS staff, regarding the geology and previous exploration programs completed on the property.

Dean Turner, P. Geo. is an independent Qualified Person as defined by National Instrument 43-101. He is responsible for the Cerro Jumil resource estimate and independent data verification. He visited the property on January 16 and 17, 2008.

Metric units have been used throughout this report. Tonnages are metric tonnes and precious metals (gold and silver) are recorded as grams per metric tonne (g/t) or parts per million (ppm). Base metals (copper, lead and zinc) are in weight percent. All other references to geochemical analysis of rocks and stream sediments are recorded as parts per million (ppm) for silver, lead, zinc, copper and parts per billion (ppb) for gold. Currency is Canadian dollars unless noted as US$, United State dollars, or MP$, Mexican Pesos.

3.0 DISCLAIMER

In preparing this report, the authors partially relied on reports, maps, drill logs, and technical papers that are listed in Section 19, References, of this report. A major international mining company (Teck) whose work is considered reliable carried out most of the work prior to ESM's acquisition of the property. The authors reviewed previous data and believe the information to be valid.

The description of the property is for general orientation purposes only.

This report, of necessity, makes use of information originated by geologists and personnel in the employ of previous operators on the Cerro Jumil property. The author has visited the property many times and supervised much of the work for Esperanza and verified that the geology as seen in the field is consistent with the geology described herein. Sources of information are acknowledged throughout the text where the information is used.

Section 4.0 of this report contains information relating to mineral titles, permitting, regulatory matters and legal agreements. While the co-author Bond is generally knowledgeable concerning these issues in the context of the mineral industry, he is not a legal or regulatory professional. Where appropriate within the report, citations are made to information obtained from other experts, with the full reference given in Section 19.0. In particular, the author has relied on land and title information from the Secretaria de Economia, Estados Unidos Mexicanos, whom is responsible for registering the mining concessions. The information in the report concerning these matters is provided as required by Form 43-101F1 but is not a professional opinion of the author. In addition, Bond relied on Consultores Ambientales Asociados for an assessment of the environmental and permitting aspects of the project. The individuals and documents that the author consulted in compiling that information are identified in the appropriate Sections where their information is used.

4.0 PROPERTY DESCRIPTION AND LOCATION

The property, centred at 18°46'N, 99°16'W, is located 80 kilometers south of Mexico City, and 12 kilometers southwest from Cuernavaca in the State of Morelos (Figure 4.1).

Figure 4.1 Cerro Jumil Location Map

The property consists of the La Esperanza (437 hectares), Esperanza II (1,270 hectares) Esperanza III (1,359 hectares) and Esperanza IV (1338 hectares) mining concessions (Figure 4.2).

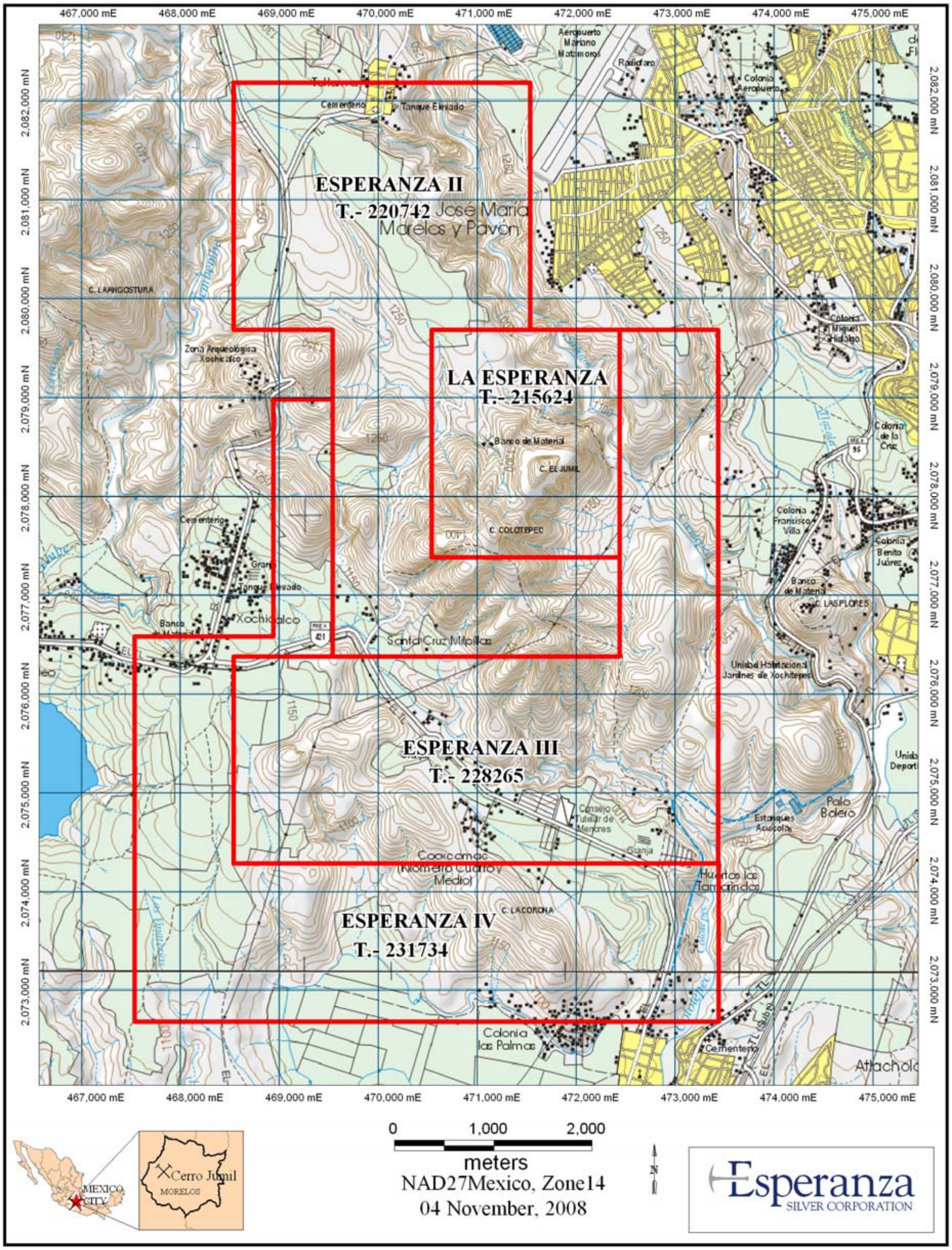


Figure 4.2 Cerro Jumil Mining Concessions

The mining concessions are subject to the payment of taxes, nominal work requirements, and are effective until the anniversary date in 2052, 2053, 2056 and 2058 respectively (Table 4.1). According to existing mining law, these mining concessions can be renewed for a further 50 years. Concession taxes have been paid up to January 2008 and sufficient assessment work has been done to hold the concessions for several years. The taxes are due and payable in January and July each year. Taxes paid for the four concessions in 2008 totaled MP$82,568.00 (~$US8,200.00).

Table 4.1 Cerro Jumil Mining Concessions

Mining Concession	Title No.	Area (Hectares)	Title Validity	
			Issued	Expires
Esperanza	215624	437	5 March 2002	4 March 2052
Esperanza II	220742	1,270	30 September 2003	29 September 2053
Esperanza III	228265	1,359	20 October 2006	19 October 2056
Esperanza IV	231734	1,338	15 April 2008	14 April 2058

The Esperanza and Esperanza II mining concessions were owned by RCS a Mexican corporation when ESM entered into an option agreement, October 25, 2003, whereby it could acquire a 100% ownership interest subject to a 3% Net Smelter Return Royalty (NSR) by making payments totalling US $105,000, issuing 170,000 shares over 4 years with a balloon payment of US $1,895,000 due on the 5th anniversary of the agreement and completing US $100,000 in expenditures in each of the initial two years. On October 2, 2006 ESM announced that it reached agreement with RCS to amend its existing agreement allowing for the early exercise of its option to complete the purchase of the Cerro Jumil property. Per the amended agreement Esperanza paid CDN$417,375 in cash and issued 500,000 shares of the corporation to RCS to finalize the purchase of the Cerro Jumil property. RCS will maintain a 3% net smelter return royalty on production from the property.

The community of Tetlama owns the surface rights as both individual ownership lots and common lots. An agreement has been signed (September, 2008) with the community which allows ESM to carry out physical work on the land in the Cerro Jumil area for a period of 3 years. There are no residences on the concessions in the area project work is being undertaken. A small area of the land, just west of the project area, is agricultural and used to raise crops such as peanuts, tomatoes, corn and agave (Plate4.1). Local grassy areas are also used for grazing cattle, horses and goats (Plate 4.2).

Plate 4.1 Local Crops at Cerro Jumil

Plate 4.2 Grazing Cattle at Cerro Jumil

The area where all exploration has been undertaken includes moderate to rugged terrain consisting of small trees and locally dense vegetation. ACC compiled environmental impact data that was used for changing the land use status to mining. The UN conducted a site inventory of possible archaeological artefacts in the 1960's and identified ruins on the top of Cerro El Jumil. This small area currently has restrictions for new road construction applied to it as determined by the Instituto Nacional de Antropologia e Historia (INAH) although the restrictions do not significantly impede exploration work in the immediate area. The mining concessions are located east of the Xochicalo archaeological site.

Permits to carry out work programs are issued by the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT). Three separate permits have been issued for drill programs including one by Teck in September 1997 and two by ESM during July 2004 and November 2005. Previous permits issued have expired and a new exploration permit will be required to continue drilling. The permitting process had taken about 3 months and it is anticipated that future required permits can be obtained in similar time frames.

There are three abandoned sanitary landfill sites on the property that were used by the city of Cuernavaca and surrounding communities. Two landfill sites has been reclaimed, capped and abandoned for several years and the other site is currently being reclaimed. ACC noted several environmental problems regarding local contamination from the landfill areas including oil seepage and frequent fire hazards (subsurface spontaneous combustion) associated with the older of the three landfill areas. Local municipalities responsible for the landfill areas assume the responsibility for reclamation and subsequent environmental complications. There are no other known potential environmental liabilities.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access to the property is by paved road to 7 kilometers north of Alpuyeca along Morelos Highway 55 to where a dirt road turns off to the landfill, and then continues 2.75 kilometers onto the property. The road is passable year round by 2-wheel drive vehicles.

Climatic conditions are temperate and conducive to working the project throughout the year. There is a rainy season that extends from June to September which can create difficult access on unimproved roads. Vegetation in the form of small shrubs and trees can locally become dense during the rainy season although they are greatly diminished during the remainder of the year as the area dries out.

Infrastructure including major highways, communication services, transportation, and electricity are easily accessible. Cuernavaca has a large airport and Mexico City, the major hub for international flights in Mexico, is within a two-hour drive. Agriculture, tourism, and numerous industrial enterprises support the local economy. Workers are available at the village of Tetlama, with a population of appromimately 1000, and in Cuernavaca a city of over 1 million people which can provide most supplies and services that might be required.

Topography is moderately rugged, varying from 1,100 to 1,450 metres elevation.

6.0 HISTORY

There are several inaccessible shafts, adits, and prospect pits on the property of unknown age (Plate 6.1 and Plate 6.2). A small operation is believed to have operated in the 1970's in several adits developed on narrow high-grade silver-bearing quartz veins hosted within the intrusive. Several older exploration pits and shafts were developed in the skarn zone along the western contact of the intrusive, which may have been related to the 1970's operation. Total mining production was insignificant.

RCS carried out reconnaissance geology in 1993 and acquired an exploration concession over the area in 1994. Rock chip sampling and geological mapping were carried out in 1994 and

Plate 6.1 Old Shafts and Trenches

Plate 6.2 Adit on Narrow Structures

in late 1995 the property was optioned to Teck. Teck continued exploration work with additional surface mapping, rock chip sampling, trenching, airborne magnetic and radiometric surveys, and a limited induced polarization survey in 1996.

Terraquest Ltd., carried out the airborne survey for Teck in 1996 using a helicopter-borne high-sensitivity magnetometer and gamma-ray spectrometer survey at a nominal 100-metre terrain clearance and 100-metre line spacing. The results have not been seen by the author although it is reported (Kearvell, 1996), that the magnetic signature is relatively flat. The radiometric survey was useful in outlining the various lithological units.

Teck cleaned and sampled pre-existing trenches in addition to excavating four new trenches, in an area of skarn alteration related to the western contact of the intrusive. Teck took a total of 184 grab and channel samples.

Teck also contracted and completed a gradient time domain induced polarization and resistivity survey, completed by Quantec, in 1997 that covered the southern intrusive contact zone with five lines spaced 150-metres apart. Readings were taken at 25-metre intervals. Transmitter dipole spacing was 850 to 1,700 metres with later detail at 200 to 1,300 metres. Results were plotted on plan maps and stacked gradient cross sections. The work is considered reliable and indicates several geophysical anamolies.

In 1998 Teck completed four diamond drill holes, totalling 822 metres, that where directed at several of the geophysical targets. Results of the drilling are discussed in Section 11. Teck returned the property to RCS in 1998.

Prior to the expiry date of the exploration concession in 2000, RCS applied for an exploitation concession that was granted on March 5, 2002. Since that time, the mining laws have changed and all concessions are now considered “mining concessions” with an expiry date of 50 years.

RCS continued to advance the property with another surface geochemical sampling program in 2002. RCS collected a total of 118 samples from outcrop and float material during the 1994 and 2002 campaigns in conjunction with geological mapping.

In 2002 Geo Associados S.A. de C.V. completed 20 kilometers of gradient time domain induced polarization and Resitivity for RCS. The survey extended the previous Quantec survey to the north and south The 1997 survey indicated that the interpreted anomalies are at a depth of 200-300 metres and the 2002 survey was designed to look at similar depths.

ESM signed an agreement with the owner of the property RCS on October 25, 2003 whereby it could acquire a 100 percent ownership interest, subject to a 3% NSR Royalty. Subsequently, during 2004 through April 2006 ESM completed additional geological mapping and sampling programs identifying two primary gold skarn targets named the West and Southeast Zones. Subsequently, ESM completed 31,400 metres of both core and RC drilling directed at evaluating the western and eastern contacts of the intrusive where skarn development and gold mineralization occurs.

Total expenditures are reported to be US $272,500 expended by Teck, US $94,000 expended by RCS and US $8,023,500 by ESM (as of June 2008).

7.0 GEOLOGICAL SETTING

7.1 REGIONAL GEOLOGY

The Cerro Jumil project is located within the Sierra Madre del Sur metallogenic province, which is a NW-SE-trending orogenic belt 800 kilometers long. The belt consists of a basement of high-grade metamorphic phyllites and schists of Phanerozoic age. In the property area, the schists are part of the Taxco Schists. The Jurassic to Cretaceous Morelos-Guerrero Platform, a sequence of shallow marine sediments have been deposited unconformably over the basement rocks and are overlain by a package of volcanic, volcaniclastic, and continental sedimentary rocks. From the late Cretaceous to Early Tertiary, compressional tectonics deformed the sediments of the Morelos-Guerrero Platform into a fold series with northwesterly trending fold axes. Extensive normal or block faulting occurred during the Eocene-Oligocene. Erosion and uplift continued accompanied by the deposition of continental redbed sedimentary rocks and contemporaneous basalt flows.

The late Eocene through the Pliocene was a period of extensive volcanism with the deposition of rhyolite and ignimbrite. Granodioritic to monzonitic intrusions related with the volcanism are associated with the skarn deposits.

The Upper Tertiary to Quaternary time is marked by the deposition of the Cuernavaca continental clastic sedimentary rocks deposited into tectonic trenches formed by the onset of the east-west volcanic belt. The entire stratigraphic package is currently undergoing uplift and erosion and a thin colluvial cover is present over most of the district.

7.2 LOCAL AND PROPERTY GEOLOGY

The Cero Jumil project is located in an erosional window through which the Morelos Platform rocks are exposed. The oldest rocks seen on the property are the Lower Cretaceous Xochicalco formation consisting of medium to thick-bedded, locally finely laminated, grey to dark grey limestone. A 500 by 900 metre multi-phase intrusive, primarily composed of feldspar porphyry with plagioclase phenocrysts and equi-granular granite with >25% k-feldspar, has intruded the limestone. Temporally related quartz porphyry and andesitic or micro-diorite dikes have been identified within the intrusive and near the contact boundaries. The intrusive stock is probably of Tertiary age although has not been dated. Unconformably overlying the intrusive and Cretaceous rocks is the Cuernavaca Formation, which locally consists of continental volcanic, volcaniclastic, and sedimentary rocks. A geological map for the Cerro Jumil area is shown in Figure 7.1.

The Lower Cretaceous Xochicalco formation limestone is relatively fresh or unaltered when observed several hundred metres from the intrusive contact. Approaching the contact the limestone becomes more altered and typically reflects the following progression; 1) coarser grained (recrystallized) grey limestone often containing interbeds of fine to medium-grained marble as seen in Plate 7.3, 2) medium- to coarse-grained white marble (locally brecciated), 3) near or at the contact pyroxene (±garnet) wollastonite (±garnet) and/or tremolite/actinolite

(±garnet) can be well developed, and 4) below the skarn zone, within the intrusive, there is pervasive alteration (clays) of feldspars near the contact that diminishes rapidly deeper into the intrusive. This typical zonation from fresh limestone to various stages of skarn development is common although the width of each altered zone may be quite variable as noted in several drill holes and in outcrops (Plate 7.1 and 7.2). The width, extent, and type of skarn development are dependent on the composition of the intruded rocks, local intrusive temperature and related metasomatism. In the southwest area of the project, near Cerro Las Calabazas, skarn development containing an abundance of wollastonite is much more extensive than observed in the northeast area around Cerro Jumil.

Plate 7.1 Skarn with Ferruginous Jasperoid

Plate 7.2 Skarn with Jasperoid and Clay

Plate 7.3 Limestone and Marble Outcrop

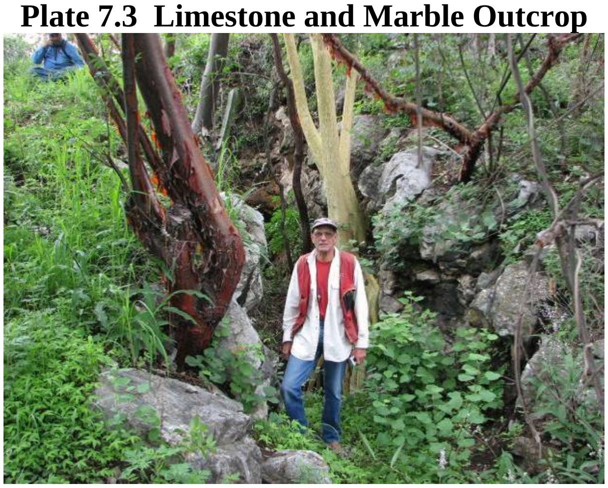


Plate 7.4 Post Mineral Breccia

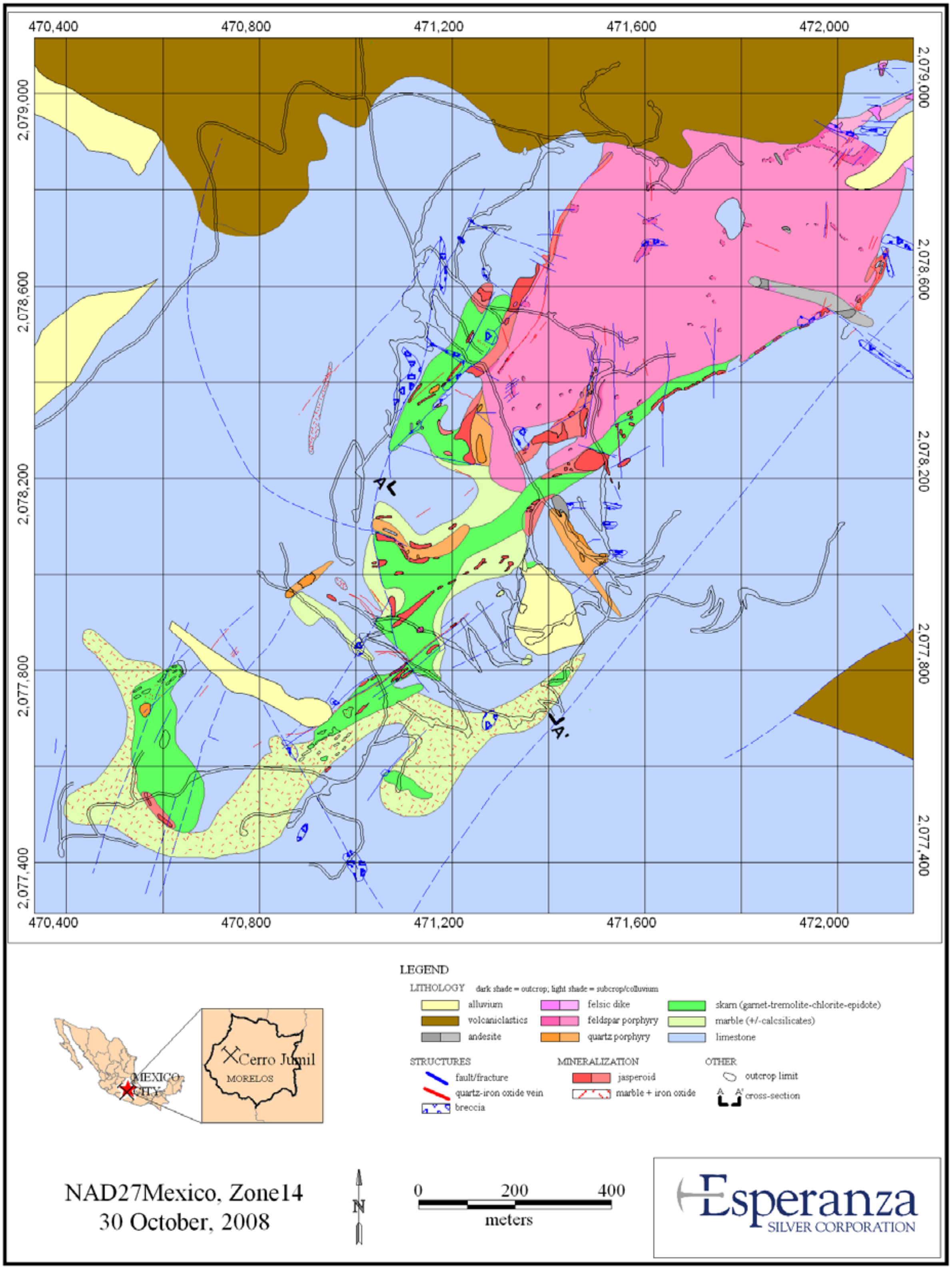


Figure 7.1 Cerro Jumil Geology Map

Skarn zones vary in width from a few metres to over 100 metres as noted in drill hole intercepts. Both endoskarn and exoskarn occur although exoskarn assemblages tend to be more extensively developed. The Cerro Jumil project uses the following simplified nomenclature for identifying the various skarn or alteration assembleges;

- Marble Skarn: medium to coarse-grained marble with minor garnet-tremolite/actinolite-epidote-chlorite in bands or veinlets.
- Endoskarn: intrusive rocks with strong alteration consisting of clay, epidote, ±chlorite and rarely calc-silicate minerals.
- Exoskarn: medium- to coarse-grained marble with locally well developed tremolite-actinolite-wollastonite-pyroxene-clay, ±garnet, ±epidote, ±chlorite.

Brecciated zones within the skarn consisting of angular to subangular fragments from 5 millimeters to greater than 5 centimeters are common. The breccia occurs near the intrusive contact or along spatially related fault or fracture zones (Plate 7.4). Outcrops are sporadic but geological mapping clearly shows the skarn zones, along the north western and south eastern contacts with the intrusive, are continuous for at least one kilometre.

Jasperoid, hematite-rich red low-temperature silica, is exposed on the surface near the intrusive contact and along faults and fractured zones. It occurs as a fine-grained to amorphous siliceous rock, siliceous limestone, silicified marble skarn, and as siliceous bands along fractures or within limestone beds. The jasperoids are often ferruginous and can contain anomalous gold values. The surface expression of the jasperoid is discontinuous but can be traced intermittently for over one kilometre. Local outcrops can be over 30-metres wide although subsurface intersections in drill core are rarely more than five-metres long. The jasperoids are probably spatially related to the main gold skarn horizon and is interpreted to be best developed at or near surface or at the top of the main gold skarn zones where boiling and silica precipitation occurred. Structural zones strongly influence the location and extent of the jasperoidal outcrops.

Northeast-trending structural lineaments are easily identified on satellite imagery. Both the West and Southeast gold-skarn zones are aligned along this trend which is coincident with the intrusive contact. Geological mapping has identified three other structural trends including north, northwest, and east-west fracture/fault systems. The jasperoids tend to be localized along faults and fractures related to the northeast-, northwest- and north-trending structural lineaments and develop the greatest widths where structural intersections occur. The east-west structures appear to be post mineral and are often associated with brecciated zones that are unmineralized. Towards the northeast of Cerro Jumil is a northwest-trending fault with a fresh micro-diorite/andesite dike within it which may imply that the northwest fracture system was reactivated after the primary period of mineralization. There also appears to be several minor offsets related to this system across jasperoid and skarn zones. The structural system and its relationship to gold mineralization are not clear because of the early stage of exploration although the strong correlation between the gold skarn zones and the northeasterly trending structures is obvious.

Caliche is locally well developed on the property obtaining thicknesses of up to three metres and often covers the local rock units making geological mapping and interpretations challenging.

8.0 DEPOSIT TYPES

Cerro Jumil is, in general terms, referred to as a gold enriched skarn deposit that developed in contact aureoles between the feldspar porphyry intrusive and limestone host rocks. Hydrothermal and metasomatic activity developed both endoskarn and exoskarn mineral assemblages. Both prograde and retrograde alteration is recognized, and gold appears to be temporally related to the late stage of the prograde process and the onset of retrograde alteration. The zone of gold mineralization occurs in oxidized zones, although sulphide minerals are rarely present in some intervals of the core (1-15% pyrite-pyrhotite-<sphalerite-<chalcopyrite-arsenopyrite>). It is estimated that over 99% of the original sulphide minerals are oxidized, creating locally abundant hematite, goethite, and other iron oxide alteration products. Exploration to date has identified one gold skarn zone along the southeast intrusive contact (Southeast Zone) and two along the northwest contact (West and Las Calabazas Zones).

Within the intrusive rock and near its contact, several narrow, less than one meter and generally 5-10 centimeters in width, quartz veins were previously exploited, presumably for silver. Local high-grade samples exceeding 500 g Ag/t were obtained over widths of several metres in surface outcrops. The quartz veins generally occupy north to northeast-trending fault zones. Drill core analytical results beneath several of these high-grade silver occurrences indicates significantly lower values, generally ranging from 10 to 60 g Ag/t, in the subsurface implying that the higher-grade values at or near the surface resulted from supergene enrichment.

9.0 MINERALIZATION

Primary mineralization consists of gold, and to a lesser extent silver, associated with the skarn zones spatially related to the intrusive. The skarn is well exposed on the south and west sides of the intrusive but is inconspicuous in other areas where it is covered by the younger Cuernavaca Formation or caliche. Based on the abundance of altered and mineralized float, the skarn may be present at shallow depths below the rock cover. Areas where crosscutting structures, north and/or northwest trending, intersect the primary northeast faults tend to produce dilated zones of gold mineralization.

Gold values are often associated with jasperoid that occurs along fractures, in veins, and narrow lenses within the limestone or marble. Jasperoid outcrops from 1 to greater than 30 metres in thickness have been mapped, although core intercepts generally show that much narrower zones, less than 5 metres, generally exist. Gold assays in jasperoids have produced grades greater than 12 g/t but not all jasperoid contains appreciable gold values, although they are generally strongly anomalous (>100 ppb). The greater thicknesses of jasperoid observed at the surface, versus what is found in drill core, may indicate that the more pervasive silica flooding represents the top of the hydrothermal system.

Prograde alteration is noted by the development of pyroxene minerals, wollastonite, and garnet. The width of gold skarn mineralization is directly related to the extent of prograde alteration and is controlled by the pre-mineral faults and fractures that acted as conduits for the hydrothermal system responsible for mineralization. Some of the greater thicknesses and highest grades of gold are observed in zones of extensive prograde alteration, with minor retrograde alteration, including; DHE-05-01 with 36.3 metres at 2.2 g Au/t, DHE-06-18 with 29.6 metres at 2.08 g Au/t, and DHE-06-22 with 32 metres at 1.57 g Au/t. Numerous individual samples, greater than 10g Au/t, also show strong prograde alteration as in DHE-06-28, where two separate one meter long samples returned values of 127 g Au/t and 53.1g Au/t. Gold mineralization probably occurred during the later stages of prograde metasomatism, although locally there is a strong over printing of retrograde alteration. Retrograde alteration resulted in the development of actinolite-tremolite, epidote, iron oxides, calcite, clay, and quartz. Retrograde minerals observed in the gold skarn zone may imply the gold mineralization is related to retrograde alteration. More research is required to determine if the gold mineralization is preferentially associated with the prograde or retrograde process.

Intense argillic and/or potassic alteration (clays) and epidote development is common within the intrusive near the skarn contact. Although locally anomalous gold may be associated with this zone, the values are generally less than 0.5 g Au/t and thus far appear to be of little economic importance.

A representative cross section, located as A-A’ on Figure 7.1, is shown in Figure 9.1.

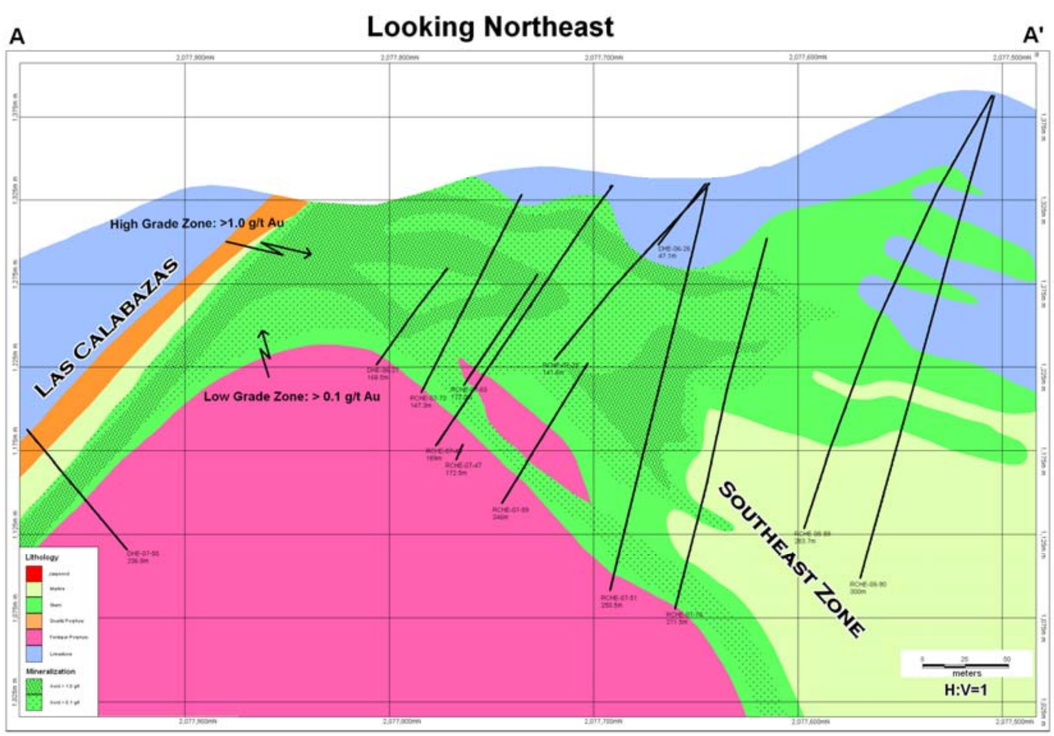


Figure 9.1 Cross Section A-A’ Showing Geology and Mineralization

10.0 EXPLORATION

10.1 EXPLORATION PRIOR TO 2003

Previous to Esperanza’s involvement exploration at Cerro Jumil has included geological mapping, geochemical sampling, geophysical surveys, and a limited drill program.

Over 300 surface samples were collected by RCS and Teck including select rock chip, channel, and random grab samples. Geochemical results indicated that silver and gold are the elements of primary exploration importance.

Teck contracted with Terraquest Ltd., in 1996, to undertake a high resolution aeromagnetic and radiometric survey. The results were determined to be of limited use in identifying specific exploration targets.

During 1997, an induced polarization and resistivity survey was completed by Quantec, a geophysical survey contractor, over the southern area of the intrusive/limestone contact, on behalf of Teck. The results indicated anomalous chargeability's in areas where the contact is assumed to be beneath the overburden in this area. The identification of several IP and resistivity anomalies was partially used to design and implement a four-hole drill program to test select targets by Teck.

During 1998 Teck drilled four diamond drill holes totalling 822 metres. The drill holes were designed to test chargeability anomalies identified in the 1997 IP survey. Two holes (BDE-98-1 and -2) drilled granitic rocks for their entire length and did not return any significant geochemical values. Another hole was abandoned (BDE-98-4) due to poor drilling conditions and therefore did not reach its intended target. One hole (BDE-98-3) did penetrate the limestone and intrusive contact where skarn, over a 23-meter intercept length, was observed. Values up to 25.8 ppm silver and 760 ppb gold were obtained from the down-hole intervals 161.8-162.2 and 162.2-165.0, respectively.

In late 2002, RCS contracted with independent geophysicist Geo Asociados S.A. de C.V. to expand the IP and resistivity grid. As a result of the geophysical work completed a total of six areas of interest were identified.

10.2 ESM EXPLORATION SINCE 2003 ACQUISITION

During the period from late October 2003 up to May 2008 ESM completed detailed mapping and sampling in the Cerro Jumil area, constructed access roads and over 30 drill sites, and completed 31,420 metres of core and RC drilling. A localized soil geochemical survey was also completed. All geological work at Cerro Jumil was performed by RGM under the direct supervision of Bond.

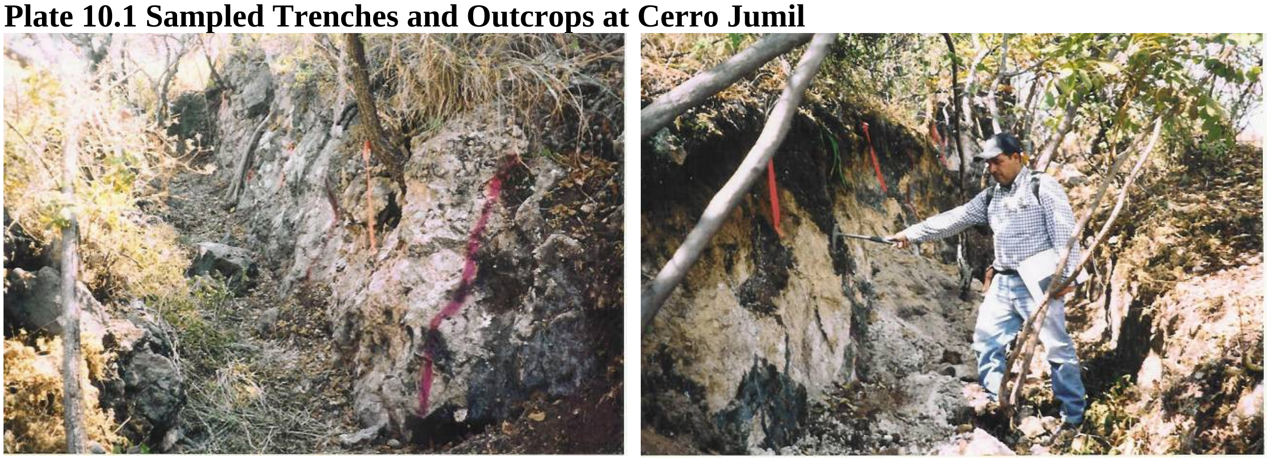
10.2.1 Geological Mapping and Outcrop Sampling

Over 350 samples have been taken from pre-existing trenches (Plate 10.1), old dumps, and outcrop exposures in the area within and surrounding the intrusive at Cerro Jumil as shown in Figure 10.1.

Mapping partially delineated two gold skarn zones referred to as the West and Southeast Zones that parallel the intrusive contact along its northwest and southeast contacts. Mineralized rocks identified include skarn development associated with marble, and jasperoids which tend to be more resistive to weathering processes. However, as seen in drill intercepts the bulk of gold mineralization occurs within prograde and retrograde altered skarns consisting of pyroxene, wollastonite, actinolite/tremolite, garnet, with epidote, calcite, and clay alteration products that tend to be weathered easily and are generally not observed in surface exposures. Resistant outcrops of jasperoids tend to be the best indicator of subsurface gold skarn mineralization, although not all jasperoids contain appreciable amounts of gold.

The West Zone surface exposure is visually unremarkable with only a few jasperoid or marble outcrops that returned anomalous gold values. Conversely, drilling has shown that this zone is continuous for over 300 metres with gold values displaying good continuity along strike. Mapping and drill results indicate that the West Zone is open along strike and at depth.

Plate 10.1 Sampled Trenches and Outcrops at Cerro Jumil



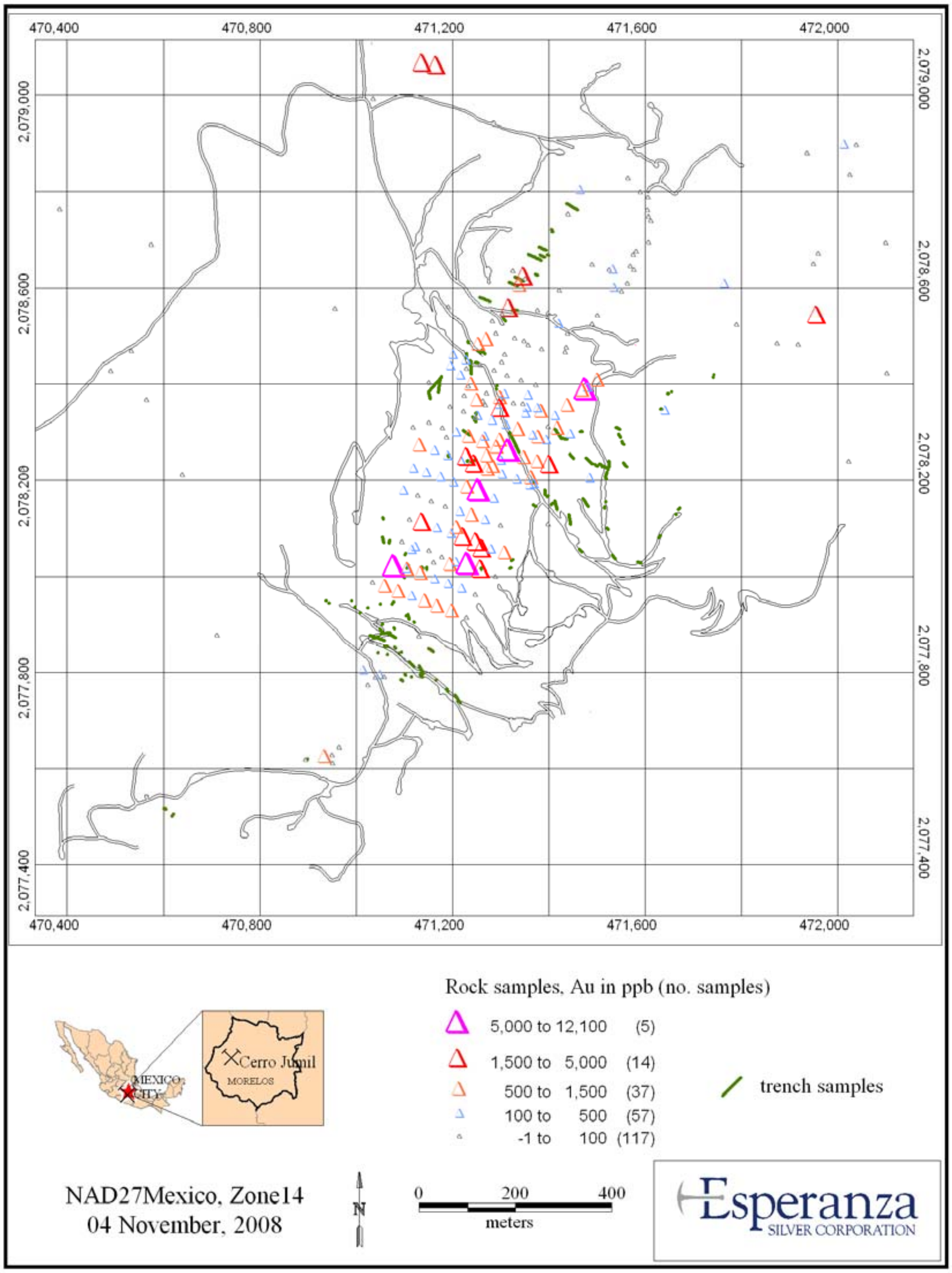


Figure 10.1 Rock sample gold geochemistry and location map.

The Southeast Zone tends to have appreciable jasperoid development at the surface in its northern area, and tremolite-actinolite/wollastonite ±garnet skarn development with lesser jasperoid towards the southwest, allowing for better definition of the zone via geological mapping relative to the West Zone. However, caliche development, exceeding several metres in thickness, obscures the possible extension of this zone along strike towards the southwest. Total strike length of the Southeast Zone indicated by geologic mapping is over 1 kilometer. Drilling to date has partially delineated 650 metres along strike of this zone.

Several veins within the intrusive located just east, approximately 150-200 metres, of the West Zone contact were mapped and sampled. Much of the area is covered with alluvium although locally narrow 0.3 to 1.5 meter vein widths are exposed. Towards the northeastern end of the identified vein system there are several short adits that exploited an assumed high-grade ore shoot by a small stope. Sample results for silver, summarized in Table 10.1, have locally high-grade values over appreciable widths. Although the higher-grade silver values tend to be associated with the quartz vein material, there is also significant silver content in both the hanging and footwall host rocks.

Table 10.1 Quartz Vein and Related Samples in Intrusive

Sample	Width (metres)	Silver ppm	Description
SE-197	0.80	948.0	Qz vein w/ fresh and oxide
SE-198	2.00	182.0	altered porphyry, FW to vein
SE-199	1.70	220.0	altered porphyry, HW to vein
SE-200	chips	53.5	dump sample, qtz vn
SE-201	0.60	327.0	qtz vn w/ oxidation & sulphides
SE-212	0.40	453.0	Qtz vein, granite host rock, N5E, 80
SE-213	0.60	42.4	Qtz vein, granite host rock, N8E, 78
SE-214	0.30	130.0	Qtz vein, granite host rock, N8E, 75
SE-215	0.30	65.1	Qtz vein, granite host rock, N12E,
SE-216	0.50	202.0	Qtz vein, granite host rock, N16E,
SE-217	0.40	495.0	Qtz vein, granite host rock, N30E,
SE-218	1.00	158.0	HW of vein sample SE-217
SE-219	1.20	16.8	FW of vein sample SE-217
SE-220	0.80	27.3	Qtz vein, granite host rock, N35E,
SE-221	0.45	11.6	Qtz vn, sub parallel stringer to main
SE-222	0.45	21.8	Qtz vein, granite host rock, N30E,
SE-223	0.35	22.4	qz vein, host rock granite
SE-224	1.20	7.5	milky qtz vein milky, strike N8W, 65
SE-225	1.50	8.4	qtz vein, same strike
SE-226	1.50	30.5	Hanging wall to vein of sample SE-
SE-227	1.80	34.1	qz vein / stockwork veinlets

Gold values tend to be consistently low (<0.4 ppm) in quartz vein samples relative to those noted in the jasperoid and skarn geochemical analyses. The cross cutting relationship of these quartz veins relative to marble skarn development and some jasperoid zones imply that silver may represent a later-stage of mineralization than that associated with the gold.

10.2.2 Soil Geochemical Survey

Along the northwestern flank of Cerro Jumil an area containing local auriferous jasperoid float exists. The jasperoid is randomly distributed and is often incorporated in the caliche. Two jasperoid samples, which were taken from this area by RCS returned 4.5 and 1.6 g Au/t and were strongly anomalous in Ag, Cu, Zn, As, and Sb. A geophysical resistivity high was delineated in this same area during 1997 when Quantec carried out a gradient time domain induced polarization and resistivity survey on behalf of Teck. Based on geochemical results, geological mapping, and the resistivity anomaly it is believed that there is potential for a buried mineralized gold skarn deposit in this area and a geochemical soil survey was initiated to better define the target area. A total of 15 hectares was covered by a soil survey grid consisting of 4 lines oriented N55^{o}W perpendicular to the inferred intrusive-limestone contact. Lines were spaced at 100-meter intervals and each line is 500 metres long with samples collected every 25 metres. A total of 84 samples were taken. Both silver (Figure 10.3) and gold (Figure 10.2) geochemical results show similar patterns with elevated values in the southeastern area of the soil grid. Sample distribution based on a range of values is shown in Table 10.2.

Table 10.2 Range in Soil Geochemistry for Silver and Gold

Silver		Gold	
Ag ppm range	No. Samples	Au ppm range	No. Samples
0.75 to 1.0	1	0.05 to 0.073	2
0.5 to 0.75	11	0.025 to 0.05	4
0.25 to 0.5	12	0.015 to 0.025	3
0 to 0.25	60	0 to 0.015	75

The silver and gold geochemical anomalies are coincident with a resistivity high defined by the Quantec 1997 geophysical program at a depth from 70 to greater than 200 metres with a steep easterly dip. It is believed that the geochemical survey has given added support for the possibility of a mineralized gold skarn zone at depth. Further evaluation of this area will be required before determining if it is a viable target.

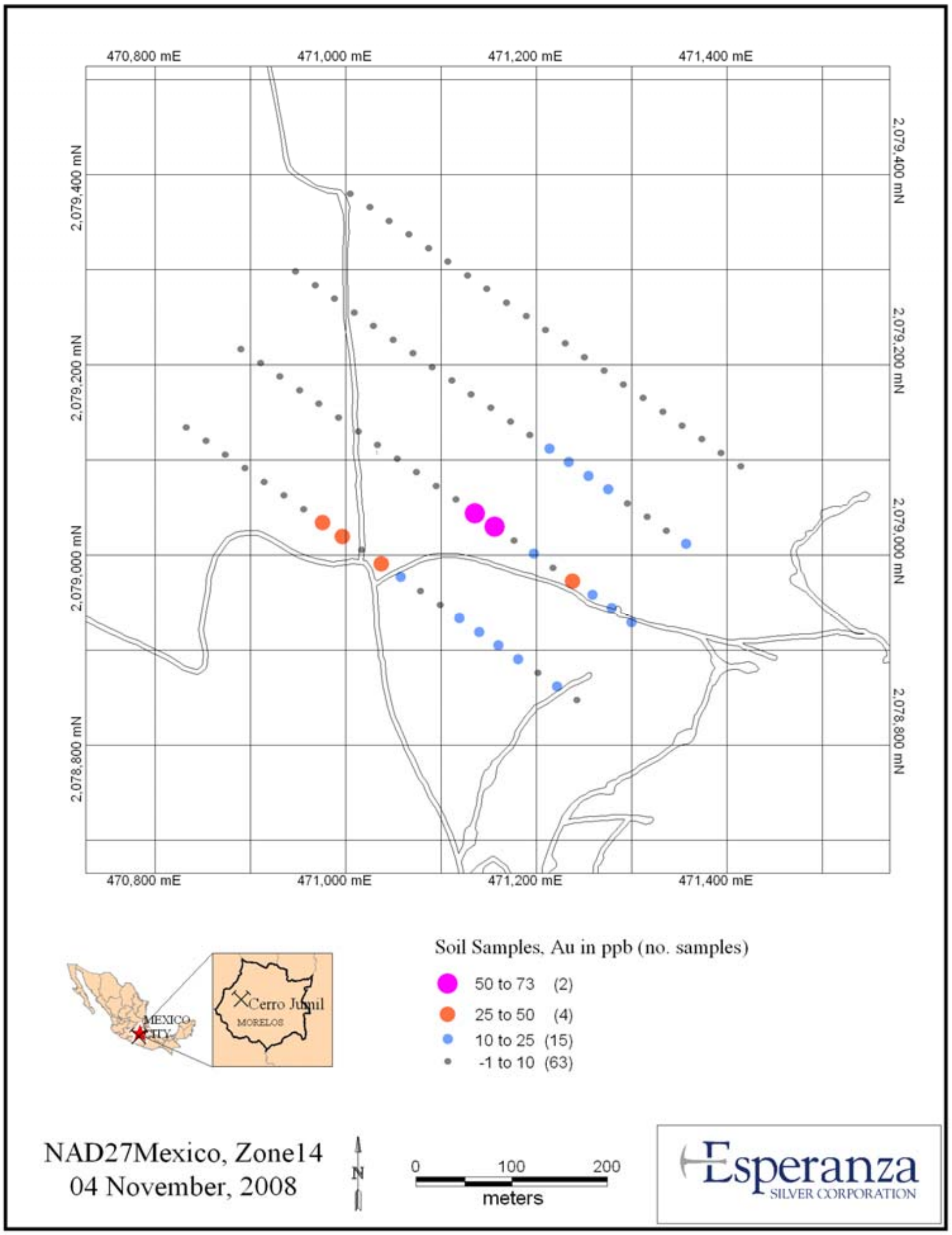


Figure 10.2 Gold in Soil Geochemical Survey

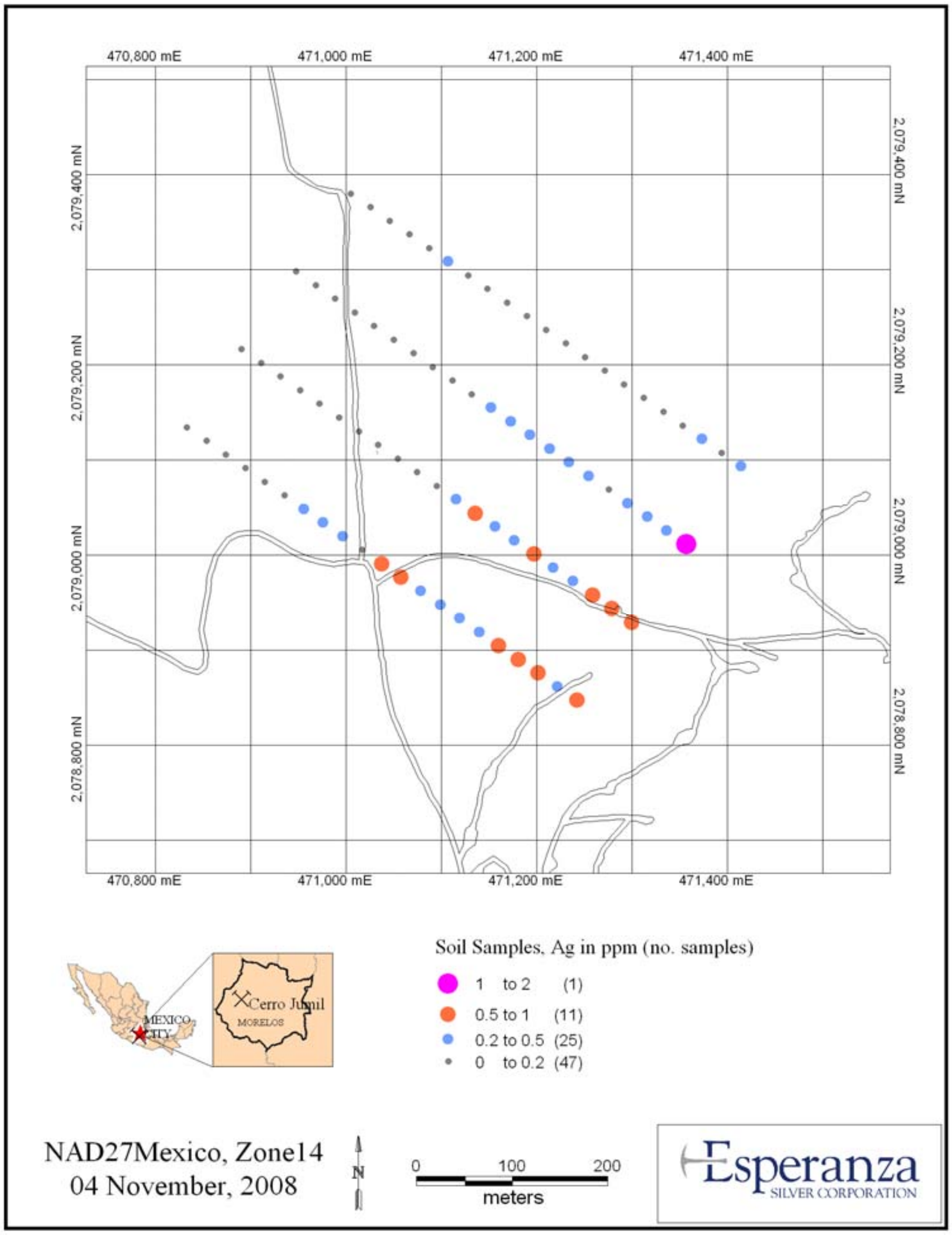


Figure 10.3 Silver in Soil Geochemical Survey

10.2.3 Ground Magnetic Survey

In 2008 ESM contracted with Zonge Engineering and Research Organization, Inc. (ZERO) to undertake a ground magnetic survey in order to determine if there was a magnetic response related to the intrusive and its contact with the peripheral gold skarn that could be used to guide exploration drilling. Approximately 65 line kilometers of ground magnetic data were acquired on 41 lines. Lines were oriented northwest-southeast with nominal 50 metres between line spacing. Results are shown in a total field intensity map, Figure 10.4, where bright colors (magenta and red) show magnetic highs and lows in blue. The magnetic highs, towards the southeast, define the subsurface expression of the intrusive and several drill holes confirmed the results.

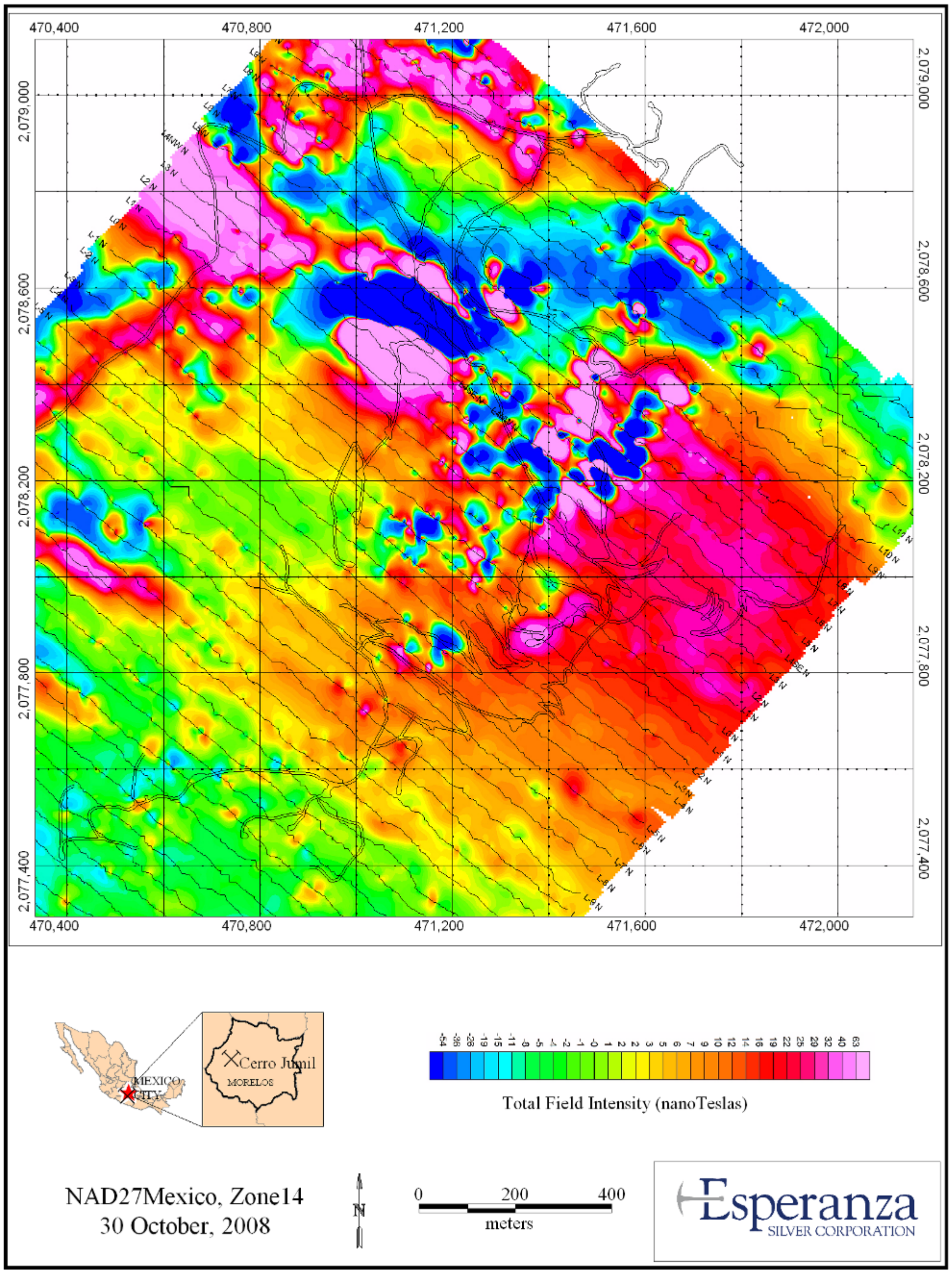


Figure 10.4 Ground Magnetic Survey Map Showing Total Field Intensity

Magnetic highs seen in the northwestern area are related to recent volcanic cover which may mask any possible subsurface expression of the intrusive. The magnetic high seen in the west central area may be a magnetic response to a portion of the intrusive and is a target of interest in the next phase of exploration work.

11.0 DRILLING

Exploration drilling at Cerro Jumil has been completed by both reverse circulation (RC) and diamond coring methods (Plates 11.1 and 11.2).

Plate 11.1 Layne Drilling RC Drill

Plate 11.2 Intercore Diamond Core Drill

During July 1998, Teck completed four diamond drill holes totalling 822 metres and ESM drilled an additional 31,420 metres from February 2005 through May 2008. ESM completed three separate drill programs referred to as phase 1, 2 and 3. The objective for drilling during phase 1 & 2 was to identify exploration targets that would be of sufficient size and grade to justify detailed delineation drilling. Phase 3 drilling was mostly undertaken to obtain adequately spaced data that could be used for an initial resource estimate in a portion of the SEZ. Significant drill hole intervals intersected by ESM are summarized in Appendix A. All exploration drilling to date is summarized in Table 11.1 and drill hole locations are shown in Figure 11.1.

Table 11.1 Summary of Drilling, as of May 2008

Drilling Method	Metres	Feet	Holes
Reverse Circulation	19,470	63,879	106
Diamond Core	12,832	42,101	71
Total	32,302	105,980	177

Drill Program Phase	Metres	Feet	Holes
Teck Core Drilling 1998	882	2,894	4
ESM Phase 1 Core Drilling	1,168	3,833	9
ESM Phase 2 Core Drilling	3,696	12,125	22
ESM Phase 3 Core Drilling	7,086	23,248	36
ESM Phase 3 RC Drilling	19,470	63,879	106
Total	32,302	105,980	177

All drill hole locations have been surveyed using a GPS Trimble 4600 LS or similar survey instrument which gives locations to within 0.05 meter accuracy. Down hole orientation surveys were taken approximately every 50 metres.

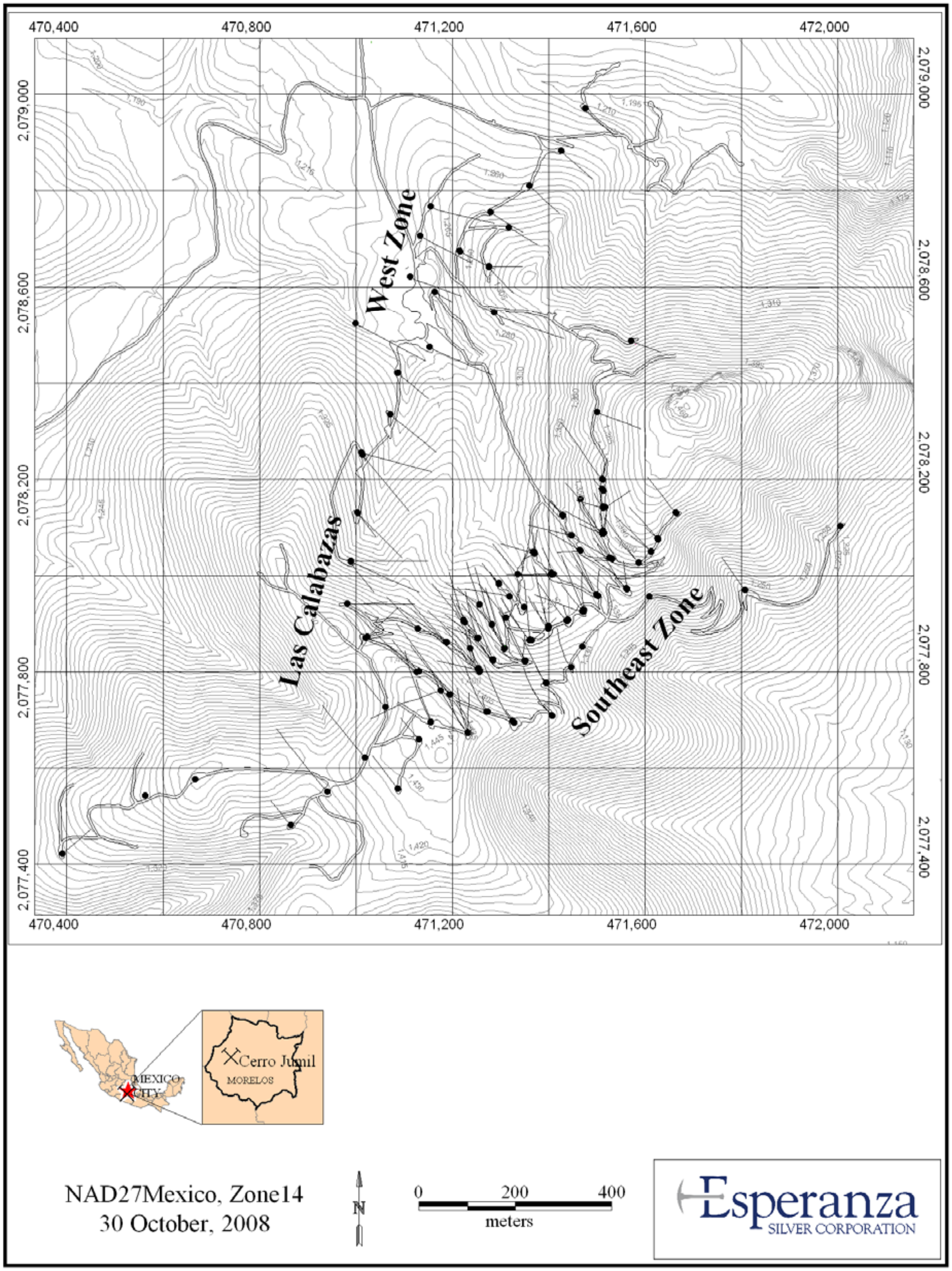


Figure 11.1 Drill Hole Location Map

11.1 TECK DRILLING, 1998

During July 1998, Teck completed four diamond drill holes totalling 822 metres. All holes began using HQ core size and reduced down to NQ prior to completing the hole. Drilling was completed by BDW International Drilling of Mexico S.A. de C.V. In general, core recoveries were adequate based on visual inspection although estimated recoveries per interval were not completed. Initially drill-hole locations were determined from a sample grid and subsequently surveyed by a handheld Geographic Positioning System (GPS). Subsequently, all drill hole collars have been surveyed with a GPS TRIMBLE 4600 LS establishing locations within ±0.5 centimeter accuracy. All holes are marked with a cement monument for easy identification that shows the hole number, inclination, and direction drilled. Down-hole surveys were taken using the hydrofluoric acid test tube etch method at 50-metre intervals to determine inclination deviation.

Holes BDE 98-1, -2, and -4 were designed to test IP chargeability anomalies. Holes BDE 98-1 and -2 remained in intrusive rock their entire length except for a 10.5-meter interval, from 46.5 to 57.0 metres, of limestone in BDE 98-1. In both holes it appears that their depth was inadequate to fully test the IP anomalies. The intrusive rocks are locally silicified and sericitized with 1 to 3% sulphides of pyrite, pyrrhotite and arsenopyrite. Weak mineralization appears to be associated with sulphides. Hole BDE 98-4 intersected oxidized jasperoids with inter-bedded re-crystallized limestone containing fine-grained green garnets from 211 to 225 metres. The hole was terminated at a depth of 225 metres due to poor ground conditions. The rock sequence encountered from 211 metres to the end of the hole is very similar to that observed in the overlying rocks of the West Zone and thus it appears the hole was abandoned just prior to entering the main mineralized skarn zone. Geochemical results tend to support this assumption.

Hole BDE 98-03 was designed to test the skarn at depth. The best mineralization is associated with quartz-hematite veining and jasperoid intersected from 93 to 100 metres. A mixed sequence was encountered from 100 to 144 metres containing intrusive rocks with local lenses of limestone. From 144 to 167 jasperoid, skarn, and limestone were encountered with geochemically anomalous gold and/or silver values. The remainder of the hole was in altered intrusive rock ending at 213 metres. The results imply that the skarn zone continues at depth in this area and follow-up drilling will be required to determine if significant gold mineralization exists.

Table 11.2 summarizes intervals of geochemical interest for gold and silver in Teck drill holes. Orientation of the holes relative to the mineralized intercepts may be variable and so it is not possible to relate the interval lengths to a true thickness. However, based on geological interpretations in cross sections the interval length and true width are reasonably close in most instances.

Table 11.2 Teck Drill Hole Intervals of Interest

Hole No.	From (metres)	To (metres)	Interval (metres)	Gold g/t	Silver (g/t)
BDE 98-1	55.5	57.0	1.5	<0.005	37.2
BDE 98-1	175.5	178.5	3.0	0.02	82.3
BDE 98-2	16.5	18.0	1.5	0.025	22.6
BDE 98-2	144.0	147.0	3.0	0.01	34.0
BDE 98-3	93.0	96.0	3.0	1.44	5.2
BDE 98-4	211.0	225.0	14.0	0.156	30.3

11.2 ESM DRILLING AS OF MAY 2008

From February 2005 thru May of 2008 ESM completed 11,950 metres of core and 19,470 metres of RC drilling in 67 and 106 holes respectively (Table 11.3). Three distinct target areas where drilled to varying degrees including the West (WZ), Las Calabazas (LCZ), and the Southeast Zones (SEZ). In the West and Las Calabazas Zones a total of 25 holes were completed including 22 core and 3 RC holes. Drilling in these two areas is widely spaced ranging from 50 to 100 metres along strike and down dip of the targeted mineralized zones. Most of the exploration drilling has been focused in the SEZ where 37 core and 103 RC holes have been completed on a closely spaced grid and as a result the majority of measured and indicated resources estimated occur in this zone.

Table 11.3 ESM Drill Hole Summary by Zone

Zone	No. Holes	Metres
WZ Core	11	1,663
WZ RC	3	471
LCZ Core	11	2,514
SEZ RC	103	18,999
SEZ Core	37	5,962
Other Areas	8	1,811
Total	173	31,420

Drill hole locations were initially located by hand held GPS units and were assumed to be within 5-metres of the recorded north and east coordinates. Collar elevations were estimated from 1:50,000 scale Carta Topográfica maps obtained from the Instituto Nacional de Estadistica Geofrafia e Informatica (INEGI). Subsequently, all drill hole collars have been surveyed with a GPS TRIMBLE 4600 LS establishing locations within ±0.5 centimeter accuracy. The grid coordinate system used is UTM NAD 27, zone 14 (Mexico). All holes are marked with a cement monument engraved with the hole number, inclination, and direction drilled.

Orientation of the holes relative to the mineralized intercepts may be variable and so it is not possible to relate the interval lengths to a true thickness. However, based on geological interpretations the interval length and true width appear to be reasonably close in most instances.

11.2.1 ESM Phase 1 Drilling

Drill holes DHE-05-01 thru -08 resulted in the initial discovery and partial definition of the West Zone. Drilling was completed by Layne Drilling de Mexico S.A. de C.V. utilizing a Hagby Onram 2000 long feed frame drill. All holes were drilled using NQ2 core size and down-hole surveys were taken at approximately 50-meter intervals using an ACCU-SHOT single shot camera. Survey data included drill-hole inclination and bearing.

11.2.2 ESM Phase 2 Drilling

Drill holes DHE-06-09 thru 31 resulted in the initial discovery and partial definition of the Southeast Zone of mineralization (DHE-06-09 was drilled in the West Zone). Drilling was completed by Major Drilling de Mexico S.A. de C.V. utilizing a UDR 200 diamond drill. All holes were drilled using HQ core size although two holes were reduced to NQ due to poor ground conditions. Down-hole surveys were competed for all holes, except for DHE-06-30 which was abandoned at 24 metres (replaced by DHE-06-30A) and DHE-06-24 which only has one survey at the bottom. Down hole surveys were obtained at approximately 50 meter intervals using a Reflex EZ-Shot instrument. Survey information recorded included hole inclination and bearing deviation as well as magnetic field data. Total deviation of the drill-hole inclination and bearing was generally less than 2^o.

11.2.3 ESM Phase 3 Drilling

Core drill holes DHE-06-32 thru -66 and RC holes RCHE-07-01 thru -78 and RCHE-08-79 thru -101 representing 7,086 metres of core and 19,470 metres of RC drilling were completed for a total of 26,556 metres during phase 3 exploration. Core drilling was completed by Intercore Perforaciones, S.A. de C.V. and Sierra Drilling International S.A. de C.V.. All holes were drilled using HQ core size and several were reduced to NQ due to poor ground conditions. RC drilling was completed by Diversified Drilling, S.A. de C.V. and Layne de Mexico, S.A. de C.V.. RC hole diameters ranged from 4.5-5.0 inches. Down-hole surveys were completed for all holes unless ground conditions became unstable and the risk to losing the survey tool became high. Down hole surveys were obtained at approximately 50 meter intervals using a Reflex EZ-Shot instrument. Survey information recorded included hole inclination and bearing deviation.

12.0 SAMPLING METHOD AND APPROACH

The Cerro Jumil project has had sampling programs carried out by RCS, Teck, and ESM since project inception. Sampling has been mostly restricted to the central portion of the project area within and adjacent to the intrusive identified near Cerro Jumil. Most samples have been taken along or near the intrusive contact where the gold skarn zone is intermittently exposed at the surface.

Numerous sample methods have been used including selective rock chip, channel, soil, core, and RC chip sampling.

12.1 SAMPLING PRIOR TO ESM 2003 ACQUISITION

Both RCS and Teck collected numerous outcrop and float samples using both selective rock chip and channel samples in order to partially evaluate the rock geochemistry in the immediate

Cerro Jumil region. Teck also initiated a limited core drilling program that was designed to test several identified geophysical anomalies.

12.1.1 RCS Sampling Method and Approach

Samples taken by RCS in 1993 and 1994 were analysed by Bondar-Clegg and in 2002 samples were analysed by Chemex, using standard industry methods: fire assay for gold and acid digestion/ICP for silver, base metals and other elements. Both laboratories had sample preparation facilities in México and sent pulps to their respective Vancouver, B.C., Canada laboratories for analysis. Samples consisted of select and random grab samples of outcrop and float (surface rock fragments randomly scattered or cemented in caliche). Most of the 118 samples collected were selectively taken from rocks containing potential for gold or silver mineralization based on visual alteration and therefore are not necessarily representative of the gold skarn zone.

12.1.2 Teck Sampling Method and Approach

Approximately 184 samples were taken by Teck including continuous outcrop chips and numerous random, selective, dump, and float samples. An additional 291 core samples were also analysed. Continuous chip samples and drill core, usually 1 to 2 metres in length depending on geological contacts, are assumed to be unbiased and representative of the intervals sampled. Most of the remaining samples are selective in nature and therefore, although geologically important, are biased towards rocks with a perceived higher chance of having gold and silver mineralization. Drill core was sawn and half of the core sent to Chemex for analysis. Intervals sent for analysis were generally 1.5 or 3.0 metres in length although several longer intervals were also analysed. The remainder of the core is stored in the village of Tetlama. All Teck samples were prepared by Chemex in Mexico and analysed at their laboratory in Vancouver, B.C., Canada, using standard industry methods similar to those above. The core was analysed using procedures identical to those described above.

ESM uses previously acquired data to assist with geological interpretations and considers the continuous channel and core analysis as being representative and unbiased.

12.2 ESM SAMPLING METHOD AND APPROACH

ESM has collected over 18,000 samples since acquiring the Cerro Jumil project including 84 soil, 62 selective outcrop or float, 285 channel and 17,736 core and RC samples.

RGM provided most of the geological support and employees required to collect samples and complete the required geological work under the supervision of Bond.

In general, soil, outcrop, and channel samples were collected while undertaking detailed geological mapping programs in order to identify specific targets that would merit exploration drilling. Subsequently, both core and RC drill programs were implemented to partially evaluate a few of the areas characterized by anomalous gold geochemistry.

All sampling has been conducted under the supervision of experienced geologists in accordance with standard industry practice. For outcrop, soil and other types of field samples the following information is recorded.

- Type of sample (rock, soil, dump, etc.);
- Collection method that includes channel, grab (representative or selective), chip (representative or selective), panel, etc.;
- Location, which includes X,Y,Z coordinates;
- Brief description (including lithology, alteration, or other pertinent information);
- Date sample collected; and
- Person responsible for collecting sample (geologist, supervisor, manager, etc.).

Sampling method and approach for each of the sample types is discussed in the following sections.

12.2.1 ESM Soil Sampling Method and Approach

A small area along the northwestern flank of Cerro Jumil contained scattered jasperoid float material with strong gold and silver geochemical values although no rock outcrops are present in the immediate area. In order to determine if the source of the mineralized float was from a subsurface skarn zone a soil sample grid covering an area 500 by 300 metres was designed to analyze soil geochemistry. Four lines spaced at 100-meter intervals, each 500 metres in length, were sampled on 25-meter centers along each line. The lines were laid out perpendicular (N55˚W) to the local trend (N35-40˚E) of identified gold skarn zones. Soil was extracted at approximately a 0.25-meter depth and sieved through a 20-mesh screen to obtain a 1 to 2 kilogram sample which was sent for geochemical analysis. Figure 10.1 and Figure 10.2 shows the gold and silver geochemical results, respectively. In both cases, values for the respective elements show a weak anomaly in the southeast portion of the grid. The significance of the apparent anomalies is not known at this time and either additional soil sampling or drilling may be required to determine if a gold skarn target exists.

12.2.2 ESM Selective Outcrop or Float Sampling Method and Approach

While geological mapping, small outcrops and areas containing scattered rock fragments were sampled in order to identify geochemical trends for gold and/or silver. These samples (62) were generally selective chip samples of jasperoids and skarn and may not be representative of the underlying mineralized skarn zone. Each sample site is considered as point data and therefore no width is assigned to the sample. Nevertheless, identifying mineralized gold/silver trends based on this type of sampling has proven to be worthwhile in establishing drill targets where continuous outcrops are not exposed due to being covered by alluvium, caliche, or other material. All sample locations were recorded using handheld GPS units with ± 5 meter accuracy.

12.2.3 ESM Channel Sampling Method and Approach

The gold skarn zone is locally exposed at the surface due to either excavated trenches or naturally occurring outcrops. Gold skarn outcrops represented by jasperoids and/or weakly to moderately silicified skarn are generally more resistant than other types of mineralization. Approximately 285 continuous channel samples have been collected and are shown in Plates 10A and B. Representative chip samples, normally 1 to 2 metres in length, were collected perpendicular to the strike of the gold skarn strike. Sample widths are not corrected to true width but rather are based on geological breaks or taken on pre-established intervals. The samples are assumed to be unbiased and geochemical results are therefore representative of the rocks exposed. Visual observations of gold grades in channel samples relative to nearby core samples appear to have good correlation. Channel samples are located by hand-held GPS units with ± 5 meter accuracy.

12.2.4 ESM Core Sampling Method and Approach

ESM has completed 11,950 metres of diamond drilling which was completed between February 2005 and May of 2008. A total of 67 holes were drilled (Figure 11.1) and sampled. Samples were initially based on geological contacts and sampled lengths ranged from less than one meter up to two metres. It became apparent that the gold mineralization extended across some geological boundaries and therefore the sampling protocol was changed to an interval length of 1.5 metres which is coincident with the sample length for RC drilling. Sample protocol for drill core is as follows;

- Each hole is photographed prior to being disturbed (Plate 12.1).

Plate 12.1. Core Photo of DHE-08-62 Drilled in Las Calabazas Area

- A detailed geological log is completed that includes graphic columns depicting rock types, alteration, and mineralization, followed by detailed descriptions for each geological interval.
- Percent recovery and RQD is calculated and recorded.
- Specific gravity is calculated and recorded for representative rock types at approximately two meter intervals.
- Sample intervals are selected and clearly marked in the core box.
- All intervals are cut in half using a masonry saw and one half of the core is saved for future reference and the other half is sent for geochemical analysis.
- All sampling is supervised by onsite geologists in order to insure sample integrity.

Specific gravity (SG) is estimated in accordance with standard industry procedures by using either of two methods including; 1) volumetric, or 2) water submersion. SG comparisons between these methods show good correlation for average SG values within different rock types. Over 3,600 SG specimens have been estimated and are included in the Cerro Jumil sample database. Core holes are evenly distributed throughout the West, Las Calabazas, and Southeast

Zones and so SG statistics for each rock type is representative for their respective area of the deposit.

12.2.5 ESM RC Sampling Method and Approach

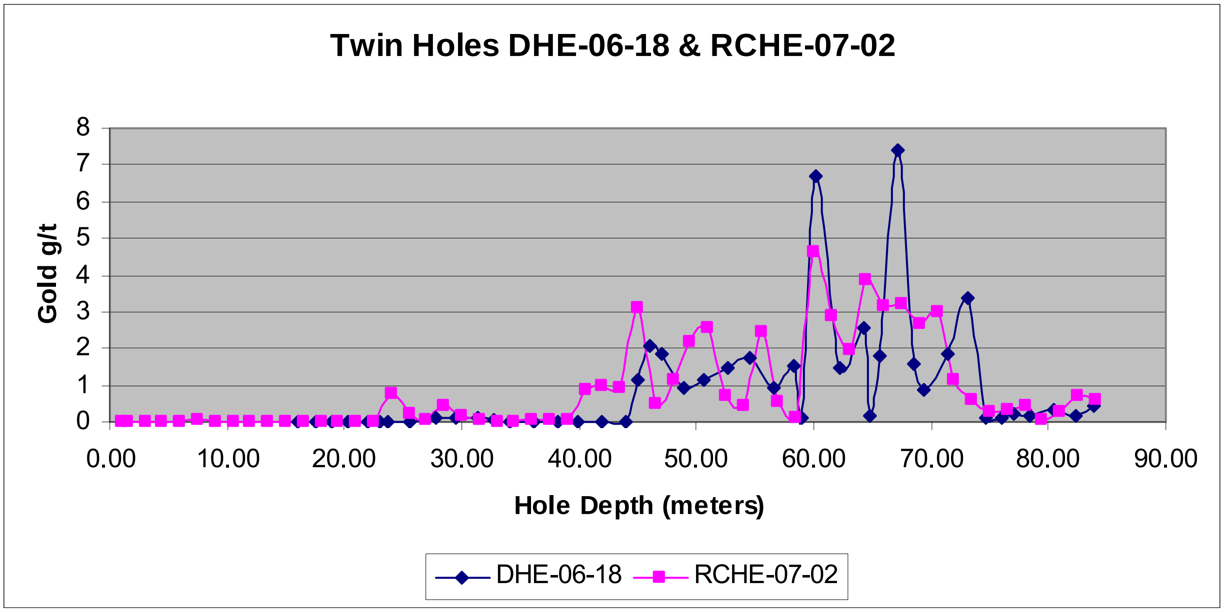
ESM has completed 19,470 metres of RC drilling which was completed between January 2007 and May of 2008. A total of 106 holes were drilled (Figure 11.1) and sampled.

Two different RC sample collection methods were employed depending on if the drilling was completed dry or wet. All holes were collared dry and adequate sample recovery was generally good to depths of around 60 metres. In general, water was injected into the hole in order to improve or maintain sample recovery due to more difficult drilling conditions as a result of varying mineralogical alteration products and rock fracturing that is commonly associated with the gold skarn zone. All RC holes were sampled continuously at 1.5 meter intervals. Each interval was split in half using an adjustable riffle splitter resulting in duplicate samples for each interval. One sample was sent to the primary laboratory for analysis and the other was transferred to a secure storage building. After each run the riffle splitter and trays were cleaned with water and air to prevent any contamination of samples. Chips are taken from the storage duplicate and placed in a chip tray for drill hole logging purposes. Sample protocol for RC drill holes is as follows;

- Representative chips collected for each 1.5 meter interval placed in trays and photographed after each hole is completed.
- A detailed geological log is completed that includes graphic columns depicting rock types, alteration, and mineralization, followed by detailed descriptions for each geological interval.
- Sample intervals are based on 1.5 meter intervals.
- All intervals are split in half resulting in two samples of which one is put into storage and the other is sent for geochemical analysis.
- All sampling is supervised by onsite geologists in order to insure sample integrity.

12.2.6 RC and Core Twin Hole Comparison

Two core holes were twinned by RC holes in order to see if grade and zone widths could be replicated between the two different drill methods. Both RC holes were collared within 2 metres of their respective core hole twin and drilled at the same azimuth and inclination to the original core hole. Down hole surveys show that the twin holes deviated from their original orientation and the separation between core and RC twins increased with depth. Most of the hole deviations were due to changes in the direction of the hole orientation of approximately 3° that occurred within the first 40 metres or so. Hole inclinations deviated slightly although not as dramatic as noted in the change of direction (azimuth). Deviation differences between the twin holes is considered to be normal for down hole surveys related to the Cerro Jumil deposit and their respective drill methods. Comparison of Au values between core and RC twin holes are shown in the Figure 12.1 graphs. Sampled intervals for both core and RC are on different intervals for their respective holes. Core interval sample length was based on lithology and alteration for earlier sampled core holes (DHE-06-18 core twin) resulting in variable sample lengths ranging from 0.5 up to 2 metres, and in some of the more recent holes sampling was done on one meter intervals regardless of lithology or alteration (DHE-06-22 core twin). All RC sample intervals are 1.5 metres in length regardless of lithology or alteration changes. Therefore, sample intervals for the core holes are more selective than the standard 1.5 meter RC intervals and so more variability is noted between adjacent core samples than in the approximated equivalent RC sample where grades tend to be smoothed over a longer interval length. After giving consideration to hole deviation, slightly different sample methods and interval lengths, the twin hole graphs show very good correlation for mineralized lengths and average sample grades.



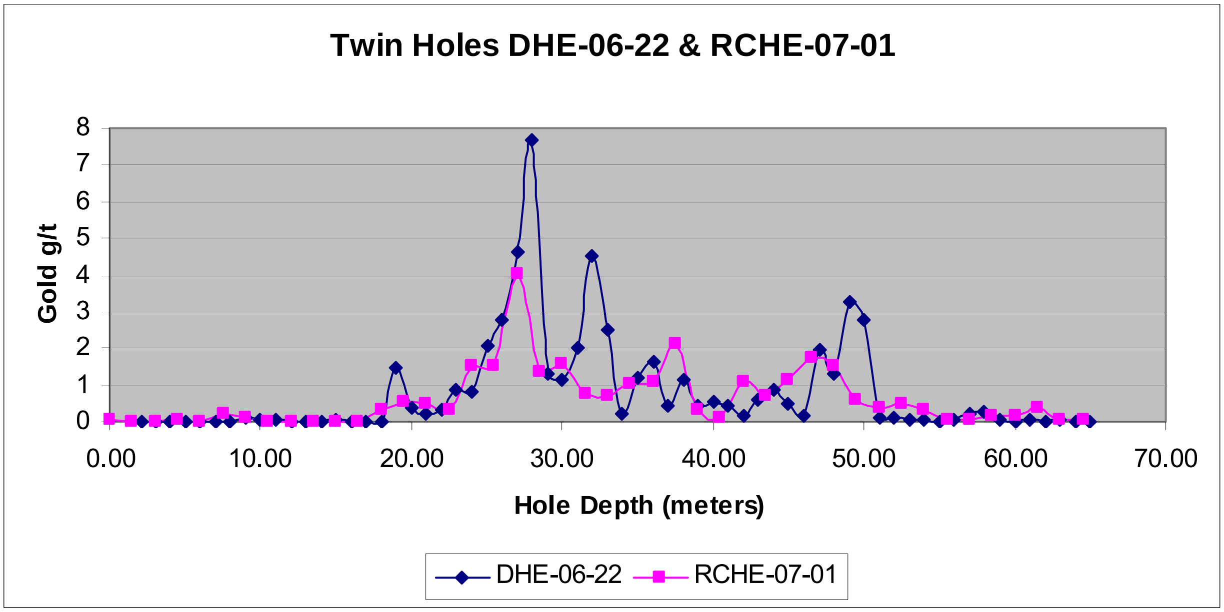


Figure 12.1 Twin Hole Comparison between Core and RC Drill methods

Select intervals and average Au values for each of the twinned pairs including a low grade zone at top of the holes, 0.1 ppm Au bracketed interval, and higher grade zone within 0.1 limits is given in Table 12.1. For the twin pair DHE-06-18 and RCHE-07-02 the average grade in the selected intervals gives a very good correlation between the core and RC drill sample methods. Twin pair DHE-06-22 and RCHE-07-01 show reasonable comparisons for Au values within the selected intervals although a slight disparity between the two methods can be noted. Hole deviation and deposit grade variability may account for the average Au differences for the select intervals in this twin pair. Sample interval grade correlation between the core and RC twins is considered to be reasonable and no clear bias between the two drilling methods is evident.

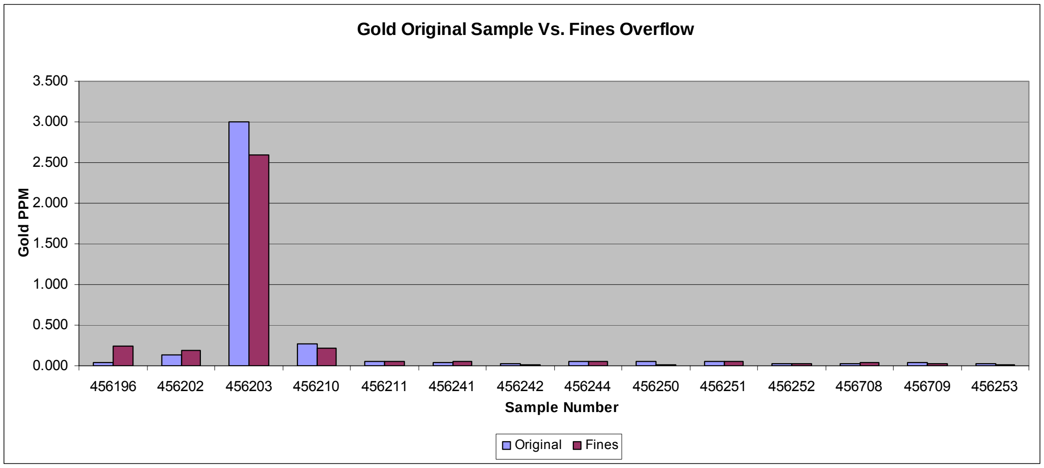
Table 12.1 Twin Hole Select Interval Comparison for Au Values

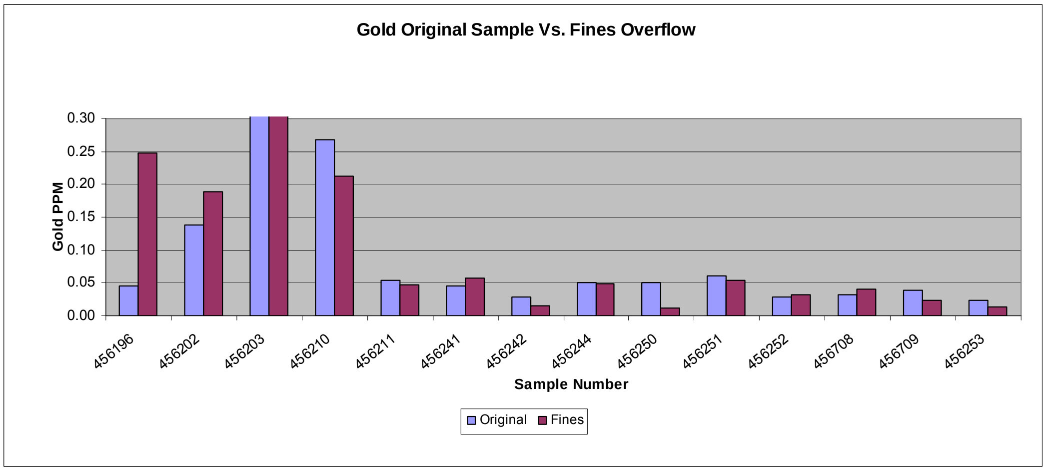
Twin Pair	From	To	length	Au ppm
DHE-06-18	8.6	45.0	36.4	0.023
RCHE-07-02	1.0	39.5	39.5	0.073
DHE-06-18	45.0	89.3	44.3	1.459
RCHE-07-02	40.5	85.5	45.0	1.539
DHE-06-18	45.0	74.6	29.6	2.076
RCHE-07-02	40.5	75.0	30.0	2.035

Twin Pair	From	To	length	Au ppm
DHE-06-22	2.1	19.0	16.9	0.024
RCHE-07-01	0.0	18.0	18.0	0.044
DHE-06-22	19.0	51.0	32.0	1.571
RCHE-07-01	18.0	55.5	37.5	1.032
DHE-06-22	19.0	51.0	32.0	1.571
RCHE-07-01	19.5	51.0	31.5	1.121

12.2.7 RC Fines Overflow Analysis

Consideration was given to the possibility for the loss of gold and silver values in fine material that may have washed away or been lost due to water overflow in sample collection containers. Water was often injected into the hole during the RC drilling process in order to improve sample recovery that could become problematic in areas where there are voids, fractures or clay which is locally common in the zone of skarn development. In order to evaluate the possible loss of gold or silver values the fine sediment from the overflow in the sample collection containers was collected for 14 sample intervals and analyzed for gold and silver. The RC fines analytical results for both Au and Ag content was compared to the original sample and results are shown in Figure 12.2.





Same graph as above but with the “Gold PPM” scale changed to maximum value of 0.30 in order to easier view <0.3 sample comparisons.

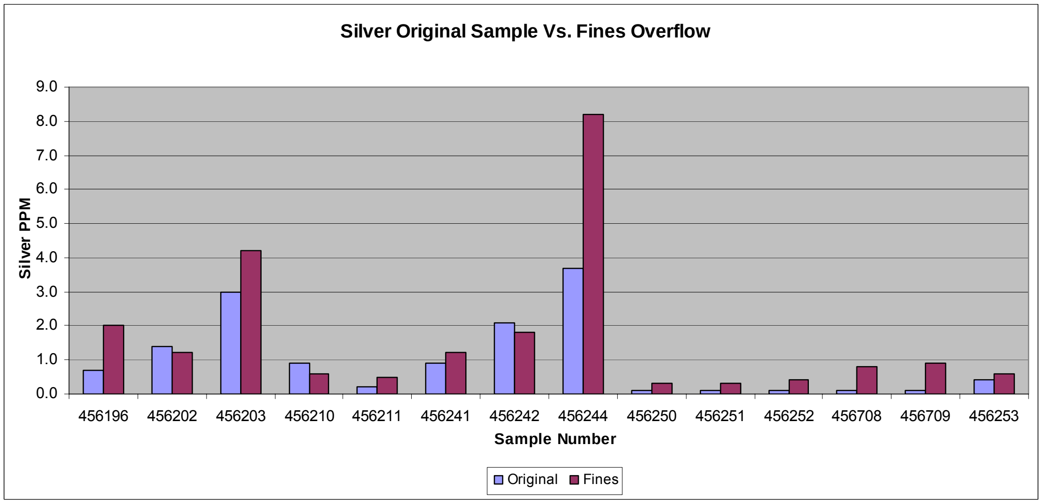


Figure 12.2 Gold and Silver Comparison for Original Vs. Fines Overflow Samples

The comparison shows that loss of gold under wet RC drilling conditions is not problematic at Cerro Jumil as seen in the close correlation between original gold values and the fine overflow material. Additional studies involving gold distribution in various size fractions of sampled material, Section 13.2.7, supports the RC fine overflow study results and so it is concluded that if any sample material is lost due to fine particles being washed away it would not have a significant biasing affect on analytical results.

Silver results relative to wet RC drilling conditions do indicate a possible slight loss in values as seen in the comparison of original and fine overflow samples. However, the fine overflow silver results are from a very low grade silver population and it is difficult to conclude a significant loss in silver values is consistent under wet RC drilling conditions. Additional original to fine (overflow) studies under wet RC drilling conditions will be needed to determine if silver grades are undervalued.

12.3 SAMPLE DATABASE

All information collected from the various sample sources are entered into a “master” database. In general, there are 6 separate categories of information recorded, depending on the data source, including the following;

1. Location Data – includes the collar location for drill holes, starting point for channel samples, and point locations for soil/float and other types of samples, coordinate system used, and other pertinent information.
2. Sample Data – includes sample numbers, hole or channel identification name, intervals (from-to where applicable), quality control (QC) information (standards, blanks, duplicates), rock type, sample date, and geochemical results as well as other pertinent information.
3. Drill Hole Geology Summary – includes drill hole number, from-to intervals, rock type, and geological description.
4. Core Recovery and RQD Data – includes hole number, from-to interval, percent recovery, RQD percent (based on the sum of all lengths greater than 2 times the core diameter for an given interval) and a description of any pertinent observations affecting recovery or RQD.

5. Down-hole Survey – includes, drill hole number, depth survey was taken, true azimuth read from the survey tool used, magnetic azimuth (corrected true azimuth for local magnetic declination), and hole inclination.
6. Specific Gravity (SG) measurements – taken in all core holes with SG estimates made for representative rock types approximately every two metres.

13.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

13.1 PRE-ESM, PRIOR TO 2003 ACQUISITION

There is no information available regarding security of the samples handled by Teck and RCS. However, based on similar geochemical results from re-sampling of numerous trenches and outcrops by ESM that were previously sampled by Teck and RCS, there is no reason to believe that the assays are not representative of the mineralization found on the property. Both companies have a reputation for quality work producing reliable results.

13.2 ESM SAMPLE PREPARATION, ANALYSES AND SECURITY

All sample preparation for geochemical analyses was done by ALS Chemex, a global mining and exploration analytical services company. ALS Chemex maintains a stringent Quality Assurance and Quality Control (QA/QC) program that reports internal analysis of blanks, duplicates, secondary and standard reference material data to ensure the accuracy of their results.

Samples collected by ESM are taken under the direct supervision of experienced geologists and transported to a secured storage facility until shipped to the analytical laboratory. Up until January of 2006 samples were delivered by ESM personnel to Cuernavaca and shipped via freight (bus) directly to ALS Chemex's preparation facility in Guadalajara where ALS Chemex assumed custody of the samples. During January of 2006 the procedure was changed and arrangements were made for ALS Chemex or RGM to take custody of the samples at the ESM secure storage facility and transport them direct to the ALS Chemex Guadalajara preparation laboratory.

Samples collected by ESM including channel, trench, float, soil and other types of outcrop samples are secured in polyethylene bags with zip ties and shipped direct to ALS Chemex. Samples taken from diamond drill core follow a similar procedure except that the core is sawn in half and one half is put in a secure storage facility while the other half is shipped to ALS Chemex for analysis. Sample bags are clearly marked with the sample number on the outside of the bag and on a waterproof tag inside the bag.

Assay pulps and sample reject material are temporarily stored by ALS Chemex at their preparation facilities in Guadalajara until returned to the secure storage facility at the project site.

13.2.1 Sample Preparation, Assaying and Analytical Procedures

ALS Chemex is the designated laboratory for all geochemical analysis and all samples prepared and assayed by ALS Chemex used the following procedures;

- Samples received at ALS Chemex Guadalajara sample preparation facility;
- Samples are logged into a tracking system and a bar code label is attached;
- Fine crushing of samples to better than 70% of the sample passing 2mm;
- Splitting of sample using a riffle splitter;
- Pulverizing the split to better than 85% of the sample passing 75 microns creating two sample pulps; and
- One sample pulp shipped to ALS Chemex North Vancouver analytical laboratory for analysis and the second pulp put in storage for future reference.

All samples were analyzed for 34 elements using conventional induced coupled plasma (ICP) and atomic emission spectrometry (AES) analysis. In addition to the standard 34-element suite, gold was assayed by fire assay with an atomic absorption spectrometry (AAS) finish. Over limit values for silver, copper, lead and zinc were analyzed by ICP-AAS and for gold by fire assay with a gravimetric finish. Internal quality control measures incorporated by ALS Chemex include the insertion of standards, duplicates and blanks (about 10% of the total samples) in each analytical run. The QC data is analyzed to make sure the reference materials and duplicate analyses are within precision and accuracy requirements.

Several secondary laboratories were used as a check for analytical results produced by ALS Chemex including:

- SGS de Mexico S.A. de C.V.
- BSI Inspectorate de Mexico, S.A. de C.V.
- Acme Analytical Laboratories
- International Plasma Labs Ltd.

13.2.2 Laboratory Certification

ALS Chemex laboratories in North America are registered to ISO 9001:2000 for the "provision of assay and geochemical analytical services" by QMI Quality Registrars.

In addition to ISO 9001:2000 registration, ALS Chemex's North Vancouver laboratory has received ISO 17025 accreditation from the Standards Council of Canada under CAN-P-1579 "Guidelines for Accreditation of Mineral Analysis Testing Laboratories". CAN-P-1579 is the Amplification and Interpretation of CAN-P-4D "General Requirements for the Accreditation of Calibration and Testing Laboratories" (Standards Council of Canada ISO/IEC 17025). The scope of the accreditation includes the following methods that are used for ESM sample analysis:

- Au and Ag by Fire Assay/Gravimetric Finish;
- Au by Fire Assay/AAS Finish;
- Au, Pt, Pd by Fire Assay/ICP Finish;
- Ag, Cu, Pb, Zn by Aqua Regia Digestion/AAS Finish; and
- Multi-element package by Aqua Regia Digestion/ICP Finish.

13.2.3 ESM Quality Control Measures

During the analytical process ESM implemented protocols to insure results were within acceptable accuracy limits. To check the accuracy of geochemical results ESM inserted a series of standards, blanks, and duplicates that totalled approximately 10% of the samples submitted. In addition, ESM has had original pulps checked by secondary laboratories, implemented analytical studies to check gold distribution for various size fractions of sampled material, RC fines overflow analysis, and compared sample variability by analyzing a second pulp from the original rejects or sampled material (A/B splits). A summary of the QC types are as follows;

- Certified Reference Material - Standards
- Pulp checks - by both primary (ALS Chemex) and secondary laboratories
- Blanks – derived from either barren limestone outcrops or purchased silica sand
- Duplicate analysis including;
    1) Field duplicates taken from both RC (sampled interval split in ½) and Core intervals (sampled interval quartered)
    2) Duplicates derived from original rejects and analyzing a 2nd pulp

- Size fraction analysis – checking sample variability in both core rejects and RC samples
- RC fines overflow analysis – produced from the injection of water to improve recoveries

Routine QC samples submitted to the primary laboratory with each sample shipment during the course of the drill programs included certified standards, duplicates, and blanks. Secondary laboratories were primarily responsible to check original pulps and duplicates. A summary of pulp, blank, duplicate and standards submitted to both primary and secondary laboratories is shown in Table 13.1.

Table 13.1 Summary of QC Samples Checked by Primary and Secondary Labs

Sample Type Checks	No. Samples
Au Original Pulps	565
Ag Original Pulps	65
Au Duplicates (A/B split)	866
Ag Duplicates (A/B split)	758
Blanks	774
Standards	448

13.2.4 Standard Reference Materials

Certified reference material (CRM) or standards were submitted with each sample shipment during the course of the drill programs. A total of seven different standards were used and are summarized in Table 13.2. The NBG and NP2 standards, prepared by Hazen Research Inc. were used during the phase 1 and 2 drill programs and Rocklabs standards in phase 3. Standard pulps, consisting of 70-80 grams of material, were randomly inserted into each sample batch.

Table 13.2 Standards used for the Cerro Jumil Project

Standard	Accepted Value		95% Con.Int.	Lower Limit ppm	Upper Limit ppm	Source	Material
	Au ppm	Std.Dev.					
NBG	0.79	0.12	nd	0.711	0.869	Hazen	Rhyolite with veinlets
NP2	1.73	0.11	nd	1.557	1.903	Hazen	Jasperoid with pyrite
OxC44	0.197	0.013	0.005	0.184	0.21	Rocklabs Ltd	Feldspars with fine Au
OxD43	0.401	0.021	0.008	0.38	0.422	Rocklabs Ltd	Feldspars with fine Au
OxG38	1.031	0.036	0.015	0.995	1.067	Rocklabs Ltd	Feldspars with fine Au
OxH52	1.291	0.025	0.011	1.266	1.316	Rocklabs Ltd	Feldspars with fine Au
OxL25	5.852	0.105	0.048	5.804	5.9	Rocklabs Ltd	Feldspars with fine Au
nd – no data							

Results for Au and Ag in the NBG and NP2 standards are shown in Figure 13.1. In standards NBG and NP2 each had one analytical failure for gold. Standard analytical failures are considered to occur when the results are above or below two standard deviations from the mean. When standard failures were identified the sample batch or portion thereof was re-analyzed to ensure sample results reported were within acceptable accuracy limits. Re-analysis of samples above and below the failed NBG and NP2 standards show good replication and therefore the associated data appears to be within acceptable accuracy limits. Not enough material remained from the failed standards for re-analysis and so it was not possible to confirm their stated value. Other standards, blanks, and duplicates within the sample batch returned expected values. The resulting quality control measures therefore validated the sample results.

The NP2 standard returned gold values consistently higher than the established mean but all below the +2 standard deviation threshold which may indicate a slight bias in values returned by ALS Chemex. Therefore, two secondary laboratories, International Plasma Lab Ltd. (IPL) and ACME Analytical Laboratories Ltd. (ACME), were used to analyze an additional 21 NP2 standards in order to verify possible bias in this standard. Table 13.2 shows the comparison of results between the different laboratories. ALS Chemex and ACME had similar analysis with both returning approximately 5.7-6.3% higher gold values than established by the Hazen mean. IPL results indicate a slight bias below the Hazen mean by approximately 7.4%. In all cases the gold analysis fell with 2 standard deviations of the mean established by the original Hazen NP2 standard (+2SD=1.95 g/t Au, -2SD=1.51 g/t Au).

Table 13.3 NP2 Standard Secondary Lab Checks

Laboratory	NP2 Mean	% Difference Vs. Hazen
Hazen	1.730	----
ALS Chemex	1.834	5.67
ACME	1.846	6.29
IPL	1.601	(7.43)

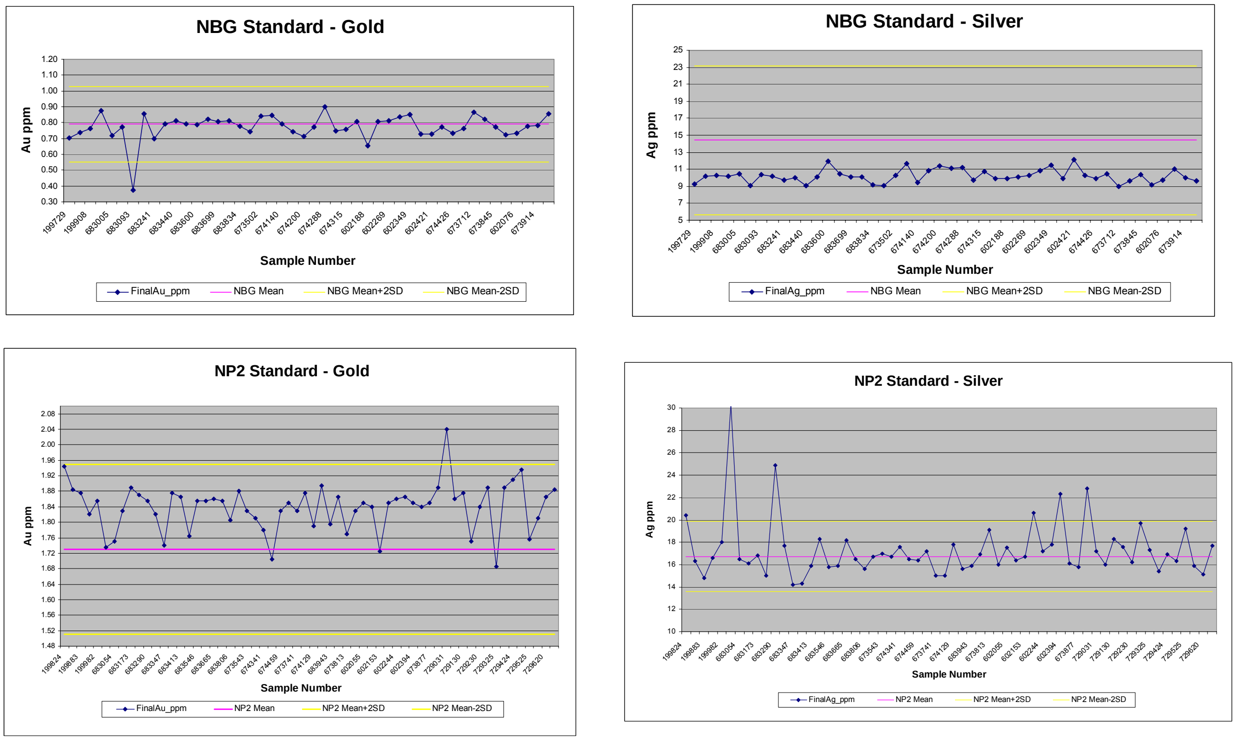


Figure 13.1 Gold and Silver Results for Hazen Research NP2 and NBG Standards

Silver results for standard NBG returned very consistent values that fell between the standard mean and minus two standard deviations which may imply the analytical method used for silver analysis (ICP with aqua regia digestion) may undervalue silver results. This possible low bias reported for silver results as indicated by the NBG considered to be insignificant. Results for Ag in the NP2 standard show several failures above two standard deviations although 90% of the NP2 standards returned acceptable values that clustered above and below the mean grade. Other QC samples including standards, blanks, and duplicates indicated no bias or problems within the sample batches containing the NP2 Ag standard failures. Pulp checks returned expected values and therefore reported Ag results for samples within the sample batches, with the Ag standard failures, do not appear to indicate any analytical problems and Ag values reported are considered reliable.

Other standards used for the Cerro Jumil project were prepared by Rocklabs Limited, located in Auckland New Zealand, and include the standards OxL25, OxC44, OxH52, OxG38, and OxD43. As noted in Table 13.2 the standard deviation for these reference materials is very low and so the possibility for any analytical variability above or below two standard deviations from the mean is much more problematic than the standards prepared by Hazen where the established standard deviation is significantly greater. Graphs for the Rocklabs standards (Figure 13.2 thru 13.6) display lines representing both 2 and 3 standard deviations above and below the mean for reference and standard failures were considered for values above or below 3 standard deviations or if two consecutive standards fell outside of 2 standard deviations from the mean.

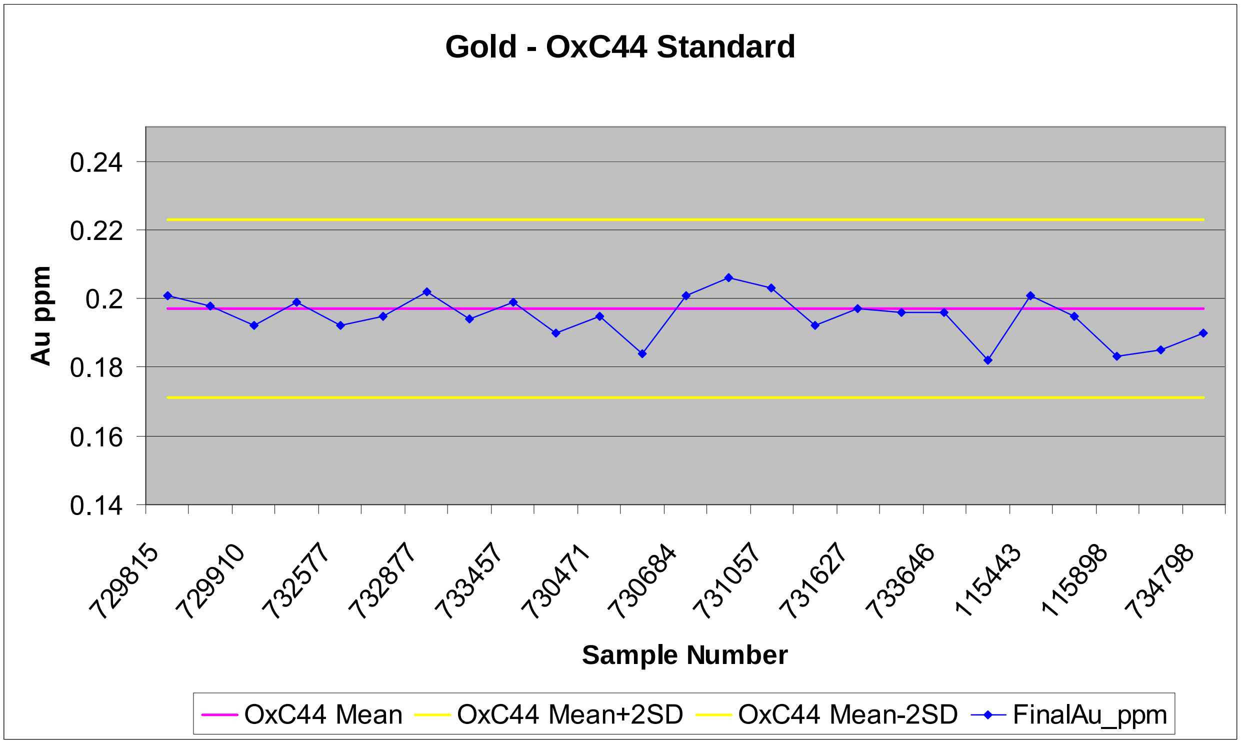


Figure 13.2 Rocklabs Standard OxC44

All analysis for standard OxC44 fell within 2 standard deviations of the standard mean and expected results were clustered around the mean. No analytical problems were associated with this standard.

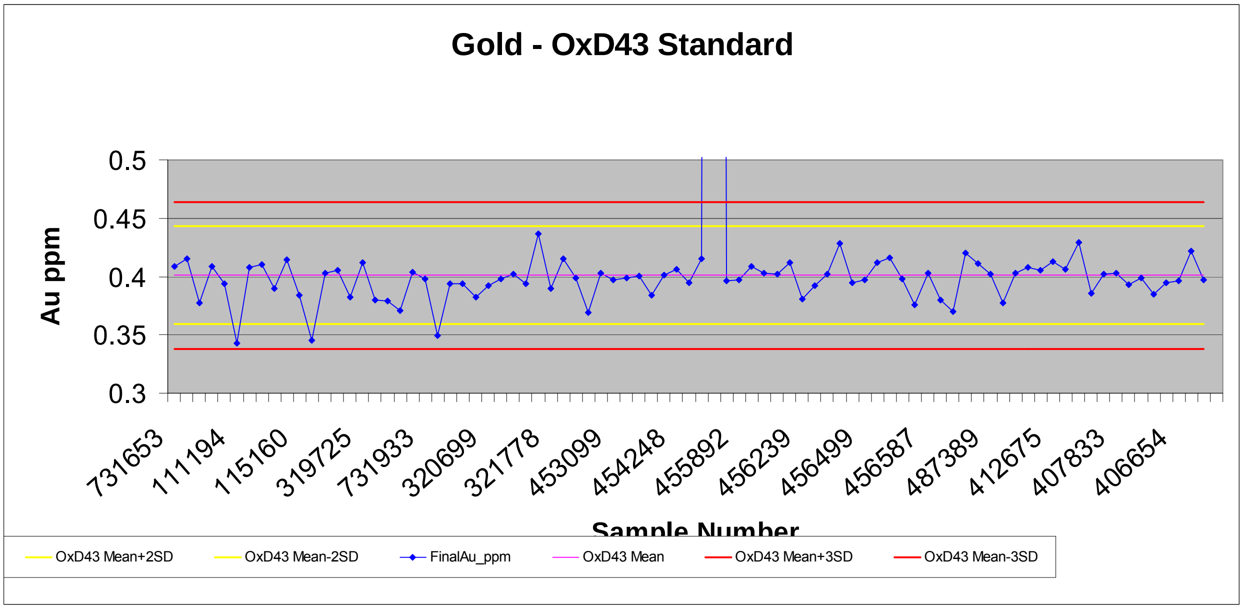


Figure 13.3 Rocklabs Standard OxD43

One failure occurred in the standard OxD43 (sample No.406058) where results returned values of 4.76 and 4.14 g/t Au respectively in the original and re-analysis of the submitted standard. Check analysis for surrounding samples, all of which are near or below detection limits, show good replication implying that the sample results for the standard is erroneous.

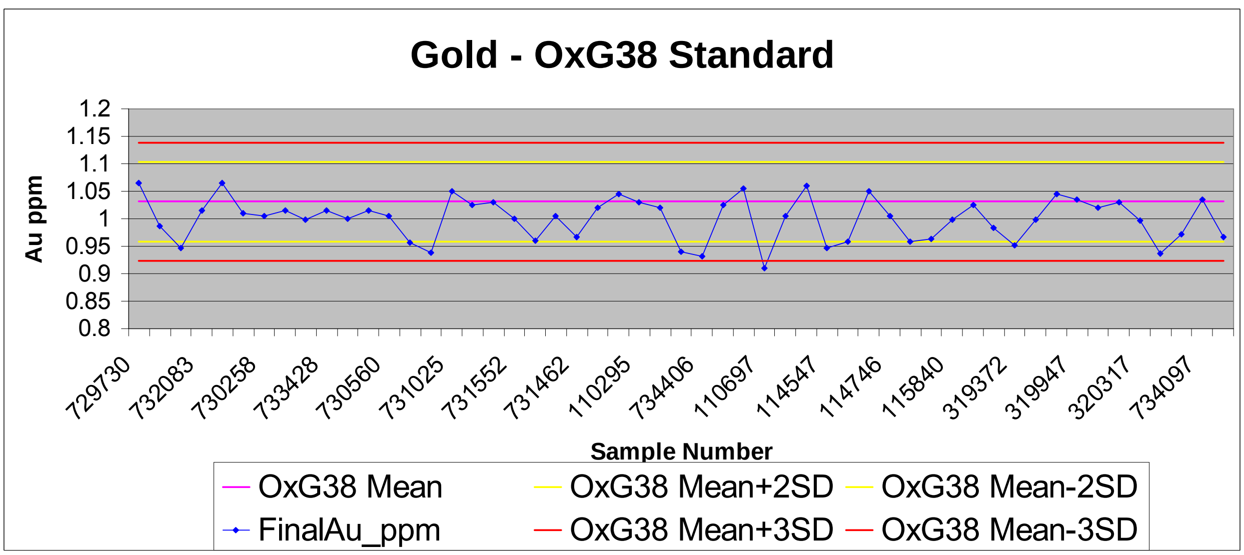


Figure 13.4 Rocklabs Standard OxG38

Results for Standard OxG38 indicate relatively good replication with the exception of samples 110697 and the consecutive samples 734306 and 734406. Re-analysis indicated similar values and check analysis for the surrounding samples within the respective sample batch returned expected results. Other QC samples within each sample batch did not indicate any bias and so the reported results are within acceptable accuracy limits. Overall, the majority of results for standard OxG38 tend to be biased low as seen in the graph where the majority of results tend to fall below the sample mean. Other standards and QC checks do not indicate that the reported results for other samples are biased low and so the results are believed to be within acceptable accuracy limits.

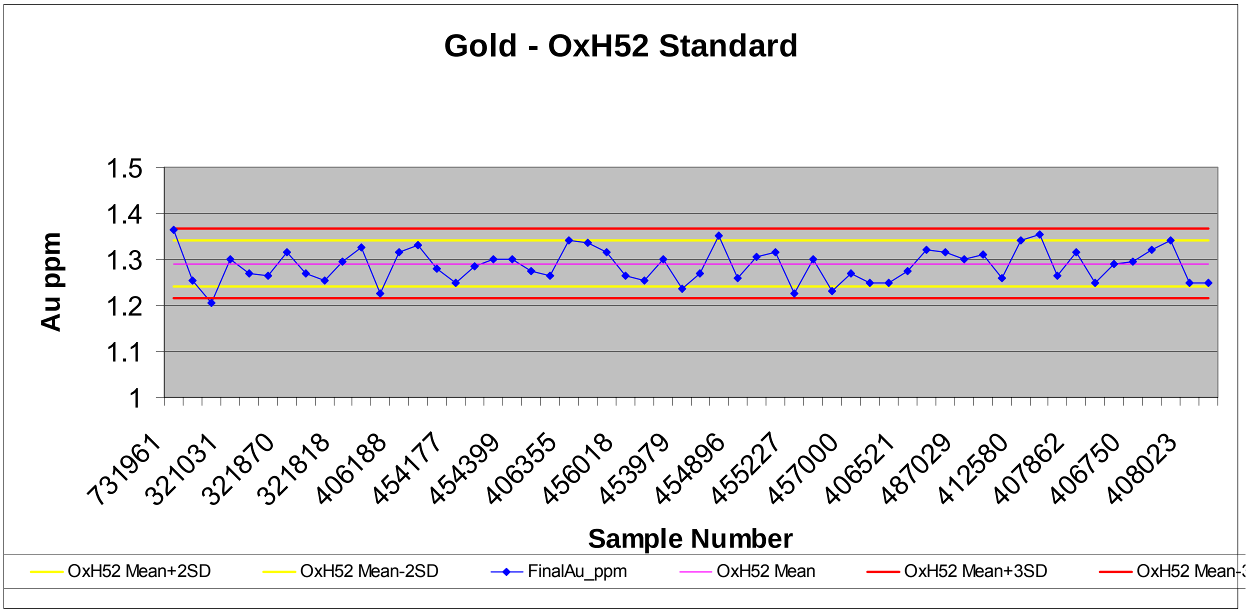


Figure 13.5 Rocklabs Standard OxH52

Only one failure for standard OxH52 occurred (sample 320605) where the original value reported was 1.06 g/t Au and check analysis returned 1.205 g/t Au. Surrounding samples within the sample batch are generally below 0.02 g/t Au and check analysis confirmed their values. Other QC data indicates no bias within the sample batch and so the reported values are considered to be accurate as initially reported.

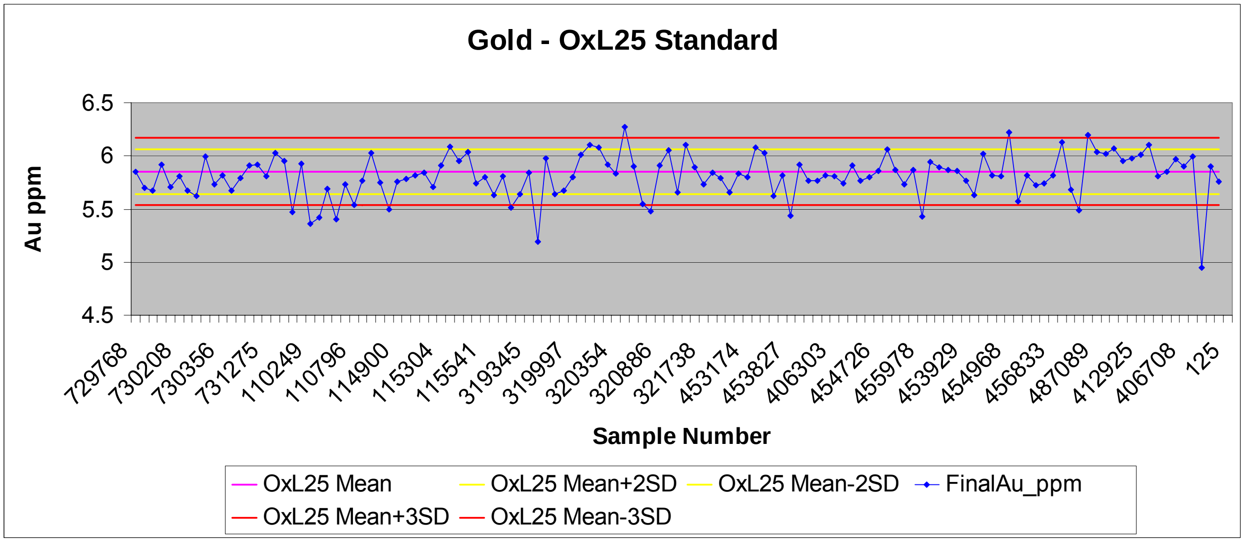


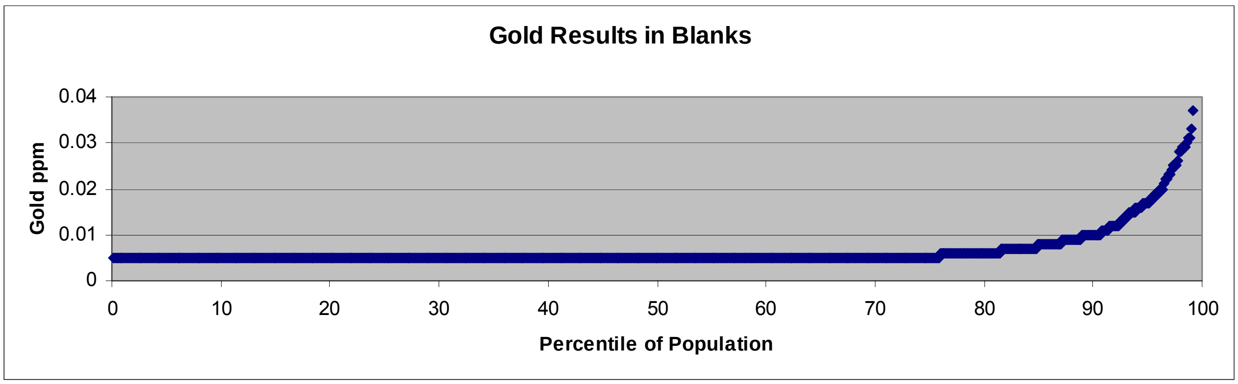
Figure 13.6 Rocklabs Standard OxL25

The Rocklabs standard OxL25 indicates more variability both above and below the mean than was noted in the other Rocklabs standards. Investigation for the cause for this was inconclusive although one possibility was given by ALS Chemex stating that "the majority of standard failures are related to fluxing issues" and this could be problematic with the OxL25 standard. The majority of analysis fall within 2 standard deviations and the remaining failures were investigated extensively. In the majority of cases, re-analysis of samples surrounding the failed standards replicated the original results and other QC data indicated that reported values are within acceptable accuracy limits.

Over 300 pulps were re-analyzed by ALS Chemex as a result of monitoring reported results for CRM's and identifying potential analytical problems during the exploration program. If checked pulps indicated a bias or incorrect results from what was originally reported then ALS Chemex issued a "corrected certificate" for the analytical results reported and the Cerro Jumil database was updated with values reported in the corrected certificate.

13.2.5 Blank Samples

Blank samples are inserted into the sample stream on average one for every 30 samples submitted. Initially ESM inserted blanks every 20 samples on regular intervals but has since adopted the procedure of inserting them on irregular intervals. The blank samples were initially composed of un-mineralized limestone taken from an outcrop near the property and used for phase 1&2 drill programs. During phase 3 silica sand was purchased and used as the blank material submitted with each sample shipment. While these are not an "official" or "certified" blank samples there have been an adequate number of samples analyzed establishing the grade that indicates the material used is barren. Based on the assumption that the samples are truly "blank", there appears to be a very small and insignificant amount of contamination resulting from sample preparation and analytical procedures as shown in Figure 13.7. Acceptable values for blank samples are considered to be analysis returning less than five times the lower detection limit (LDL). The LDL for Au and AG are 0.005 and 0.2 ppm respectively and therefore values equal to or less than 0.025 ppm for Au and 1.0 ppm for silver are considered to be within acceptable analytical limits. Of the 774 blanks submitted 97% returned values of less than 0.025 ppm for Au and 98% less than 1.0 ppm for silver.



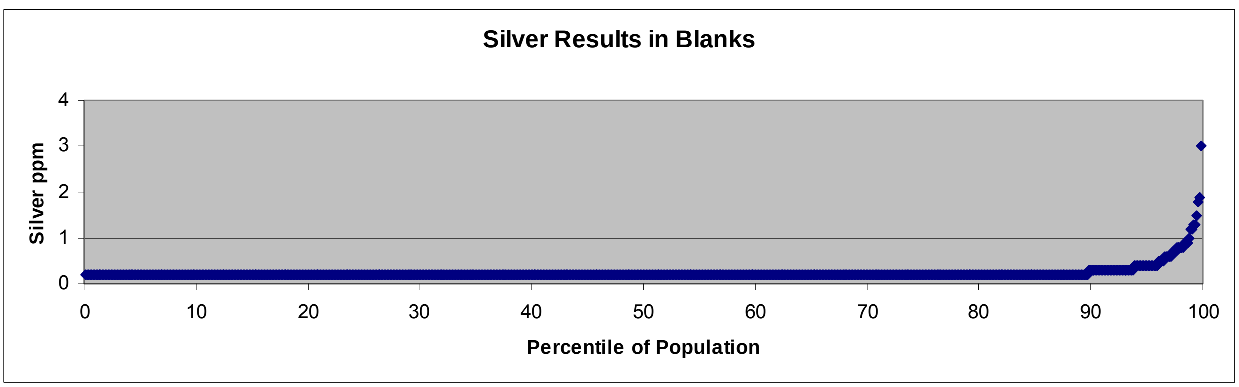


Figure 13.7 Gold and Silver Results in QC Blank Samples

13.2.6 Original Pulp and Duplicate Sample Analysis

Numerous QC checks have been completed during the three drill program phases including pulp and duplicate analysis for Au and Ag by both primary and secondary laboratories.

Several different types of duplicate analysis have been completed that include the following;

- Producing a second independent pulp from the reject of the original sample, also referred to as A/B splits by both primary and secondary laboratories (Au and Ag analysis
- For select intervals, producing two independent samples (also referred to as field duplicates or A/B splits) using half of the core and creating two samples from the same interval by splitting it in half again (1/4 core samples) or in the case of RC samples taking the original sample and splitting it in half (Au and Ag analysis)
- Pulp check analysis, of original pulps, for select Au samples by secondary laboratories

A summary for the various pulp and duplicate analysis is shown in Table 13.4 and a discussion for each check analysis type is given in the following paragraphs.

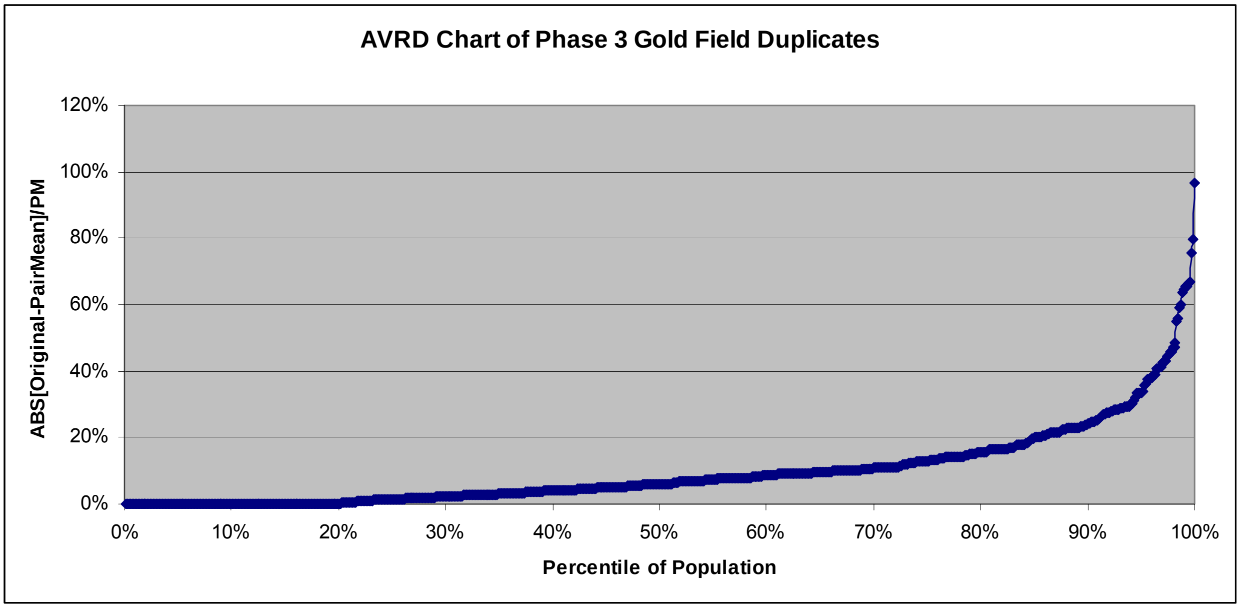
Table 13.4 Pulp and Duplicate Summary

Check Analysis Type	Number of Samples	Avg Gd Original (ppm)	Avg Gd Duplicate (ppm)	Correl
Ag ALS Drill Field Dup - Ph3	732	3.573	3.707	0.907
Au ALS Drill Field Dup - Ph3	732	0.282	0.282	0.964
Au ALS Reject Dup A/B split - Ph1&2	26	1.710	1.661	0.967
Ag ALS Reject Dup A/B split - Ph1&2	26	4.254	4.808	0.983
Au ALS vs SGS Dup A/B Split	108	1.889	1.645	0.986
Au ALS vs Insp Pulp Check	84	1.061	1.102	0.996
Au ALS vs SGS Pulp Check	138	2.744	2.661	0.998

ALS = ALS Chemex Laboratories
Insp = BSI Inspectorate de Mexico, S.A. de C.V.
SGS = SGS Laboratories
QC Check = Samples with related QC errors identified
Ph1&2 = Phase 1 and Phase 2 drill programs
Ph3 = Phase 3 drill program
Correl = Correlation Coefficient

Field duplicates were collected for 732 randomly selected intervals during the phase 3 drill campaign including both core and RC sampled intervals. All samples were submitted to the primary laboratory, ALS Chemex, as part of the routine sample shipments. Half of all sampled intervals are archived for future reference, metallurgical testing or check analysis. Therefore, the field duplicates represent the originally sampled interval split in half resulting in ¼ of the original core and RC intervals sent to the laboratory for analysis (i.e. ¼ of the interval is considered a duplicate and the other ¼ the original sample).

Results for Ag and Au field duplicates, phase 3 drill program, are shown on absolute value of the relative difference (AVRD) charts shown in Figure 13.8 where AVRD is defined as the absolute value of the original sample minus pair mean (PM), where PM is the original and duplicate sample averaged, divided by the PM.



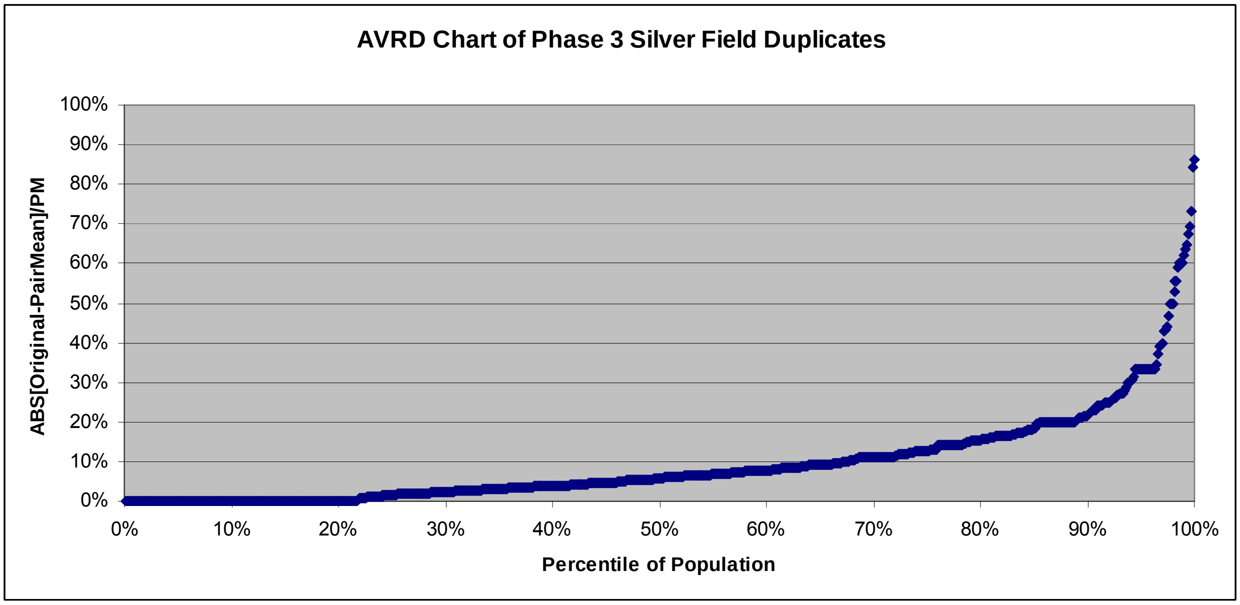
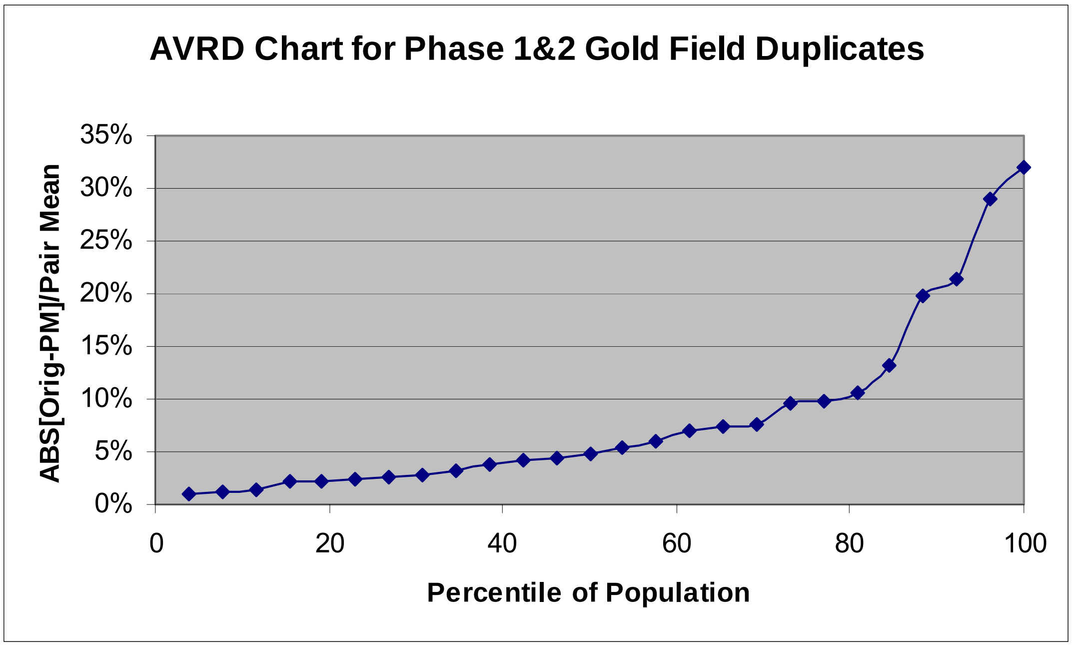


Figure 13.8 AVRD Charts for Gold and Silver Field Duplicates, Phase 3 Drill Program

EMS considers field duplicates to have a good correlation if at least 90% of the population have relative differences of less than 30%. At the 90th percentile for Au and Ag relative differences are less than 24 and 22% respectively.

For the phase 1&2 drill programs the duplicate sample was made by taking the original reject and producing a second pulp (A/B split) to be analyzed as the field duplicate. AVRD charts were developed using the same methodology as in the above phase 3 field duplicate charts and results are shown in Figure 13.9.



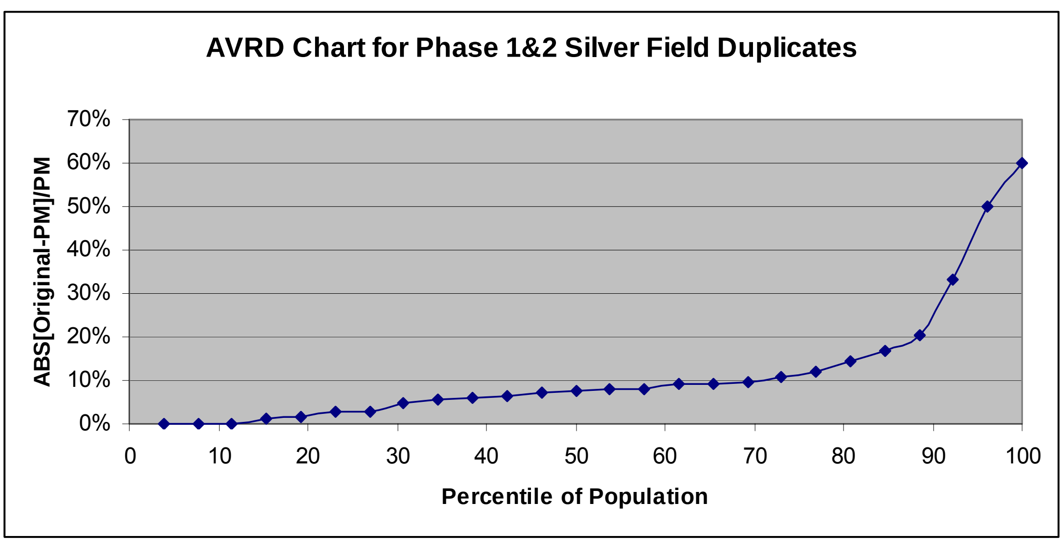


Figure 13.9 AVRD Charts for Gold and Silver Field Duplicates, Phase 1&2 Drill Program

Field duplicates for phase 1&2 drill programs give similar results to values noted in the phase 3 drill program where relative percent difference for field duplicates is less than 30% for samples below the 90th percentile of the population.

Field duplicate checks in phase 1, 2, and 3 drill programs all show good reproducibility for both Au and Ag and fall within acceptable accuracy limits for this type of duplicate sample analysis.

In addition to the above field duplicate analysis a total of 108 field duplicate samples consisting of original rejects were sent to a secondary laboratory, SGS Mexico, and their results are shown in an AVRD chart in Table 13.10.

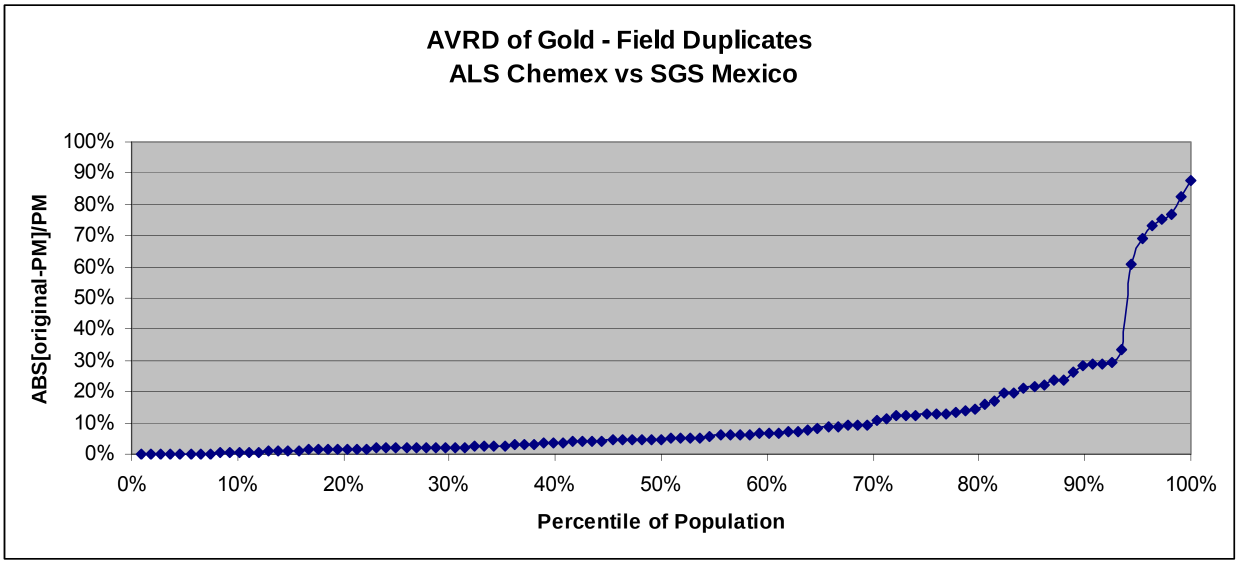
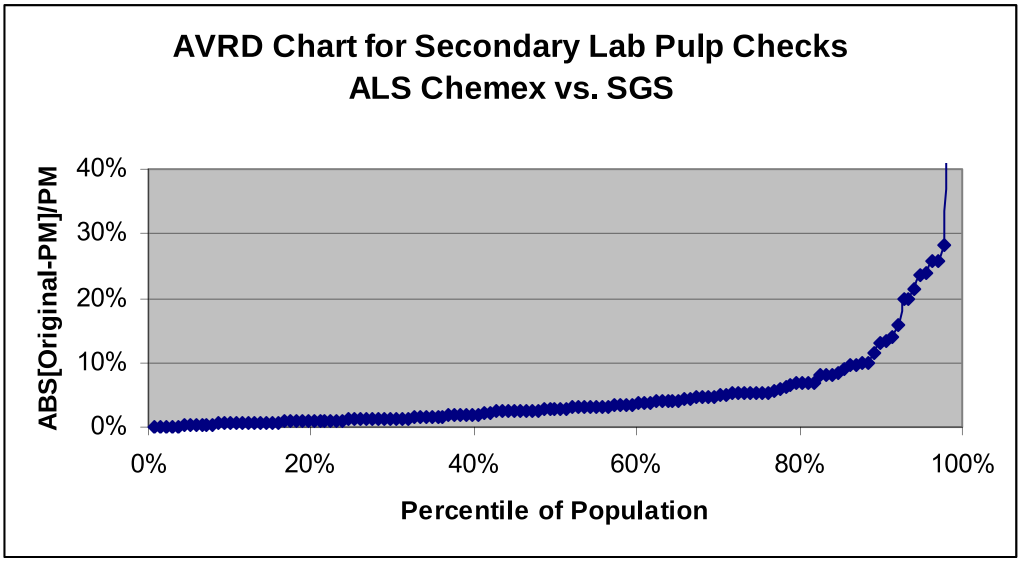


Figure 13.10 AVRD Chart for Field Duplicates between ALS Chemex and SGS Mexico

Overall the results for the field duplicate comparison between ALS Chemex and SGS Mexico indicate good correlation with over 90% of the samples having a relative per cent difference (RPD) of less than 30%.

Two separate studies were completed using secondary laboratories to check analytical results reported by the designated primary laboratory ALS Chemex. Secondary laboratories used for original pulp checks included Inspectorate Laboratories of Sparks, Nevada and SGS Mexico. A total of 84 original sample pulps were sent to Inspectorate and 138 to SGS. Results for the secondary laboratory pulp checks are shown in AVRD charts in Figure 13.11.



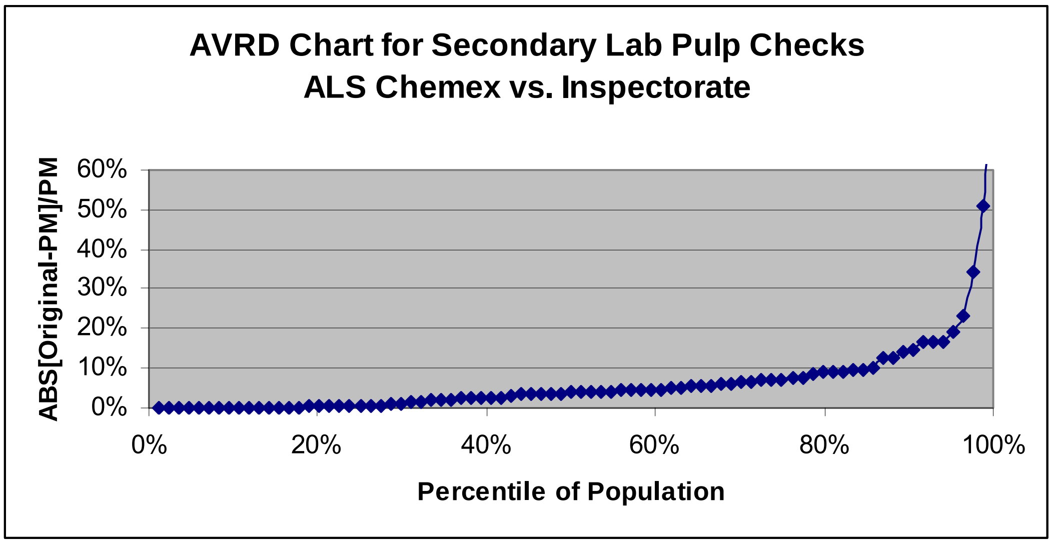


Figure 13.11 AVRD Chart for Secondary Lab Pulp Checks

Both secondary lab pulp check analysis indicate good replication of the original ALS Chemex Au assay. Approximately 90% of the pulps have a relative per cent difference of less than 15% between primary and secondary analysis. Results of the secondary laboratory pulp check analysis is considered to be within acceptable accuracy limits and substantiates ALS Chemex's originally reported values.

13.2.7 Size Fraction Analysis

An analysis was also undertaken to determine if gold has a preferential size fraction distribution. Alteration, mineralization, faulting and other geologic factors typically influence the amount of recovered material for any given interval and a size fraction analysis helps to establish if a bias, based on the size of material recovered, in gold values reported is problematic. Two separate studies were completed for gold distribution based on various size fractions including 11 samples from core rejects and 11 from RC sample intervals.

Drill core intervals and their reject material were screened into five size fractions and analyzed by ALS Chemex. Results for each size fraction are summarized in Figure 13.12.

An additional 11 mineralized intervals selected from RC samples were sent to SGS for gold distribution analysis. These samples were screened into seven size fractions and the results for each size fraction are summarized in Figure 13.13.

Results for both core and RC size fraction analysis indicate a homogeneous gold distribution and therefore no bias in analytical results based on sample recovery is perceived as a problem.

13.2.8 Opinion on Sampling, Preparation, Security and Analytical Methods

It is the author’s opinion that the adequacy of sampling, sample preparation, security and analytical procedures were conducted by reputable personnel and in accordance with standard industry practice. Sampling methods, sample preparation and analytical procedures are appropriate for the type of mineralization recognized at Cerro Jumil.

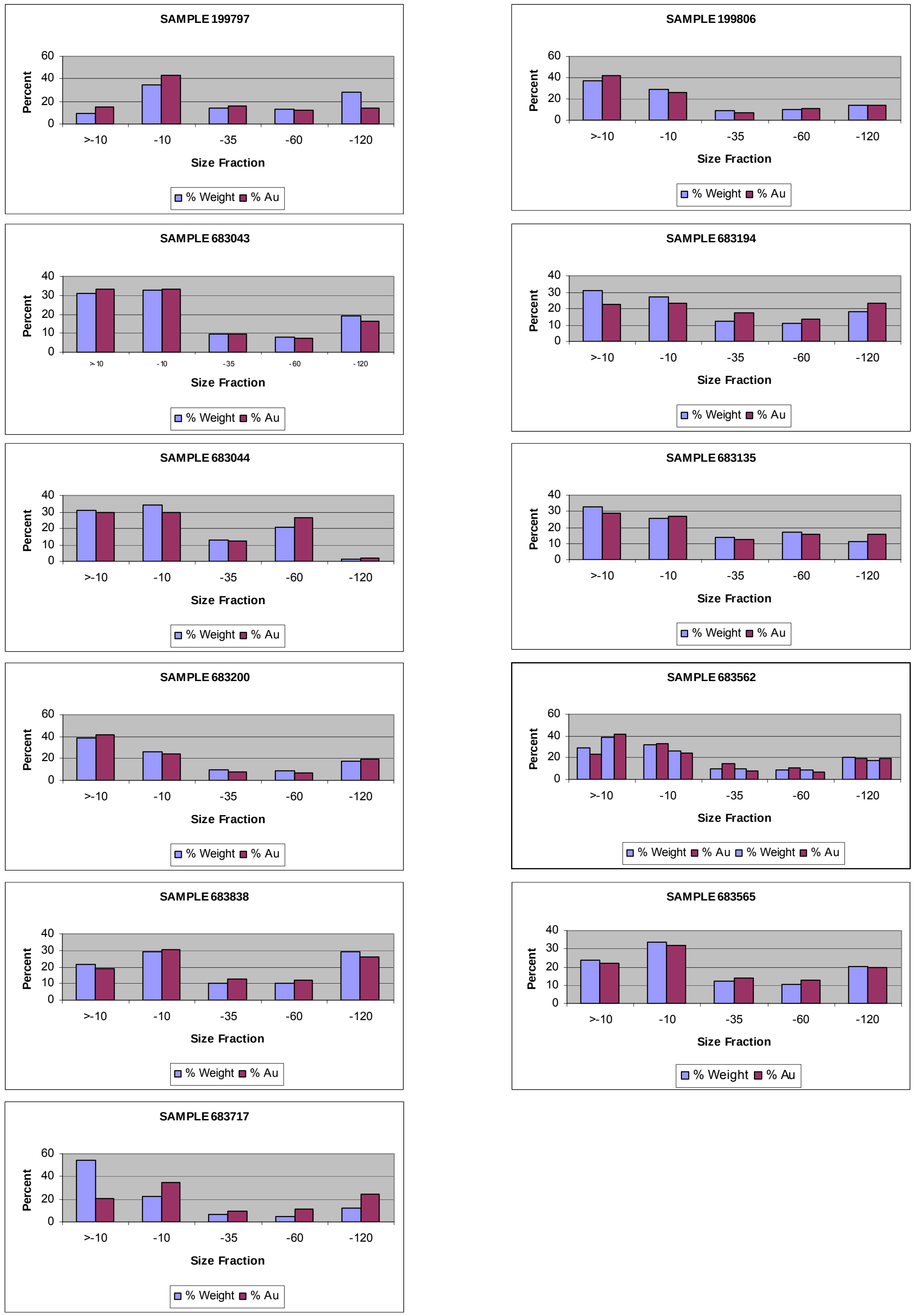


Figure 13.12 ALS Size Fraction Analysis for Gold distribution in Core samples

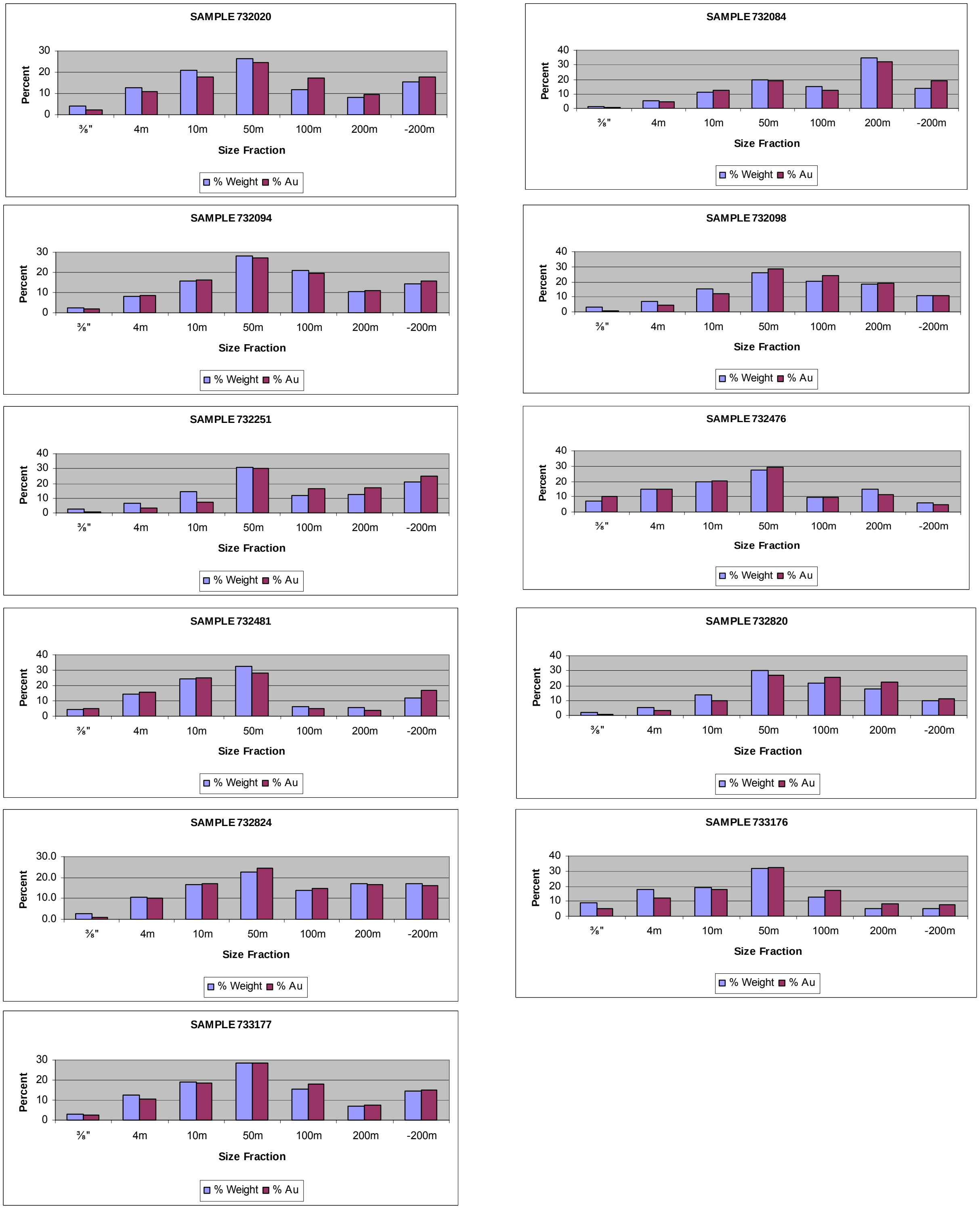


Figure 13.13 SGS Size Fraction Analysis for Gold distribution in RC samples

14.0 DATA VERIFICATION

14.1 INDEPENDENT QP DATA VERIFICATION

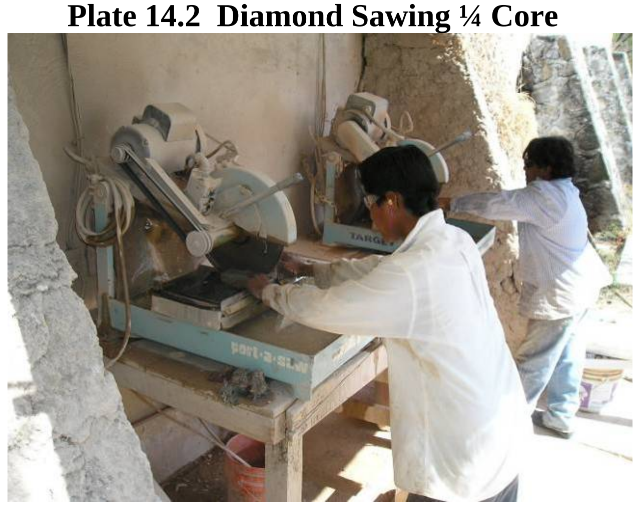
14.1.1 Independent Duplicate Core and RC Samples

Co-author and QP Dean Turner, P.Geo., conducted independent verification of sampling results from both core and reverse circulation drill samples during the Cerro Jumil site visit January 16-17, 2008. Turner selected three core holes, and one RC hole from review of ESM drill logs. The holes were selected to be representative of typical alteration and grade ranges for the mineralized and skarn altered zones at Cerro Jumil. All duplicate samples were taken either directly by Turner, or under his supervision.

For the diamond holes chosen, the core boxes were retrieved from ESM's secure, on-site storage building, laid out, and the logs reviewed. Holes DHE-05-01, DHE-05-13, and DHE-06-28 were selected for review. Intervals were identified by Turner for duplicate sampling, and the ½ core sawn into quarters, with ¼ core bagged for duplicate analysis and the other ¼ core retained in the core box archive (Plates 14.1 and 14.2). For intervals composed of broken and friable material, efforts were given to take a representative subsample of the core material, with careful attention given to acquiring fine as well as coarse material. The duplicate ¼ core was bagged, labelled with an anonymous sample number, and secured pending shipment.

Plate 14.1 Core Duplicate Sampling

Plate 14.2 Diamond Sawing ¼ Core



For the RC duplicate sampling, ESM's secure sample storage facility in the village of Rodeo, directly adjacent to the Cerro Jumil property, was visited (Plate 14.3). Hole RCHE-04-07 was selected, and the RC sample splits (‘testigos’) retained in ESM’s archive were retrieved, re-bagged, re-labelled with an anonymous sample number, and secured pending shipment (Plate 14.4).

Plate 14.3 ESM Rodeo Storage Facility

Plate 14.4 RC Duplicate Sampling

The duplicate samples remained under Turner’s control until shipment via commercial bus service to Chemex’s sample preparation laboratory in Guadalajara. The samples were analyzed for gold at Chemex’s Vancouver laboratory using a one assay ton fire assay with AA finish (Chemex code Au-AA23), and silver underwent aqua regia digestion and analysis via ICP/AES (Chemex code ME-ICP41). Digital assay certificates were sent to Turner, and he subsequently confirmed the reports via direct Internet download from Chemex’s Webtrieve system.

QA samples included by Turner with his duplicates were comprised of two ‘blank’ samples and three gold certified standards from Geostats Pty. Ltd., including one G902-3 (0.42 ppm Au) and two G305-6 (1.48 ppm Au) CRMs. The QA sample gold assays were precisely and accurately reported by Chemex, and passed all QC tests.

The duplicate analyses for gold and silver show good correspondence between the original ESM sample results and the independent sample assays (Table 14.1 and Figures 14.1 and 14.2). However, the original ESM samples on average assayed 10.7% higher for gold and 14.6% higher for silver. These higher averages are due to one high-grade sample (673524) from DHE-06-28 that assayed 14.2 g/t Au and 52.5 g/t Ag versus duplicate analyses of 0.18 g/t Au and 36.2 g/t Ag. Elimination of this outlier sample gives averages of 3.83 g/t Au and 5.81 g/t Ag for the originals versus 4.25 g/t Au (11% higher) and 5.67 g/t Ag (2.4% lower) for the duplicates.

Review of the drill core photo for 673524 highlights that this interval is composed of broken and rubbley garnet-wollastinite skarn. Clearly this specific sample interval demonstrates nugget effect. Otherwise, the linear correlation between the original and duplicate drill samples establish that ESM's drill sample assay results for gold and silver are reliable and reproducible within the context of geologic variance expected for a gold skarn deposit.

Table 14.1 Original ESM Drill Sample and Independent Duplicate Gold-Silver Results.

ORIGINAL DRILL SAMPLE						DUPLICATE SAMPLE		
Drill Hole	**Samp#**	**From**	**To**	**Au g/t**	**Ag g/t**	**QP Samp#**	**Au g/t**	**Ag g/t**
DHE-05-01	199028	47.8	48.9	0.07	26.0	602514	0.13	31.7
DHE-05-01	199029	48.9	50.0	1.58	10.1	602515	7.25	8.2
DHE-05-13	199941	48.7	50.6	0.23	2.1	602510	0.21	2.3
DHE-05-13	199942	50.6	52.0	1.72	5.8	602512	0.70	4.1
DHE-05-13	199943	52.0	54.0	3.01	3.5	602513	1.87	2.7
DHE-06-28	673503	67.0	68.0	8.07	5.5	602501	8.83	6.6
DHE-06-28	673504	68.0	69.0	3.46	12.1	602502	3.03	12.5
DHE-06-28	673512	76.0	77.0	0.31	7.8	602503	0.30	3.1
DHE-06-28	673513	77.0	78.0	1.58	2.5	602504	1.89	2.1
DHE-06-28	673523	87.0	88.0	0.20	6.6	602507	0.20	6.1
DHE-06-28	*673524*	*88.0*	*89.0*	*14.20*	*52.5*	*602508*	*0.18*	*36.2*
RCHE-07-47	115236	57.0	58.5	0.25	1.5	602516	0.27	1.6
RCHE-07-47	115237	58.5	60.0	1.14	1.0	602517	0.98	0.8
RCHE-07-47	115238	60.0	61.5	2.94	0.9	602518	2.94	1.4
RCHE-07-47	115249	73.5	75.0	26.60	4.2	602520	28.40	3.7
RCHE-07-47	115250	75.0	76.5	7.51	2.3	602521	8.14	2.8
RCHE-07-47	115251	76.5	78.0	2.65	1.0	602522	2.92	1.0
Average				***4.44***	***8.55***		***4.01***	***7.46***

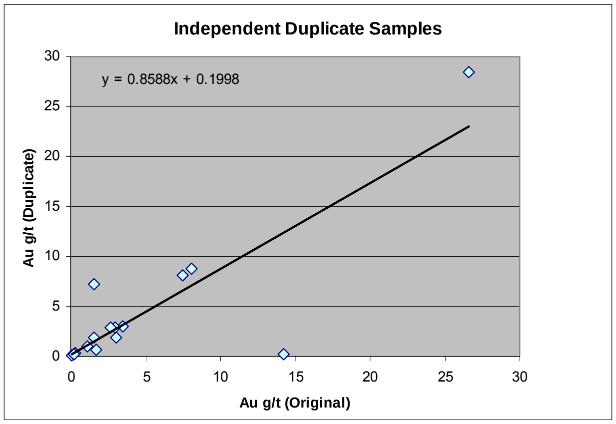


Figure 14.1 Original Sample Scatter Plot.

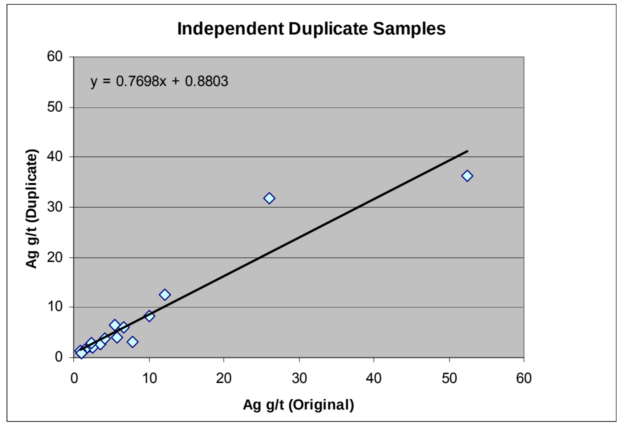


Figure 14.2 Duplicate Sample Scatter Plot.

14.1.2 Independent Drill Assay Database Audit

Turner conducted an independent drill database audit to ensure the veracity of gold-silver assays used for resource modeling. Twenty-one Chemex drill assay certificates representative of the core and RC drilling over time were selected as a check against the digital drill assay database provided by ESM. The certificates were downloaded directly by Turner from the Chemex Webtrieve site. These certificates represent over 2000 individual assay results, or approximately 10% of the drill database. The gold-silver assays reported in the certificates were cross-checked by sample number against the entry in the database, with zero errors or discrepancies. This 100% fidelity is a strong endorsement of ESM's data handling protocols and procedures, and firmly establishes the high quality of the assay database for resource modeling.

14.2 ESM INTERNAL DATA VERIFICATION

Both internal and external laboratory quality control procedures, sampling method and handling protocols meet or exceed standard industry practice. Geochemical and/or assay results are added to the database by a computer program that uses the unique sample identification number to download the data and tie it to its appropriate location, sample type, interval, and other pertinent information eliminating manual data entry error. ESM runs routine checks for data verification that include the following;

- Check and review drill site locations and surveyed coordinates
- Examination of assay certificates and ~10% spot check of results input into the database
- Continual review of QAQC procedures and results

- Validation of the database to check for inconsistencies such as missing intervals, out of sequence records, duplicate sample numbers, or typographical errors
- Comparison of drill logs to database information for lithology, sample numbers and other pertinent information
- Review and check of geological plan and cross-section maps with database information
- Frequent project site visits and review of procedures and results derived from ongoing exploration drilling, mapping, sampling and other related activities

The co-author of this report, Bond, has been involved with this project since its inception, and believes that the data verification procedures are adequate, and the results reported are reliable.

15.0 ADJACENT PROPERTIES

There are no significant properties as defined by NI 43-101 adjacent to Cerro Jumil.

16.0 METALLURGICAL TESTING

Preliminary bottle roll testing was completed on one composite sample from the West Zone and two from the Southeast Zone during 2005 and 2006. Based on the geological logs, mineralogical observations, and geochemical results it is believed that the composites are typical for the different areas of the deposit.

In 2005, bottle roll testing examining the effect of grind size and NaCN concentration on gold and silver recovery for the West Zone was done on multiple samples from composite #1. The metallurgical sample was from drill hole DHE-05-01 from 48.9 to 85.2 metres with an weighted average grade of 2.24 Au g/t and 19.52 Ag g/t. ALS Chemex composited the sample from reject material stored at their sample preparation facility in Guadalajara and shipped the composite (#1) directly to SGS Lakefield Research Limited. Metallurgical testing was done by SGS Lakefield's facility in Lakefield, Ontario, Canada.

A 1 kg test charge was ground and split into 500 gram charges. One charge was re-pulped with fresh water to 33% solids in a 2.5 liter bottle. Lime and NaCN were added and the bottle was placed on rolls for 48 hours. NaCN concentration and alkalinity were monitored and maintained throughout the duration of the leach period and dissolved O2 concentration was measured occasionally. At the end of the leach period, the pulp was filtered. The pregnant solution was collected and submitted for Au and Ag analyses. The filter cake was thoroughly washed several times with water. The wash solution was discarded. The filter cake was dried and submitted for Au, Ag and size analyses. Results for composite #1 reagent consumption and 48 hour extraction rates are shown in Table 16.1. Compsite #1 Au and Ag extractions ranged from 92.3% to 95.6% and 48.3% to 65.1% respectively. Grind size had little effect on overall gold extraction over the size range tested. Further test work is required to fully characterize the ore and to optimize a processing flowsheet.

Table 16.1 2005 Bottle Roll Tests – West Zone

Test	Conditions		Reag. Cons.		48 h Extraction		Residue		Head (calc.)	
	K_{80} µm	NaCN g/L	NaCN kg/t	CaO kg/t	Au %	Ag %	Au g/t	Ag g/t	Au g/t	Ag g/t
CN-1	94	0.5	0.64	2.68	**92.3**	**48.3**	0.18	8.7	2.34	16.8
CN-2	94	1.0	0.73	2.74	**95.6**	**61.1**	0.10	6.4	2.29	16.5
CN-3	44	0.5	0.66	2.83	**94.6**	**54.6**	0.12	7.4	2.23	16.3
CN-4	44	1.0	0.78	2.80	**95.2**	**64.4**	0.11	6.2	2.31	17.3
CN-5	32	0.5	0.87	2.91	**95.2**	**59.5**	0.11	6.9	2.31	17.0
CN-6	32	1.0	1.04	2.99	**94.1**	**65.1**	0.13	5.9	2.22	16.9

Bottle roll testing to examine the effect of grind size, NaCN consumption and gold recovery from composites #2 and #3 taken from the Cerro Jumil Southeast Zone was completed in 2006. The metallurgical samples were from drill hole's DHE-05-17 (composite #2) and DHE-06-29 (composite #3) composited from from 123.9 to 151.0 metres and 33.0 to 101.0 metres, respectively. Average gold grades of the samples making up composite #2 and #3 were 1.09 and 2.88 g Au/t, respectively. ALS Chemex made the composite samples from reject material stored at their sample preparation facility in Guadalajara and shipped them directly to SGS Lakefield Research Limited. Metallurgical testing was done by SGS Lakefield's facility in Lakefield, Ontario, Canada.

A 1-kg test charge was ground and split into 500 g charges. One charge was re-pulped with fresh water to 33% solids in a 2.5 L bottle. Lime and NaCN were added and the bottle was placed on rolls for 48 hours. NaCN concentration and alkalinity were monitored and maintained throughout the duration of the leach period, as described below. At the end of the leach period, the pulp was filtered. The pregnant solution was collected and submitted for Au and Ag analyses. The filter cake was thoroughly washed several times with water. The wash solution was discarded. The filter cake was dried and submitted for Au and size analyses. Results for composite #2 and composite #3 reagent consumption and 48 hour extraction rates are shown in Table 16.2.

Table 16.2 2006 Bottle Roll Rests – Southeast Zone

Test	Sample	Conditions		Reagent Consumption		48 h Extraction	Residue	Head (calc.)
		K_{80}	NaCN	NaCN	CaO	Au	Au	Au
		µm	g/L	kg/t	kg/t	%	g/t	g/t
CN-7	Comp #1	87	0.5	0.19	2.98	**88.2**	0.10	0.85
CN-8	Comp #1	87	1.0	0.31	2.78	**89.4**	0.09	0.85
CN-9	Comp #1	46	0.5	0.17	2.86	**90.2**	0.08	0.82
CN-10	Comp #1	46	1.0	0.68	3.02	**91.3**	0.07	0.80
CN-11	Comp #1	36	0.5	-0.18	2.98	**90.6**	0.08	0.85
CN-12	Comp #1	36	1.0	0.34	3.12	**91.2**	0.07	0.80
CN-13	Comp #2	133	0.5	0.07	1.45	**87.8**	0.29	2.38
CN-14	Comp #2	133	1.0	0.71	1.37	**89.1**	0.26	2.40
CN-15	Comp #2	57	0.5	0.06	1.47	**95.2**	0.12	2.48
CN-16	Comp #2	57	1.0	0.09	1.61	**94.5**	0.13	2.28
CN-17	Comp #2	43	0.5	0.10	1.58	**95.9**	0.10	2.44
CN-18	Comp #2	43	1.0	0.12	1.61	**96.1**	0.10	2.54

Gold extractions ranged from 88.2% to 91.3% and 87.8% to 96.1% for composite #2 and composite #3 respectively. Due to expected low silver grades, silver was not analyzed for in the two Southeast Zone composites. Grind size had some effect on overall gold extractions over the size range tested, most notably with composite #2. Slightly higher extraction rates were observed using the higher NaCN concentration in both composites. Further test work is required to fully characterize these ores and to optimize a processing flowsheet.

In early 2007 a bulk sample from the Southeast Zone was submitted to SGS Lakefield for column leach testing to determine recovery of gold and silver by cyanidation. Two column tests were prepared using particle sizes of 1” and ¾’ material. Each column contained a 50 kilogram sample. The rate of gold and silver extraction was determined by analyzing the pregnant solution daily over a 61 day leach period. After 61 days the two columns were washed until the outflow solution was at a neutral pH. Gold and silver extraction results are given in Table 16.3

Table 16.3 SGS Column Leach Test Results, Southeast Zone Bulk Sample

Column	Extraction (%)		Consumption kg/t	
	Au	Ag	NaCN	CaO
1”	72.02	67.55	1.20	35.51
¾”	73.14	55.54	1.09	44.82

Both column tests indicated that extraction rates peaked around 50 days and no percolation problems were identified within the columns.

17.0 MINERAL RESOURCE ESTIMATE

The Cerro Jumil gold-silver mineral resource was estimated by co-author Dean Turner, P.Geo., an independent qualified person as defined by National Instrument 43-101. The Cerro Jumil geologic and resource models were based upon an independent field review of the property, as well as checks on, and assessment of, the drill data, quality assurance/quality control results, and geologic interpretation of the gold-silver mineralized zones. This Section 17 is the sole responsibility of Turner, and reports on the modeling procedures and assumptions, grade estimation parameters, and resulting mineral resource estimate and classification. The primary tools used for this work included the Vulcan, GSLIB, and Systat software packages. Turner has reviewed and agrees with all other sections of this report, and supports that the conclusions are accurate, reliable, and fully disclosed. Turner is not aware of any environmental, permitting, legal, title, socio-economic, mining, or metallurgical issues that would materially affect the Cerro Jumil mineral resources.

17.1 DRILL HOLE DATABASE

The Cerro Jumil geologic model and gold silver resource were based upon the drill hole database provided by ESM as of September 1, 2008. The database represents over 32,000 meters of core and reverse circulation drilling, details of which are described in Section 11 of this report. These data were provided digitally as 1) surveyed drill collars in UTM meters, 2) down-hole surveys, 3) assays consisting of gold, silver, and multi-element geochemistry, and 4) detailed geologic logs. ESM has diligently followed 43-101 and CIM compliant procedures and protocols for drilling, sampling, assaying, QA/QC, and data verification. As a result, the quality of the drill database used to estimate the Cerro Jumil gold-silver resources is judged to be reliable, accurate, and reproducible. Figure 17.1 is a plan map representing the drill database used for the resource modeling of the Southeast Zone (SEZ), Las Calabazas Zone (LCZ), and West Zone (WZ), as well as cross section lines referenced in this section.

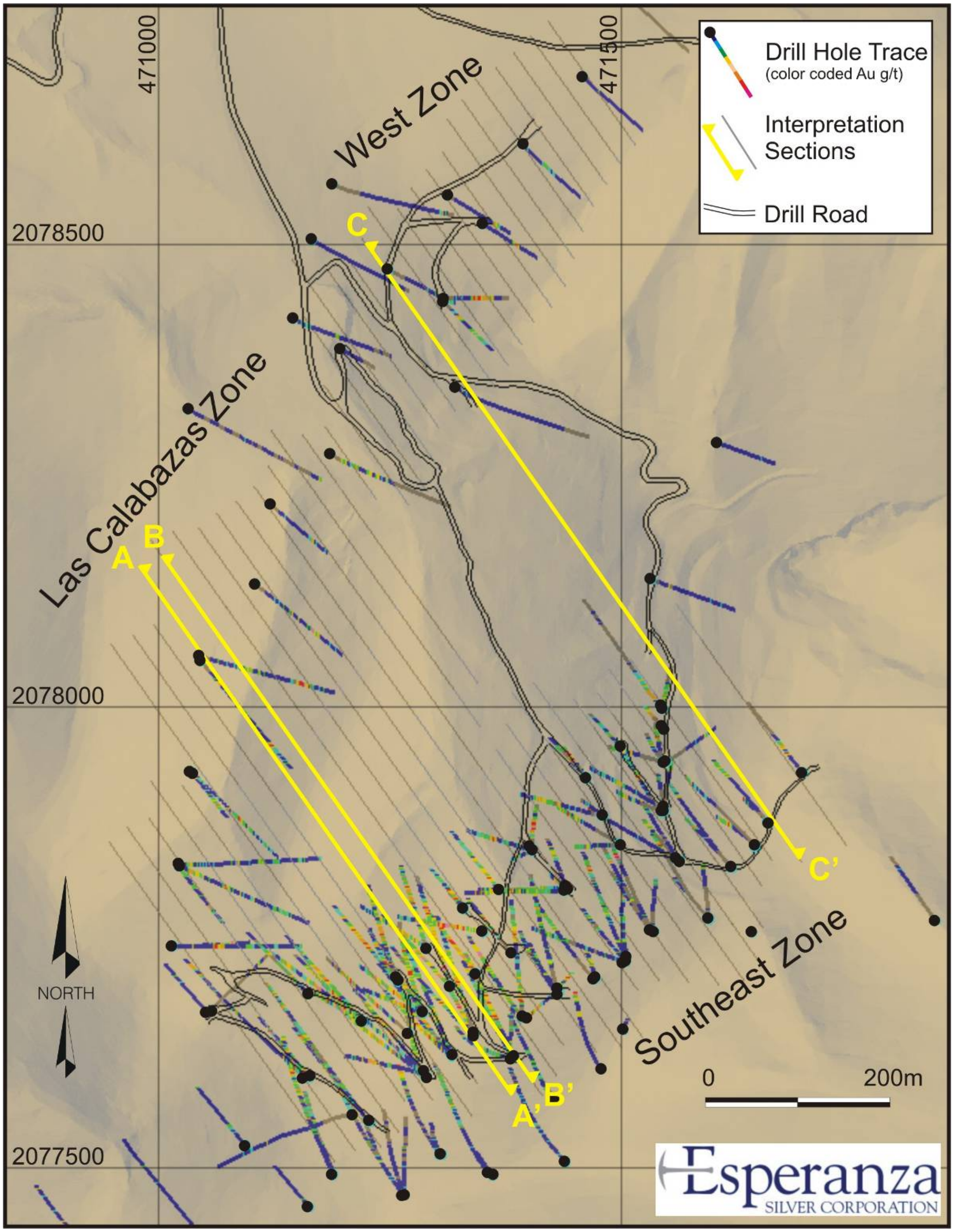


Figure 17.1 Drill Hole Plan Map with Cross Section Lines

17.2 GEOLOGIC MODEL

The Cerro Jumil geologic model was based upon: 1) statistically derived mineralization envelopes from gold and silver drill assays, 2) logged lithology and alteration, and 3) down-hole multi-element anomalies associated with gold and silver mineralization. These data were used to build an integrated geologic model for the gold and silver mineralized zones, as well as for important unmineralized rock units.

17.2.1 Definition of Gold and Silver Mineralized Envelopes

The drill hole database assays were statistically analyzed within logged rock and alteration types in order to characterize their geologically controlled grade distributions. This review initially focused on the SEZ due to its detailed drill delineation. ESM recorded drill log geologic information including lithology, sub-lithology, and alteration. Statistical summaries by the major rock/alteration types simply confirmed that gold mineralization is preferentially hosted in skarn altered rocks (35 % of the drill intervals, average = 0.77 g/t, median = 0.28 g/t gold). There were also cases of significant mineralization in other alteration types, most importantly marble (31% of the drill intervals, average = 0.17 g/t, median = 0.02 g/t gold). The other rock/alteration types (i.e., limestone/marble, limestone, feldspar porphyry) were generally poorly mineralized, or unmineralized, with respect to gold. Most notably, this includes the quartz porphyry unit that has been interpreted as post-mineralization in age.

Univariate statistical review of drill hole gold and silver assays yielded thresholds for interpreting grade envelopes within the skarn-altered and drill log coded SEZ, LCZ, and WZ. The gold data was reviewed for the combined SEZ-LCZ and the WZ as Log10 histograms, Log10 probability plots, and length-weighted statistics (Figures 17.2 and 17.3). The combination of the SEZ-LCZ drill data was based upon the assumed transitional nature of the gold mineralization between the two zones during the early stages of the study.

The primary feature of the SEZ-LCZ distribution is a polymodal population, with an obvious break at 0.1 ppm, a more subtle inflection at 1.0 ppm, and a high-grade outlier population at 10 ppm gold. The WZ distribution also has a polymodal distribution, with a very clear break at 0.1 ppm, a subtler inflection around 1.0 ppm, and an outlier population at 5.0 ppm gold. The 0.1 and 1.0 ppm (g/t) thresholds were consistent between the SEZ-LCZ and WZ populations, and were used to delineate low grade and high grade gold envelopes for the geologic model.

The most significant silver mineralization occurs within the WZ. The histogram and probability plots for silver portray a symmetric log distribution, with a positive tail starting at 10 to 20 ppm (g/t) and an outlier population at approximately 100 to 125 ppm (g/t) silver (Figure 17.4). The 10 ppm (g/t) threshold was selected for defining the silver mineralization envelopes.

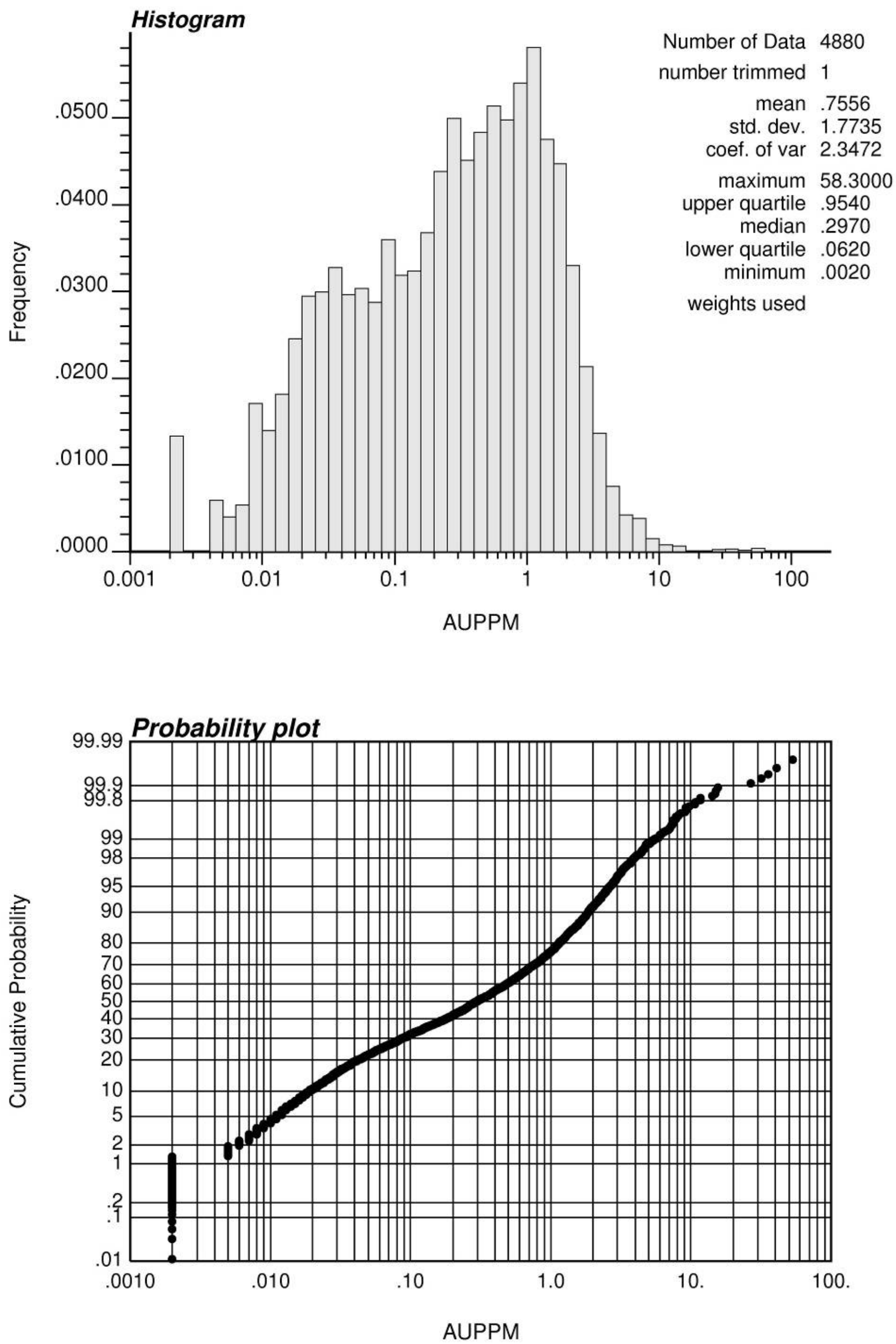


Figure 17.2 SEZ-LCZ Drill Hole Gold Log10 Histogram and Probability Plot

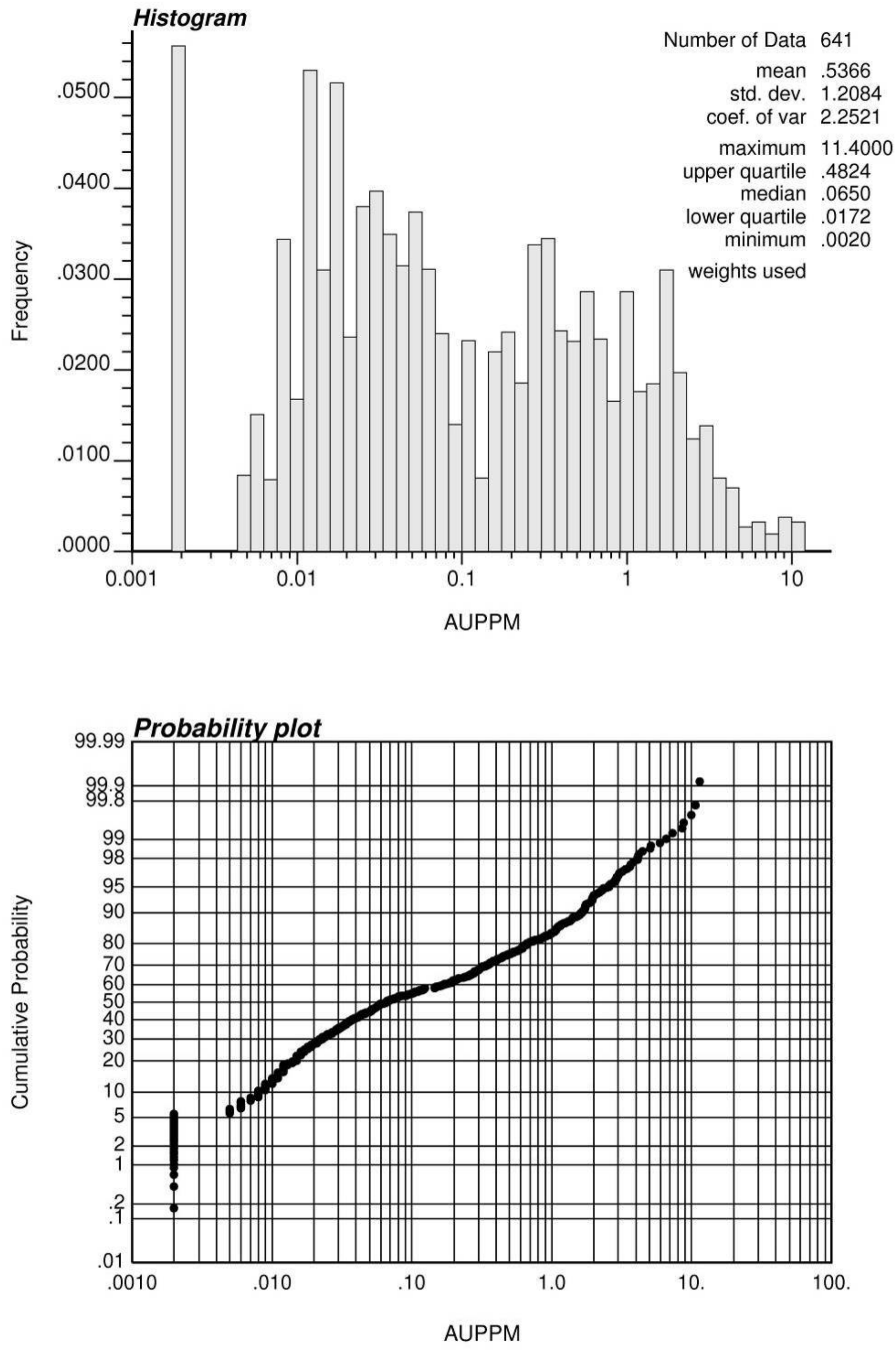
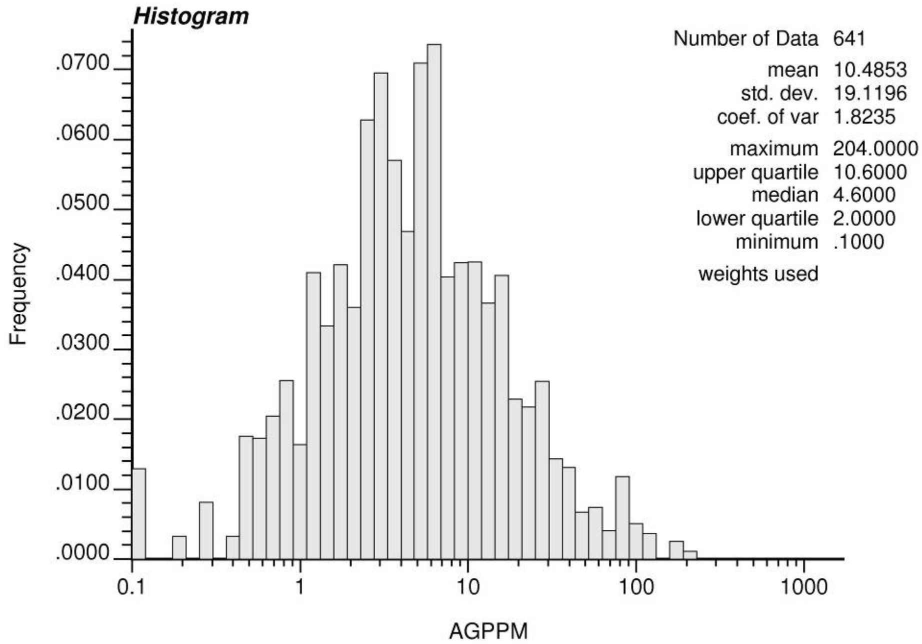


Figure 17.3 WZ Drill Hole Gold Log10 Histogram and Probability Plot



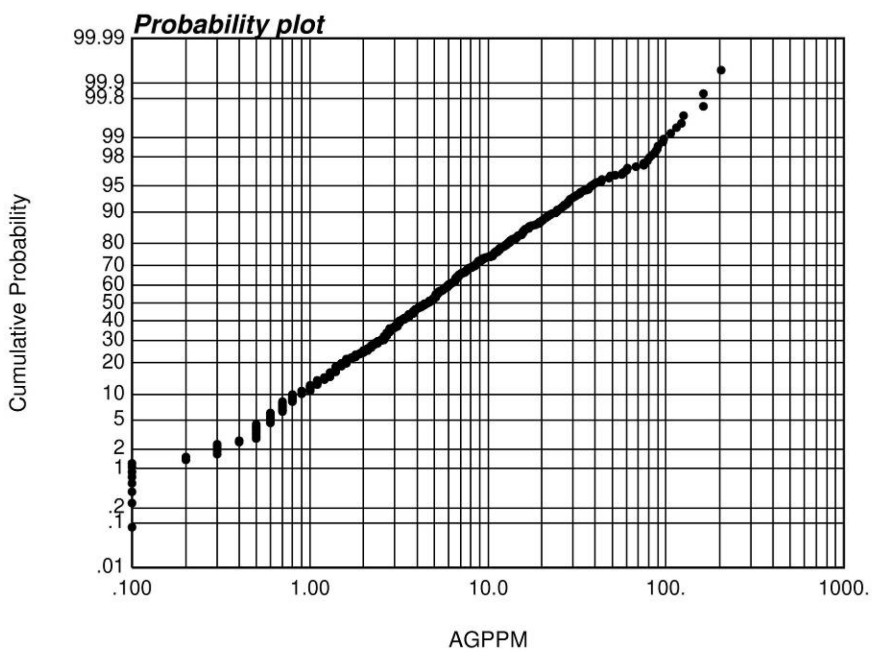


Figure 17.4 WZ Drill Hole Silver Log10 Histogram and Probability Plot

In addition to gold and silver, a number of other metals from the multi-element drill database were enriched in the skarn altered zones. The frequency distributions for bismuth and copper have polymodal distributions similar to gold in the SEZ (Figure 17.5a-b). Most notably there were strong linear correlations between gold-bismuth and gold-copper, particularly in the SEZ (Figure 17.5c-d). The log-log Pearson correlation coefficients report as:

- R = 0.74 for Au versus Bi
- R = 0.54 for Au versus Cu

Figure 17.5a Bismuth Histogram

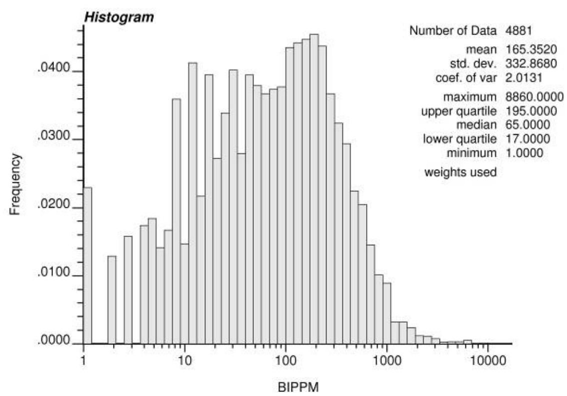


Figure 17.5b Copper Histogram

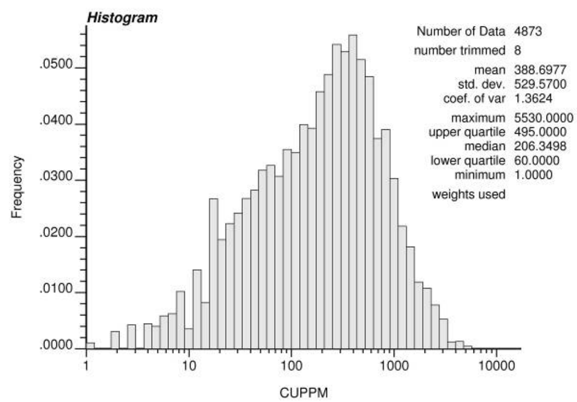


Figure 17.5c Au vs Bi Scatter Plot

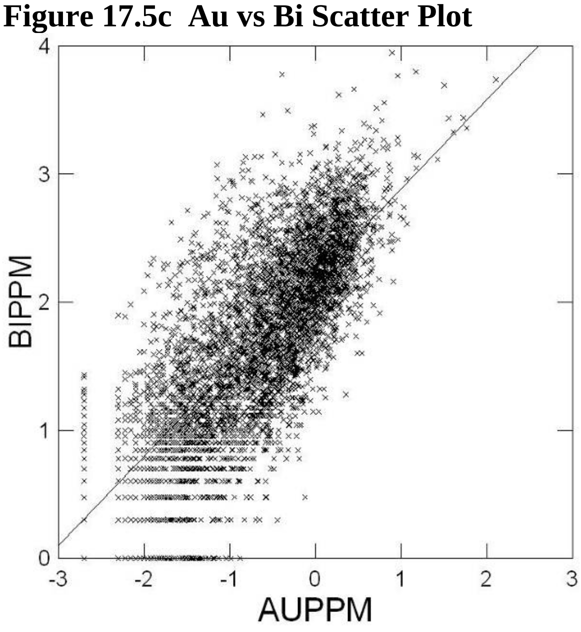
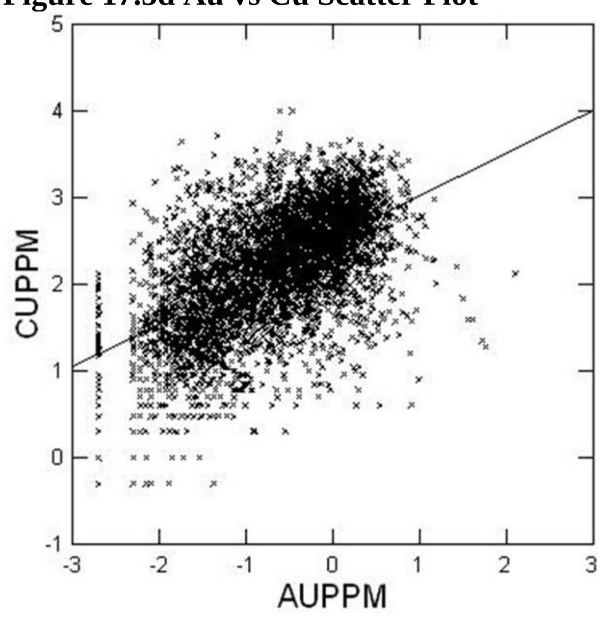


Figure 17.5d Au vs Cu Scatter Plot



Figures 17.5 a-d SEZ Bismuth and Copper Log10 Histograms and Scatter Plots

17.2.2 Interpretation of Geologic Model

The drill data for logged geology, and gold, silver, bismuth, copper assays were reviewed as dynamic three-dimensional and cross-section computer displays, as well as on 1:500 scale hardcopy cross-sections. The orientation of the cross sections was defined as N35ºW with a 90º dip, looking N55ºE. This cross-sectional orientation approximates a view along the average strike of the Cerro Jumil deposit. The section lines were spaced at 25 meters, and designed to approximately follow the lines of the 25 to 35 meter drill pattern.

The interpreted mineralized zones and lithologic units were initially hand-drawn on the 1:500 scale section plots. The hardcopy interpretations were scanned, registered into UTM coordinates, and digitized. Due to the relatively simple dipping stratigraphy of the Cerro Jumil deposit, these interpretations, in combination with the detailed topography generated from one meter contours, defined consistent and correlatable mineralization and rock type solid models. Gold mineralization domains were interpreted as envelopes for the low grade 0.1 g/t and high grade 1.0 g/t thresholds for the SEZ, LCZ, and WZ. Silver mineralization was interpreted within the 10 g/t silver envelope for the LCZ and WZ. Other interpreted units included a post-mineralization quartz porphyry that often cross cut mineralization, as well as an internal limestone-marble waste block in the SEZ.

The first pass geologic interpretations were used to construct solid models of the mineralized zones, the quartz porphyry unit, and internal waste zones. These solids were reconciled with the drill data to ensure that there were no miscodings of drill intervals relative to the model (i.e., a quartz porphyry interval coded as mineralized skarn, etc.). This reconciliation was conducted by slicing the solid model at 2.5 meters, stepping through the deposit on screen, and making adjustments as necessary. This detailed approach was required since many of the holes were not drilled on a regular pattern, but instead from surface accessible drill pads, resulting in holes projecting into, and out of, the plane of section. The model was also sliced as long sections at a N55°E orientation and as bench plans to further check the consistency of the interpretations. The reconciled and adjusted interpretations were used to build the final solid models used to code drill composites and block model for geostatistical analysis and grade modeling.

The modeled gold-silver mineralized zones reflect the antiformal flexure of the skarn-altered stratigraphy away from a feldspar porphyry core, with the SEZ dipping to the southeast, and the LCZ and WZ dipping to the northwest (Figures 17.6 and 17.7a-b).

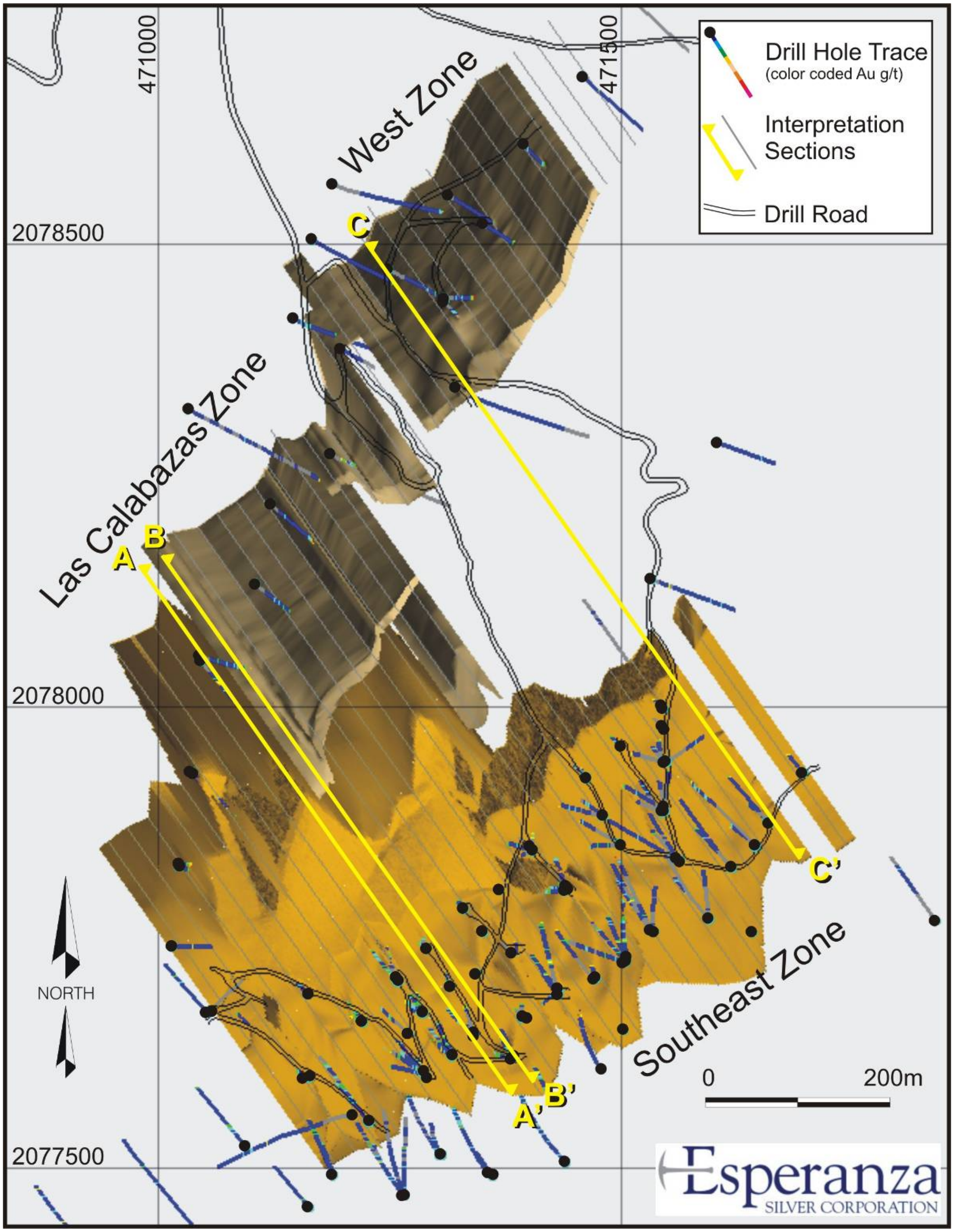
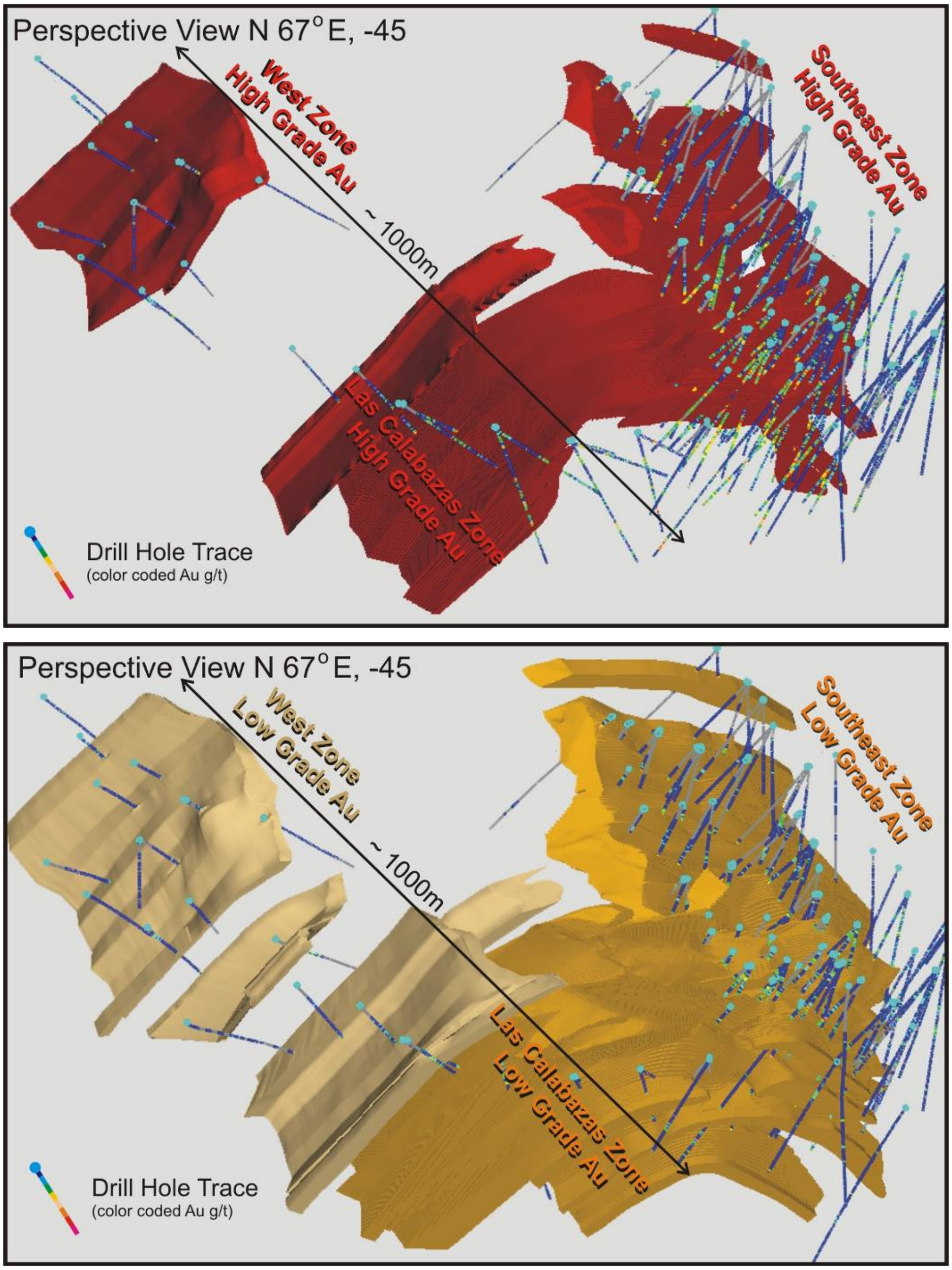


Figure 17.6 Plan Map with Interpreted Gold Mineralization Solid Models



Figures 17.7a-b Perspective Views of Gold Mineralization Solid Models

In addition to being consistent with the interpreted geology for Cerro Jumil, the mineralized envelopes constrain their respective grade populations. The interpreted model is continuous on section, as well as between adjacent sections (Figures 17.8, 17.9, and 17.10)

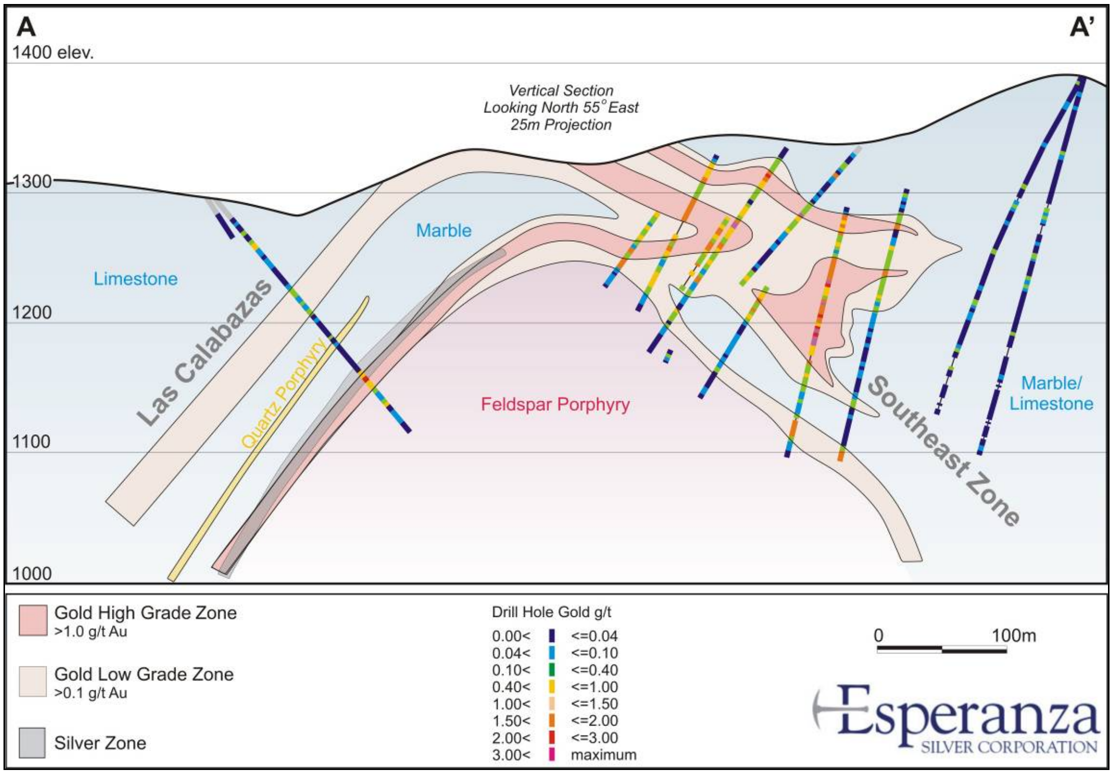


Figure 17.8 Section A-A' Geologic Model and Drill Hole Gold

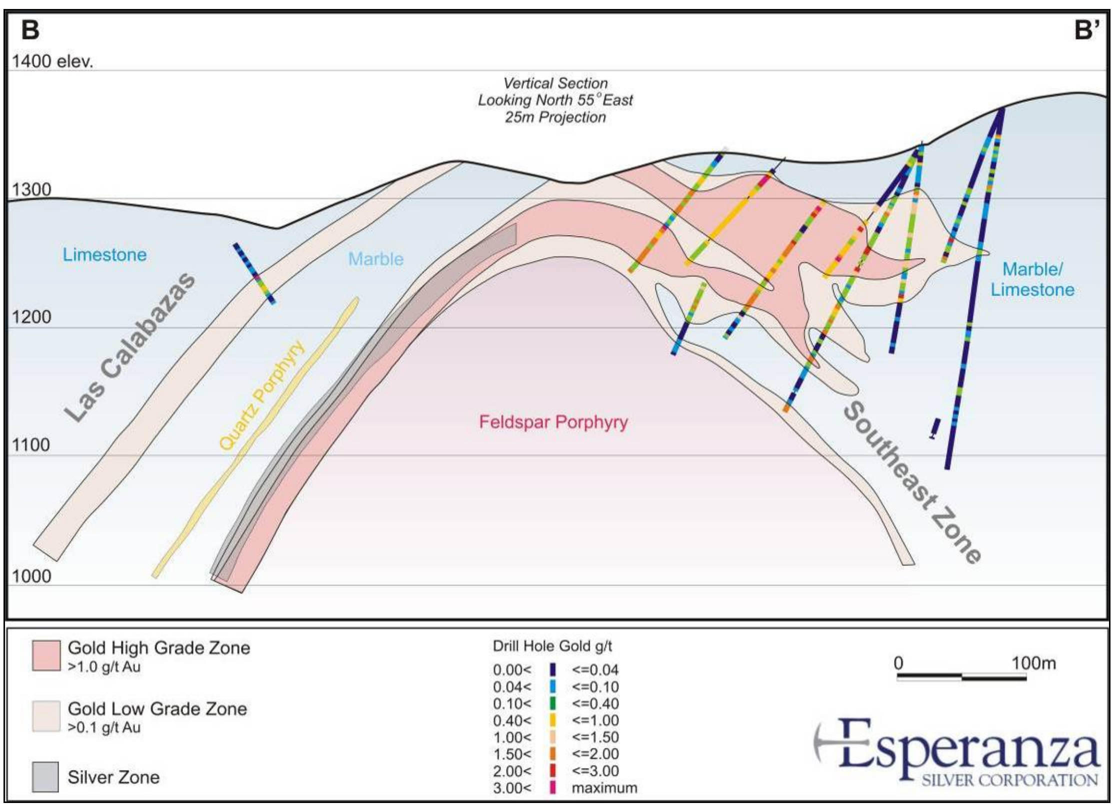


Figure 17.9 Section B-B' Geologic Model and Drill Hole Gold

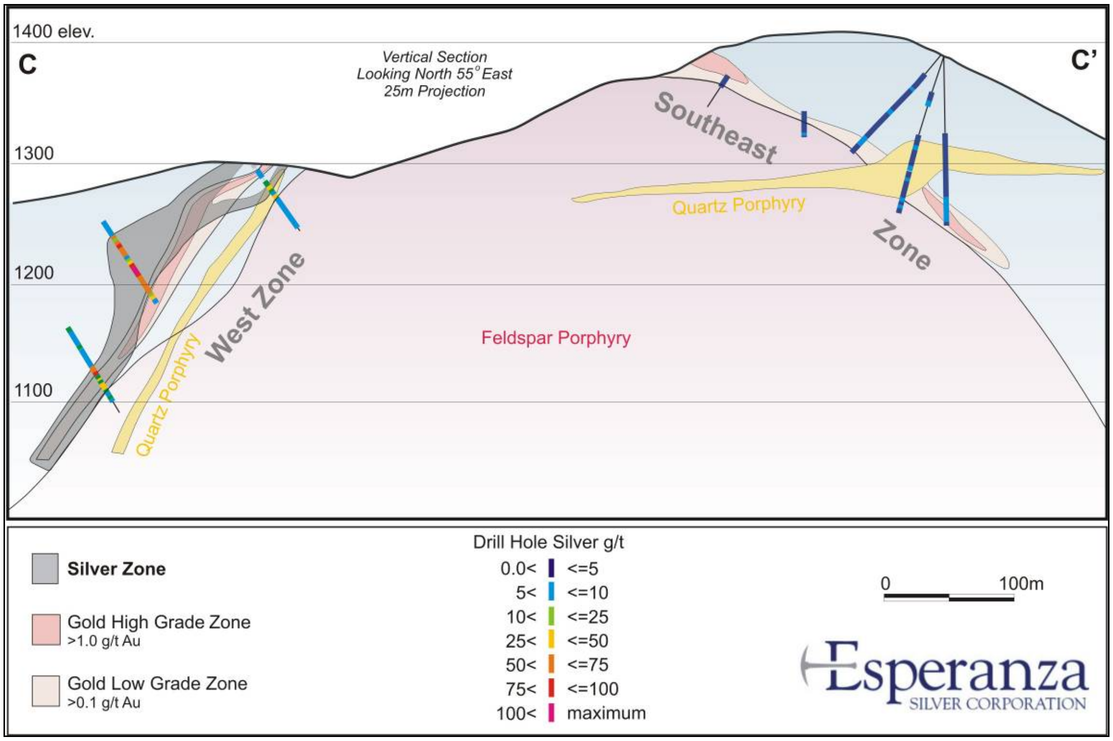


Figure 17.10 Section C-C' Geologic Model and Drill Hole Silver

From a resource modeling perspective, it is important to note from the extensive drilling conducted at Cerro Jumil to date, that the entire deposit has been oxidized. The depth of oxidation, as currently understood, spans over 250 vertical meters. As a result, it was not necessary to model zones of oxidation state for resource estimation or reporting purposes.

17.3 ASSAY CAP GRADES AND COMPOSITES

17.3.1 Gold and Silver Cap Grades

As a step before compositing, gold and silver cap grades were interpreted for the drill hole assay interval data. The cap grades were determined in order to reduce the influence of high grade outliers during grade estimation. The Log10 histograms, Log10 probability plots, and rank order distributions (i.e., sorted by grade) for the gold and silver populations identified statistical outliers at high grade population breaks of the frequency distributions. These statistically derived thresholds were used to cap the outlier drill assays for the mineralized zones as summarized below:

- SEZ low grade gold 5 g/t Au
- SEZ high grade gold 10 g/t Au
- LCZ low grade gold 5 g/t Au
- LCZ high grade gold 5 g/t Au
- WZ low grade gold 5 g/t Au
- WZ high grade gold 5 g/t Au
- LCZ-WZ silver 125 g/t Ag

17.3.2 Compositing and Rock Code Assignments

Run length composites were calculated from the capped drill database at a three meter interval length. This length represents one-half of an assumed six meter bench height. Review of the drill data established that the average interval length was 1.45 meters. Only 0.63% of the intervals lengths were greater or equal to three meters, with virtually all of these longer inervals coming from early-stage Teck drill holes. The three meter composite length includes two sample intervals on average, thereby retaining down-hole grade variability with minimal smoothing. Non-representative composites with less than 50% of the three meter interval represented by assay data, or less than 1.5 meters in length, were discarded; these cases most commonly took place at the end of a drill hole or in zones of poor recovery. The geologic solid models were used to code the assay composites in preparation for geostatistical analysis and block modeling. Composites were determined to be within a modeling domain based upon the location of the composite center. For boundary cases where a composite was incorrectly assigned, the interpreted model was adjusted, and valid assignments made.

17.3.3 Composite Summary Statistics

The composite frequency distributions for the gold and silver mineralized zone were characterized with univariate statistical analysis. The descriptive statistics for the gold mineralized zones are summarized Tables 17.1 and the silver mineralized zone in Table 17.2.

The SEZ forms the largest population of gold composites, reflecting approximately 7,500 meters of drill composites. The LCZ and WZ have a sparser drill database representing less than 1000 meters of drill composites. The minimum grades for all of the zones include composites below the cutoff, reflecting geologic grade variability within the broader mineralized envelopes. Similarly, there are higher grade composites in the low grade zones; these are isolated cases that may reflect high angle structural controls on gold mineralization. Overall, the low grade gold zones have a relatively consistent average grade in the 0.398 to 0.521 g/t range. The high grade zones on average range from the 1.05 to 1.857 g/t gold; increased variability is expected with higher grade gold domains. Importantly, the coefficients of variation for all zones are relatively low (i.e., 0.414 to 1.276), supporting the use of Ordinary Kriging as a linear interpolation technique for block estimation.

Table 17.1 Gold Descriptive Statistics by Zone

Zone	Pop	Min	Max	Average	Median	StdDev	CV
SEZ low grade	1732	0.003	4.067	0.408	0.257	0.434	1.064
SEZ high grade	775	0.047	10.000	1.575	1.298	1.185	0.753
LCZ low grade	214	0.008	3.518	0.521	0.272	0.665	1.276
LCZ high grade	57	0.004	3.930	1.050	1.046	1.029	0.981
WZ low grade	34	0.032	2.156	0.398	0.291	0.423	1.062
WZ high grade	28	0.485	3.908	1.857	1.673	0.769	0.414

Significant silver mineralization, as currently understood, is hosted exclusively within the WZ and LCZ. The number of silver zone composites for the WZ and LCZ are relatively limited, representing approximately 720 meters of drill intercepts. In spite of limited drill definition, the silver zone is geologically continuous from section to section. Silver mineralization increases in average grade along strike to the north from the LCZ (avg. = 15.45 g/t Ag) to the WZ (avg. = 32.79 g/t Ag). The coefficients of variation for both zones are low, confirming that the silver zone envelope has characterized a statistically well-constrained population.

Table 17.2 Silver Descriptive Statistics by Zone

Zone	Pop	Min	Max	Average	Median	StdDev	CV
WZ	102	1.77	125.00	32.79	22.25	31.21	0.95
LCZ	72	3.38	107.53	15.45	12.49	14.01	0.91

17.4. VARIOGRAPHY

17.4.1 General Methodology

Variogram modeling was conducted on the three meter composites for the SEZ, LCZ and WZ mineralized domains. Initially, down-hole variograms were calculated for the zones. The down-hole variograms provided the best information for defining the nugget effect, as well as the shape of the variogram model at distances closer than the average drill hole spacing (i.e., down-hole composite pair distances start at three meters as opposed to the drill grid spacing of 25 to 35 meters). The definition of the down-hole variogram model parameters provided a basis for proceeding with directional variogram analysis. Directional variograms stepping at 15 degree increments of azimuth, and 10 degree increments of plunge were calculated for the mineralized zones to determine the maximum, secondary, and tertiary directions of spatial continuity. The variograms were modeled as pair-wise relative, a technique to smooth the spatial variance and improve structures apparent within the variograms.

17.4.2 Southeast Zone Variography

(refer to Figure 17.11)

Variograms for the SEZ gold composites were calculated on the combined high and low grade gold composite populations, since the high grade composites alone did not define coherent variogram structures. The combination of these two SEZ modeling domains provided a population of composites that yielded robust variograms, with clearly definable model parameters. As presently understood, the skarn gold mineralization at Cerro Jumil is interpreted to be most directly related to the prograde alteration event, and appears to have a significant degree of stratigraphic control within the carbonate host sequence. Therefore, the high and low grade gold zones are likely to have similar spatial orientations, and as a result the modeling of the combined zones has some geological justification.

The SEZ down-hole variogram was modeled to determine the nugget and sill parameters. The pair-wise, double spherical model yielded a nugget (C0) of 0.15, a primary sill (C1) of 0.35 at a range of 15 meters, and a secondary sill (C2) of 0.18 at 40 meters, for a total sill (C1+C2) of 0.68. This yields a nugget to sill ratio of 22%, suggesting that 78% of the gold variance in the SEZ has a spatial component, with the balance of the spatial variance due to 'nugget effect'.

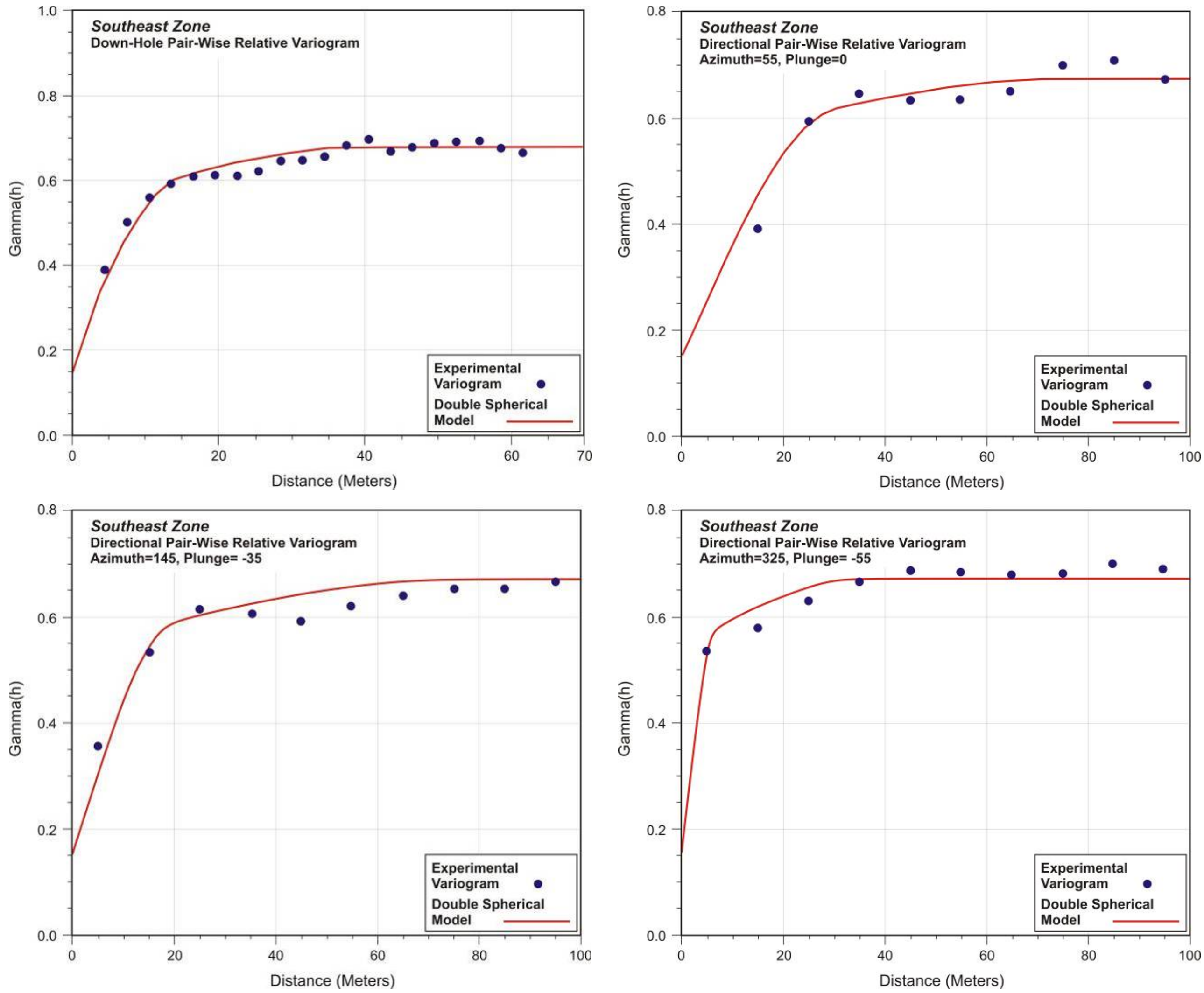


Figure 17.11 SEZ Down-hole and Directional Gold Variograms.

The SEZ gold directional variograms were modeled as double spherical, with the primary and secondary directions along the average strike and dip, respectively. The tertiary direction is across the zone thickness (i.e., perpendicular to bedding). The anisotropies and ranges are summarized in Table 17.3. The nugget was taken from the down-hole definition as C0 = 0.15. The sill parameters were similar to the down-hole model, but not identical, as given by C1 = 0.39 and C2 = 0.13, for a total variance of 0.67 and nugget to sill ratio of 22%. Of the total 78% spatial variance, 58% is defined in the first 30 meters, with the 20% balance of spatial variance within the 75 meter secondary range. Importantly, this implies that there is significant gold grade continuity in the SEZ within the drill grid spacing along strike, and up and down dip. This continuity extends, albeit with a weaker spatially defined component of variance, to approximately 2.5 times the nominal drill spacing.

Table 17.3 SEZ Gold Directional Variogram Parameters

Direction	Azimuth	Inclination	Range 1 (m)	Range 2 (m)
Primary	55	0	30	75
Secondary	145	-35	30	75
Tertiary	325	-55	7	35

17.4.3 Las Calabazas and West Zone Variography

(refer to Figure 17.12)

The LCZ and WZ mineralized zones have substantially less drilling than the SEZ. This led to not only combining the high and low grade gold composites as with the SEZ, but as well merging the LCZ and WZ composites for variogram calculation and modeling. The LCZ is transitional along strike into the WZ, and both zones have similar northerly strikes and dips to the west; their differentiation is somewhat arbitrary.

The LCZ-WZ down-hole variogram yielded a well-defined, pair-wise, double spherical model with a nugget (C0) of 0.15, and a total C1 + C2 variance of 0.61. This gives a nugget to sill ratio of 20%, suggesting that 80% of the variance in the LCZ-WZ has a spatial component, with the balance due to nugget effect.

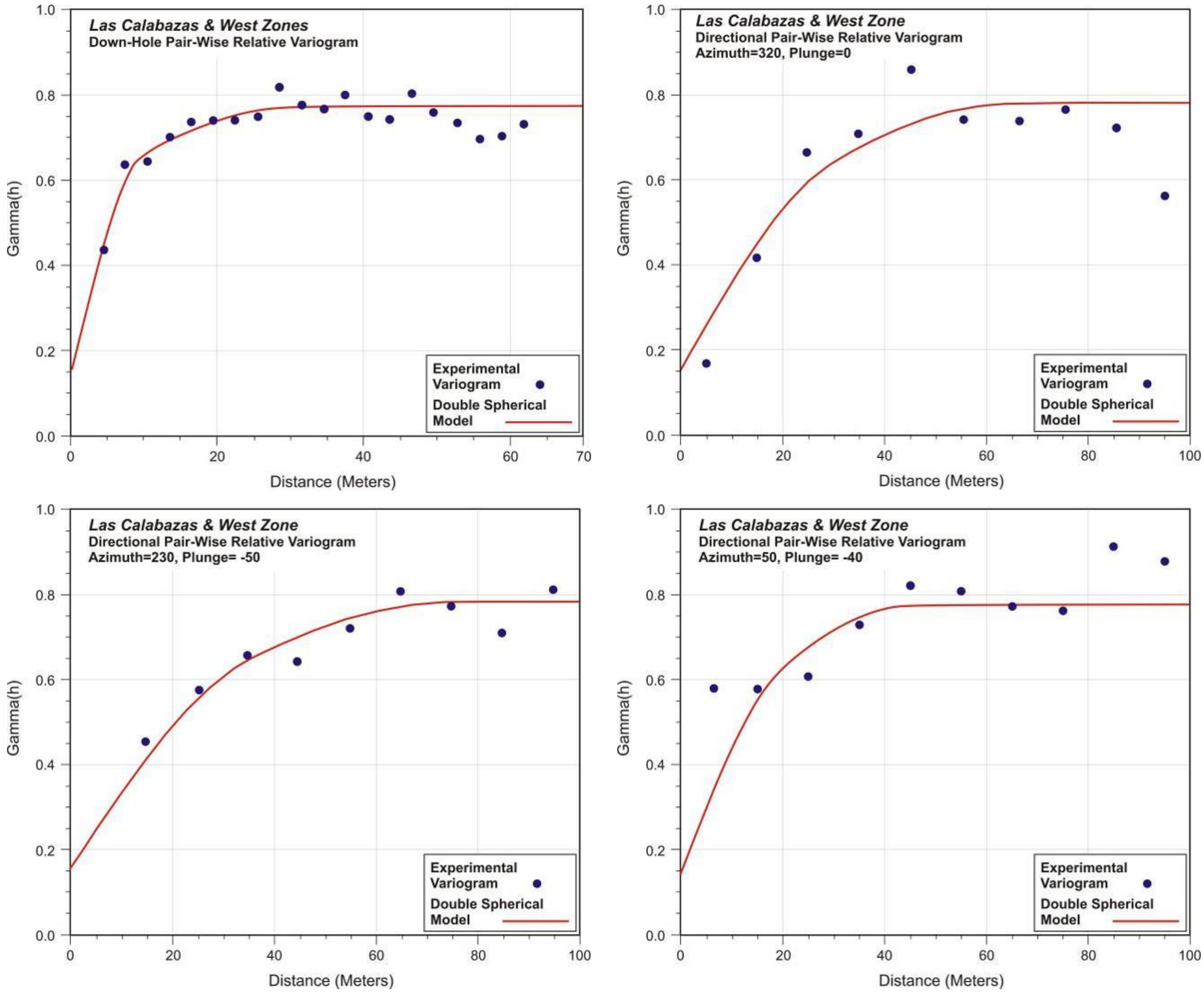


Figure 17.12 Combined LCZ and WZ Gold Variograms

The LCZ-WZ gold directional pair-wise relative variograms were fit with a double spherical model. The primary, secondary, and tertiary directions were along strike, down dip, and across zone thickness, respectively. The anisotropies and ranges are summarized in Table 17.4. The nugget was taken from the down-hole definition as C0 = 0.15, with the primary sill C1 = 0.23 and the secondary sill C2 = 0.38, for a total variance of 0.76. Of the total 80% spatial variance, only 30% is defined in the first 30 to 35 meters, with the 50% balance within the 65 to 75 meter secondary range. Although the LCZ-WZ has similar nugget to sill ratios and directional ranges as the SEZ, it is notable that the spatially defined component of variance within the 25 to 35 meter drill spacing is only 30%.

Table 17.4 LCZ-WZ Gold Directional Variogram Parameters				
Direction	**Azimuth**	**Inclination**	**Range 1 (m)**	**Range 2 (m)**
Primary	320	0	35	75
Secondary	230	-50	30	65
Tertiary	50	-40	20	45

Although silver mineralized envelopes were defined partially within, and proximal to the LCZ and WZ gold envelopes, there were even fewer composites for variogram modeling than for gold. The LCZ-WZ silver variograms were ill-defined, with no apparent structure due to a lack of samples pairs. Although there is interpreted geological continuity to the silver mineralization, as evident on cross-section, variogram analysis did not yield useable results. Further drilling will be necessary to define and model the LCZ-WZ silver variograms.

17.5 BLOCK MODEL DEFINITION

17.5.1 Block Model Definition, Geologic Model, and Density Assignments

The Cerro Jumil block model was constructed to cover the extent of all three primary mineralized zones (i.e., SEZ, LCZ, and WZ). The block model was oriented parallel to the axes of the project's UTM coordinate grid. The following parameters were used for the definition:

- Origin: 470,800 east, 2,077,300 north, 1000 elev.
- Maximum Extent: 471,900 east, 2,078,800 north, 1510 elev.
- Number of blocks: 220 in X, 300 in Y, and 170 in elev.
- Parent Block size: 5 x 5 x 3 meters (x by y by z)
- Minimum Sub-block size: 1 x 1 x 1.5 meters (x by y by z)

Block codes were assigned according to the geologic model gold and silver mineralized zones and rock type solid model triangulations. The sub-blocking scheme allowed a high degree of precision in assigning the geologic codes to blocks along the contact between solids. The geologic model assignments included:

- SEZ, LCZ, & WZ high grade zones (> 1 g/t Au)
- SEZ , LCZ, & WZ low grade zones (> 0.1 and < 1 g/t Au)
- SEZ waste (< 0.1 g/t Au) internal to mineralized zone
- LCZ and WZ silver zone (> 10 g/t Ag)
- Quartz porphyry cross-cutting, post-mineralization sill-like bodies (SEZ) or bedding parallel dike-like bodies (LCZ and WZ)
- Limestone/marble/feldspar porphyry outside of the zones described above

17.5.2 Density Assignments

ESM's database of 3615 specific gravity (SG) measurements were coded by the solid models in order to determine average densities by mineralized zone and rock type. Although this is a substantial dataset, review of the data revealed that there was not an absolutely uniform coverage of the SG samples since they came from core holes only. It followed that an interpolated model of SGs would not be representative in some areas of the deposit. As a result, average density values were calculated for the SEZ, LCZ, and WZ by high grade, low grade, quartz porphyry, and internal waste zones. These calculations were finalized after outlier SG measurements were trimmed. The final SG assignments are summarized as:

- 2.50 for SEZ, LCZ, & WZ high grade
- 2.64 for SEZ , LCZ, & WZ low grade
- 2.68 for SEZ internal waste
- 2.40 for SEZ , LCZ, & WZ quartz porphyry
- 2.64 for units outside of defined zones (i.e., limestone, etc.)

These densities were assigned to the block model according to their geologic model codes.

17.6 GRADE ESTIMATION AND RESOURCE CLASSIFICATION

17.6.1 Search Strategy

Gold grades were interpolated with search ellipsoids oriented according to the anisotropic variogram directions, and search distances based upon the variogram ranges. For gold, two estimation passes were conducted, with the first pass restricted to the maximum variogram range, and the second pass extended to 1.5 times the variogram range. This approach resulted in block estimations from the first pass using only samples within the range of spatial correlation defined by the variogram. The second pass estimation filled in unestimated blocks within zones that were interpreted as geologically continuous.

The number of composites for estimation was set to a minimum of three and a maximum of twenty. A maximum of five composites were allowed from a single drill hole. An octant based search scheme was used, with a maximum of five samples from a given octant. These search parameters ensured that composites representing multiple holes from multiple search directions were used for estimation of a given block.

The search strategy for silver interpolation in the LCZ and WZ was more simplistic than for gold, due to a lack of defined variogram models. For the search ellipsoid, the orientation was taken from the directions of anisotropy for the gold variograms, and the distances taken from the second pass ranges used for gold estimation. These assumptions are based upon the observation that the silver zone is either generally coincident, or closely associated with the LCZ and WZ gold mineralized zones along strike and dip.

17.6.2 Grade Estimation

Ordinary Kriging (OK) was used for the estimation of gold for the SEZ, LCZ, and WZ block model domains. The primary estimation inputs included the three meter composite database, the variogram models, and the search ellipsoid configurations. Separate OK estimations were generated for the high and low grade envelopes within each of the three zones. These envelopes were used as hard boundaries, with only composites coded within the envelopes used to estimate the corresponding blocks. The resulting gold grade block model is not “smoothed” across the grade boundaries, and as a result, the high and low grade gold domains closely honor the surrounding composites used for estimation.

In addition to estimating blocks within the mineralized zones, block grades were also interpolated for the internal waste, quartz porphyry, and hanging and footwall marble, limestone and quartz porphyry units. The blocks in the ‘waste’ domains were not included for reporting the Cerro Jumil resources, but were estimated in order to characterize adjacent boundary sub-blocks in preparation for converting from small sub-blocks to larger regularized blocks for floating cone or Lerchs-Grossman analysis. Inverse distance to the fifth power (ID**5) was used to estimate the waste domains, with search ellipsoids oriented according to the general strike and dip of these units.

The silver zone was block modeled with inverse distance to the third power (ID**3). The ID**3 parameter reflects the continuous grade distribution of silver observed on cross sections, while not allowing more distant composites to have undue influence for a given block estimate. Silver grades were estimated with a single pass inverse distance interpolation.

Comparison of the gold and silver composites versus the block model illustrates that the geologic modeling zones, variogram ranges and anisotropies, and the spatially constrained search scheme yielded block grade estimates that accurately characterize the deposit's gold and silver mineralization (see Figure 17.13 and refer to Figure 17.1). Note that on the block model sections drill hole composites are projected up to 12.5 meters to a corresponding block, and influences from composites along preferred directions of anisotropy may fall off section, but significantly influence the block grades.

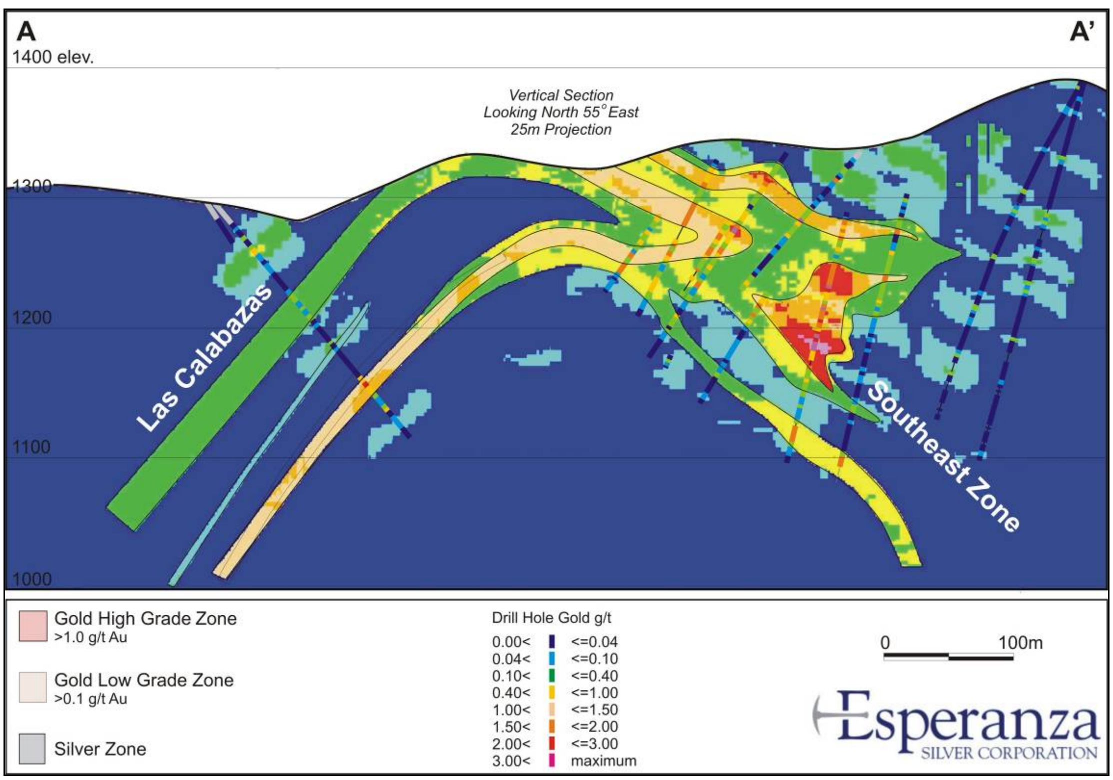


Figure 17.13 Section A-A' Block Model and Drill Hole Gold

17.6.3 Gold Equivalent Calculation

A gold equivalent value was calculated from the gold and silver block model grades for resource reporting purposes. The assumed metal prices were $700 per troy ounce gold and $12.50 per troy ounce silver. The Ag:Au metal recovery ratio was defined as 0.62 from preliminary metallurgical test work. Figure 17.14 is gold equivalent section A-A' of the SEZ and LCZ; note subtle impact of the thin silver zone on the Las Calabazas lower limb.

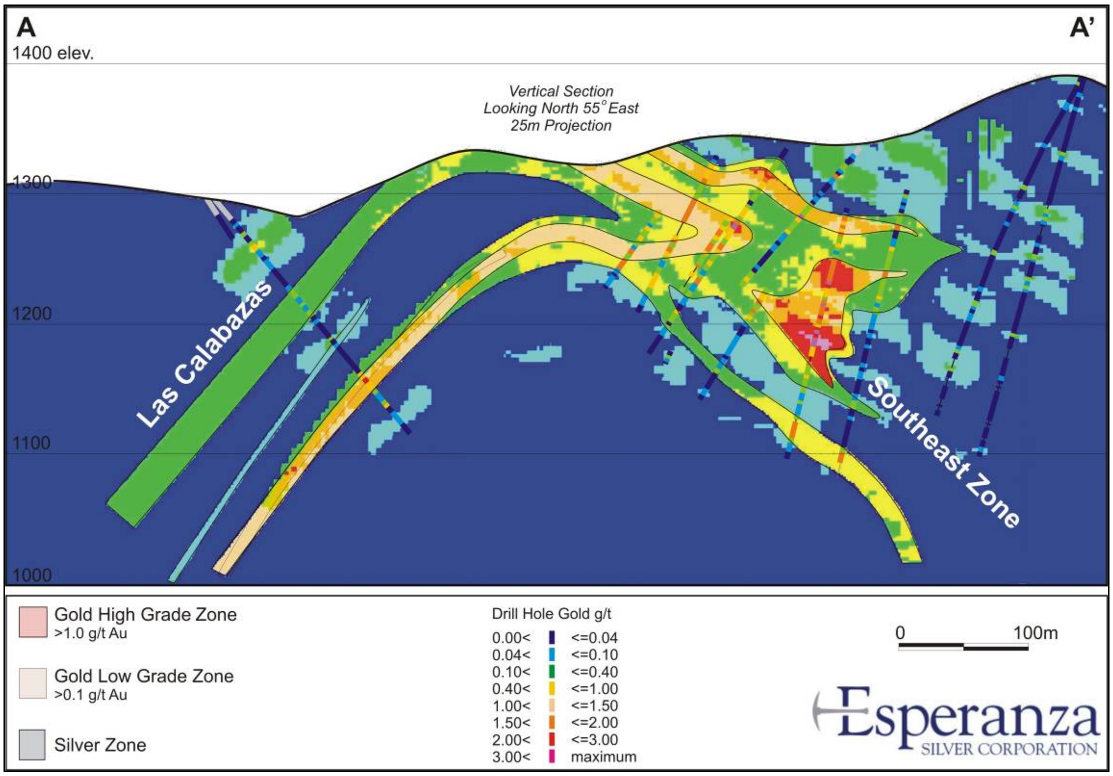


Figure 17.14 Section A-A' Block Model Gold Equivalent and Drill Hole Gold

17.6.4 Resource Classification

The geologic and geostatistical controls on grade interpolation yielded varying degrees of confidence depending on the spatial configuration of drill composites used for a block estimate. For each individual block, a number of parameters were stored with respect to the samples used for the estimate, including: 1) the number of drill holes contributing composites, 2) the total number of composites, 3) the cartesian distance to the nearest composite, and 4) the weighted average distance (i.e., by Kriging weights) for the input composites. These values were used in various combinations to assign codes for measured, indicated, and inferred resource blocks as summarized in Table 17.5.

Table 17.5 Generalized Resource Classification Criteria

	Measured	Indicated	Inferred
Min number of drill holes	3 - 4	2 - 6	1
Max dist to nearest comp (m)	7.1 - 17.5	17.5 - 49.5	65
Wtd. Avg dist of comps (m)	17.5 - 24.75	35 - 65	N/A

Composites at 65 to 75 meters or less from an estimated block are within the variogram ranges for gold in the primary and secondary directions; the tertiary direction is frequently constrained by zone thickness. All of the distance criteria for resource classification were within the 65 meter variogram range either along the strike or down dip direction.

- Ideally, the measured category required 4 bracketing holes within ½ a 35 meter drill spacing on average (17.5 m orthogonal distance, 24.75 m diagonal distance). Alternatively, 3 holes, with 1 of the holes within 7.1 meters (diagonal distance of a 5 meter block) and the other two within 17.5 meters led to measured classification.
- Overall, the indicated category ranged from at least two bracketing holes within ½ the drill hole grid spacing, up to 6 surrounding holes at an average distance within the maximum variogram range of 65 meters.
- The inferred category required at minimum a single drill hole, and at least 3 composites within the variogram range.

The combination of rules yielded a logical and intuitively consistent gold resource classification as verified from review on cross section (Figure 17.15). Blocks with estimated silver grades assumed the classification of an overlapping gold zone, or if not within a gold zone, the estimated silver blocks were classified as inferred.

Figure 17.15 Section A-A' Block Model Resource Classification

17.7 RESOURCE REPORTING

The Cerro Jumil resources were tabulated for the block model within the defined gold and silver mineralized zones at a 0.3 g/t gold equivalent cutoff (Table 17.6). The 0.3 g/t cutoff is taken as the minimum grade that would potentially be considered for an oxide open pit operation. The primary variables used for reporting within the SEZ, LCZ, and WZ include: ordinary Kriged gold in g/t, inverse distance estimated silver in g/t, gold equivalent g/t directly calculated from estimated gold and silver grades, tonnage reported as metric tonnes, and resource category. Additional unit conversions for reporting include gold, silver, and gold equivalent troy ounces.

Table 17.6 Cerro Jumil Resources Reported at 0.3 g/t Gold Equivalent Cutoff

Category	Zone	Tonnes (000)	Au g/t	Ag g/t	Au Equiv g/t	Au oz (000)	Ag oz (000)	Au Equiv Oz (000)
Measured	SEZ	7,852	0.90	-	0.90	228	-	228
	LCZ & WZ	150	0.80	0.70	0.80	4	4	4
	Subtotal	8,003	0.90	0.01	0.90	232	4	232
Indicated	SEZ	12,434	0.82	-	0.82	329	-	329
	LCZ & WZ	2,791	0.85	5.3	0.91	76	476	81
	Subtotal	15,225	0.83	1.0	0.84	405	476	410
M & I	**Total**	23,227	0.85	0.6	0.86	636	479	642
Inferred	SEZ	3,885	0.86	-	0.86	107	-	107
	LCZ & WZ	11,925	0.71	15.83	0.88	271	6,068	334
	Total	15,810	0.74	11.94	0.87	378	6,068	442

The majority of the SEZ has been systematically drilled by ESM, while the LCZ and WZ domains have limited drilling. This is reflected by 98% of the measured and 82% of the indicated resources being contained within the SEZ. In contrast, 75% of the inferred resource occurs in the LCZ and the WZ. The average gold grades are relatively consistent between the three zones in the measured and indicated categories, ranging from 0.80 to 0.90 g/t Au. However, the LCZ and WZ inferred resource 0.71 g/t average gold grade is relatively low compared to the SEZ. Silver mineralization was only estimated within the LCZ and WZ, and as such makes no contribution to the SEZ resources. Within the LCZ and WZ, silver was a minor contributor (i.e., 1%) to the measured and indicated gold equivalent ounces, but accounted for 19% of the inferred gold equivalent resource ounces. As currently modeled, the Cerro Jumil resource defines a low grade, gold dominant oxide deposit with merit as a candidate for a bulk tonnage, open pit operation.

18.0 INTERPRETATION AND CONCLUSIONS

The Cerro Jumil project, located in the State of Morelos, México, is at an advanced stage of exploration. Exploration work has partially defined three mineralized zones, the West, Las Calabazas and Southeast Zones. Data obtained throughout the exploration program is shown to be reliable through the implementation of QAQC procedures, effective sampling protocol and geological interpretations.

Bond, a co-author of this report, is the Qualified Person for the project and has directly supervised all aspects of the exploration program. Bond is a Vice President of Esperanza Silver Corporation and does receive compensation from them. The Cerro Jumil project has met or exceeded all original objectives through successful exploration programs resulting in a significant NI 43-101 compliant gold resource estimate. Continued exploration has the potential to expand the current resource and discover additional mineralized zones.

19.0 RECOMMENDATIONS

It is recommended that continued exploration drilling be undertaken to delineate the extent and grade of gold-silver mineralization in the West, Las Calabazas and Southeast Zones at Cerro Jumil. Drilling should be focused on upgrading inferred resources to the measured and indicated categories and evaluating additional nearby exploration targets that could add significant resources. It is recommended that a combination of core and RC drilling be implemented to further define these areas. The recommended drilling would include approximately 15,000 metres, of which 11,000 would be dedicated to upgrading the resources classified as inferred, and the balance used to explore new targets. Continued column leach testing and scoping studies should also be continued. The following, Table 19.1, gives a cost estimate to complete this program.

Table 19.1 Recommended Cerro Jumil Exploration Budget (US $)

Geological and Logistical Support	$480,000
Road and Drill Site Construction	$50,000
Drilling (15,000 mts @ 150/mt)	$2,250,000
Metallugical Testing and Scoping Studies	$50,000
Geochemical Analysis (Drill Samples)	$175,000
Permitting and Related Costs	$50,000
Land Acquisition and Archeological Studies	$250,000
Total	$3,305,000

Based on the previous success of exploration at Cerro Jumil, it is the author's opinion that this project is of sufficient merit to justify the program recommended.

20.0 REFERENCES

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21.0 CERTIFICATES OF QUALIFIED PERSONS

Certificate of Qualified Person

Dean D. Turner
10607 Brown Fox Trail
Littleton, Colorado USA 80125

I Dean D. Turner, of Littleton, Colorado, United States of America, do hereby certify that:

- I am a graduate of the University of Arizona with a Bachelors degree in Geosciences, and of the Colorado School of Mines with a Masters degree in Mineral Exploration and Mining Geosciences.
- I have practiced my profession continuously for 28 years since graduation from the University of Arizona in 1980, and have held both exploration and production geological positions.
- I am an American Institute of Professional Geologists (AIPG) Certified Professional Geologist, in good standing, and my certificate number is 10998.
- I am a member of the Society of Economic Geologists, the Society of Mining Engineers, and the American Society of Photogrammetry and Remote Sensing.
- I have read the definition of "Qualified Person" set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association, certification as a professional geologist and past relevant work experience, I fulfill the requirements of a "qualified person" for the purposes of NI 43-101.
- I have read National instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument.
- I am responsible for the preparation of sections 14.1 and 17.0 in the technical report titled "Cerro Jumil Project, Mexico, NI 43-101 Technical Report" dated 30th September 2008 (the "Technical Report").
- I have spent two days at the Cerro Jumil project from January 16-17, 2008.
- I am not aware of any material fact or change with respect to the subject matter of this technical report that is not reflected in the report, the omission to disclose which makes this report misleading.
- I am independent of Esperanza Silver Corporation as set out in section 1.4 of NI 43-101 and section 3.5 of NI 43-101CP.

AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS
CERTIFICATE NUMBER
10998
AIPG
DEAN D. TURNER
CERTIFIED PROFESSIONAL GEOLOGIST

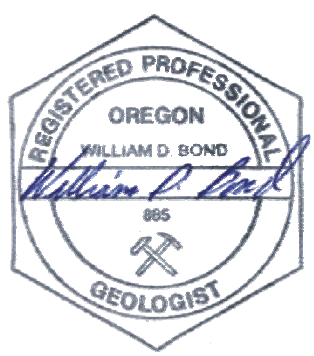
Dated this November 12, 2008
Dean D. Turner, A.I.P.G. Certified Professional Geologist #10998

Certificate of Qualified Person

William D. Bond
10244 N. West Newman Lake Drive
Newman Lake, Washington USA 99025

I William D. Bond, of Newman Lake, Washington, United States of America, do hereby certify that:

- I am a graduate of Winona State University with a (B.A.) degree in Geology, 1974 and a graduate of the South Dakota School of Mines and Technology with a (M.S.) degree in Geology, 1982.
- I have practiced my profession continuously since graduation for the past 30 years and have held both exploration and production geological positions.
- I am a Registered Professional Geologist in the State of Oregon, in good standing and my registration number is G885.
- I am a member of the Society of Economic Geologists.
- I have read the definition of “qualified Person” set out in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association, registration as a professional geologist and past relevant work experience, I fulfill the requirements of a “qualified person” for the purposes of NI 43-101.
- I have read National instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument.
- I am responsible for the preparation of all sections except 14.1 and 17.0 in the technical report titled “Cerro Jumil Project, Mexico, NI 43-101 Technical Report” dated 30th September 2008 (the “Technical Report”).
- I have spent more than 300 days at the Cerro Jumil project between October 2003 and present with site visits lasting from 5 to 10 days duration.
- I am not aware of any material fact or change with respect to the subject matter of this technical report that is not reflected in the report, the omission to disclose which makes this report misleading.
- I am an officer of Esperanza Silver Corporation that owns the majority of shares of the Méxican company Esperanza Silver de México, S.A. de C.V. which controls the property that is the subject of this report and therefore am not independent as set out in section 1.4 of NI 43-101 and section 3.5 of NI 43-101CP.

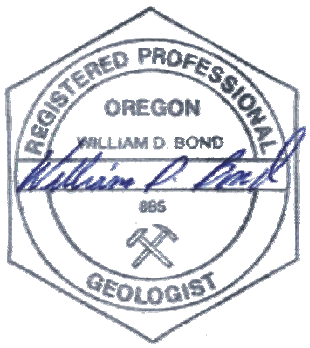


Dated this November 12, 2008
William Bond, Oregon Registered Professional Geologist #G885

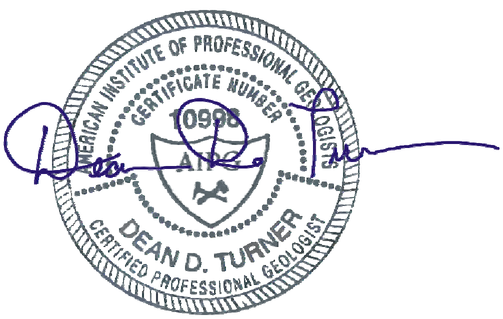
22.0 DATE AND SIGNATURE PAGE

The effective date of this technical report titled “Cerro Jumil Project, Mexico, NI 43-101 Technical Report” is September 30, 2008.

Dated this November 12, 2008



William Bond, Oregon Registered Professional Geologist #G885
Name of Qualified Person



Dean D. Turner, A.I.P.G. Certified Professional Geologist #10998
Name of Qualified Person

APPENDIX-A: SIGNIFICANT DRILL HOLE INTERVALS

Phase 1 Significant Drill Hole Intervals

Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
West Zone				
DHE-05-01	48.9	85.2	36.3	2.20
DHE-05-02	27.9	43.7	15.8	0.82
DHE-05-03	63.5	71.5	8.0	2.68
DHE-05-04	94.6	101.5	6.9	1.28
DHE-05-05	99.7	120.2	20.5	1.91
includes	99.7	110	10.3	2.69
DHE-05-07	7	10.75	3.75	2.76
DHE-05-08	49.25	52.5	3.25	0.60
DHE-05-08	66.35	101.3	34.95	0.24
includes	66.35	74.9	8.55	0.31
includes	80.5	87.6	7.1	0.37
includes	96.75	101.3	4.55	0.56
DHE–05-09	179.22	182.22	3	0.96

Phase 2 Significant Drill Hole Intervals

Southeast Zone				
DHE-05-10	15.15	23	7.85	2.04
DHE-05-11	14	35.1	21.1	1.48
DHE-05-12	59.2	72.4	13.2	0.78
DHE-05-13	43.8	70.3	26.5	1.04
includes	50.6	70.3	19.7	1.21
DHE-05-14	27.4	35	7.6	0.54
DHE-05-15	79.8	92.4	12.6	0.75
includes	86.4	90.4	4	1.46
DHE-05-16	83	110	27	0.78
includes	83	98.1	15.1	1.11
DHE-05-17	123.9	151	27.1	1.10
includes	123.9	133	9.1	1.49
includes	123.9	128.5	4.6	2.36
includes	140.5	151	10.5	1.47
DHE-06-18	45	74.6	29.6	2.08
includes	60.25	74.6	14.35	2.90
DHE-06-19	83.2	92.2	9	1.11

Phase 2 Significant Drill Hole Intervals

Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
Southeast Zone				
DHE-06-20	67	121	54	0.74
includes	67	73	6	0.80
includes	78	92	14	1.01
includes	97	102	5	1.30
includes	107	121	14	0.87
DHE-06-21	59	108	49	1.11
includes	63	68	5	2.08
includes	84	87	3	2.84
includes	97	102	5	2.19
DHE-06-22	19	51	32	1.57
includes	25	37	12	2.64
DHE-06-23	130	147	17	1.04
includes	139	147	8	1.66
DHE-06-23	168	174	6	1.25
DHE-06-24	163	172	9	1.28
DHE-06-25	42	66	24	1.01
DHE-06-25	78	114	36	1.40
DHE-06-25	121	132	11	1.31
DHE-06-26	46	63	17	1.91
DHE-06-26	87	152	65	0.98
includes	87	102	15	1.53
includes	115	124	9	1.44
DHE-06-26	192	202	10	0.98
DHE-06-27	62	97	35	0.99
includes	68	91	23	1.21
DHE-06-27	130	149	19	0.79
DHE-06-28	66	81	15	3.34
DHE-06-28	88	91	3	9.93
DHE-06-28	123	155	32	1.28
DHE-06-29	33	65	32	1.62
DHE-06-29	85	101	16	3.60
DHE-06-29	148	168	20	1.41
DHE-06-30A	129	134	5	0.86
DHE-06-31	162	169	7	1.43
DHE-06-31	271	289	18	1.78
includes	277	289	12	2.10

Phase 3 Significant Drill Hole Intervals				
Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
West Zone				
DHE-06-34	165.0	173.0	8.0	0.33
RCHE-08-88	63.0	67.5	4.5	1.97
Las Calabazas				
DHE-06-33	127.0	134.0	7.0	1.44
DHE-07-54	96.5	106.5	7.0	2.41
DHE-07-54	159.0	187.5	28.5	1.87
DHE-07-55	178.0	193.0	15.0	1.52
DHE-08-57	95.5	127.0	31.5	1.42
DHE-08-59	69.0	88.5	19.5	1.46
DHE-08-61	168.1	192.5	24.4	2.12
includes	176.0	185.0	9.0	3.11
DHE-08-62	59.5	76.0	16.5	0.68
DHE-08-62	134.5	140.5	6.0	1.22
DHE-08-62	182.5	205.0	22.5	2.17
DHE-08-63	134.0	195.5	61.5	0.67
includes	170.0	186.5	16.5	1.40
DHE-08-64	153.5	167.0	13.5	2.39
DHE-08-65	17.5	38.5	21.0	0.74
DHE-08-65	74.5	86.5	12.0	1.47
DHE-08-66	126.0	133.5	7.5	0.51
Southeast Zone				
DHE-06-35	84.0	88.0	4.0	1.64
DHE-06-35	101.0	105.0	4.0	1.26
DHE-06-35	127.0	151.0	24.0	0.48
DHE-07-36	125.0	141.0	16.0	1.52
DHE-07-38	20.0	31.0	11.0	2.50
DHE-07-38	84.0	93.0	9.0	1.74
DHE-07-38	105.0	118.0	13.0	1.27
DHE-07-38	146.0	155.0	9.0	2.28
DHE-07-52	169.5	195	25.5	1.49
DHE-07-52	269.5	292	22.5	1.24
DHE-07-52	317.5	321.35	3.85	1.67
RCHE-07-01	24.0	51.0	27.0	1.28
RCHE-07-02	40.5	75.0	34.5	1.89
RCHE-07-03	37.5	55.5	18.0	1.02
RCHE-07-04	42.0	54.0	12.0	1.42

Phase 3 Significant Drill Hole Intervals

Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
RCHE-07-05	94.5	102.0	7.5	0.70
RCHE-07-06	124.5	142.5	18.0	1.48
RCHE-07-07	148.5	153.0	4.5	1.48
RCHE-07-09	135.0	148.5	13.5	1.69
RCHE-07-10	169.5	180.0	10.5	1.15
RCHE-07-12	120.0	141.0	21.0	1.53
RCHE-07-13	88.5	105.0	16.5	0.63
RCHE-07-13	127.5	135.0	7.5	0.89
RCHE-07-14	135.0	166.5	31.5	1.08
RCHE-07-15	130.5	145.5	15.0	0.76
RCHE-07-16	183.0	201.0	13.5	1.56
RCHE-07-18	136.5	162.0	25.5	1.30
RCHE-07-19	157.5	163.5	6.0	1.28
RCHE-07-20A	28.5	63.0	33.0	1.38
RCHE-07-21A	75.0	99.0	24.0	0.76
includes	75.0	84.0	9.0	1.25
includes	90.0	99.0	9.0	0.74
RCHE-07-22	27.0	57.0	30.0	1.94
RCHE-07-24	67.5	81.0	13.5	1.23
RCHE-07-25	70.5	94.5	24.0	1.00
RCHE-07-26	94.5	100.5	6.0	1.12
RCHE-07-27	136.5	150.0	13.5	1.16
RCHE-07-28	126.0	138.0	12.0	2.74
RCHE-07-30	37.5	51.0	13.5	0.49
RCHE-07-30	69.0	105.0	30.0	0.78
RCHE-07-30	117.0	133.5	16.5	1.54
RCHE-07-31	82.5	118.5	34.5	0.79
includes	82.5	97.5	13.5	1.51
RCHE-07-33	99.0	106.5	7.5	1.04
RCHE-07-33	126.0	139.5	13.5	0.99
RCHE-07-35	142.50	148.50	4.50	1.46
RCHE-07-37	64.5	72.0	7.5	1.02
RCHE-07-37	81.0	105.0	22.5	0.65
includes	91.5	102.0	9.0	0.98
RCHE-07-38	88.5	120.0	31.5	0.76
includes	114.0	120.0	6.0	1.62

Phase 3 Significant Drill Hole Intervals

Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
RCHE-07-39	100.5	108.0	7.5	0.69
RCHE-07-40	115.5	147.0	31.5	0.92
RCHE-07-41	136.5	165.0	28.5	0.31
RCHE-07-42	109.5	159.0	49.5	0.62
RCHE-07-42	208.5	225.0	16.5	1.19
RCHE-07-43	36.0	60.0	24.0	0.57
RCHE-07-43	88.5	156.0	67.5	1.37
includes	129.0	142.5	13.5	4.63
RCHE-07-44	19.5	81.0	61.5	0.95
RCHE-07-45	22.5	67.5	45.0	1.09
RCHE-07-45	129.0	156.0	27.0	1.11
RCHE-07-46	19.5	69.0	49.5	1.63
includes	42.0	69.0	27.0	2.27
RCHE-07-46	208.5	238.5	30.0	1.04
RCHE-07-47	34.5	123.0	88.5	2.20
includes	66.0	78.0	12.0	7.03
RCHE-07-48	13.5	132.0	118.5	1.47
RCHE-07-49	22.5	97.5	75.0	1.05
includes	66.0	78.0	12.0	2.49
RCHE-07-50	21.0	96.0	70.5	1.34
includes	21.0	34.5	13.5	2.90
RCHE-07-50	114.0	135.0	21.0	1.63
RCHE-07-51	87.0	174.0	79.5	1.89
includes	124.5	159.0	33.0	2.80
RCHE-07-52	88.5	114.0	21.0	1.45
RCHE-07-52	139.5	165.0	25.5	0.62
RCHE-07-52	226.5	237.0	10.5	1.05
RCHE-07-53	37.5	52.5	15.0	0.81
RCHE-07-53	90.0	97.5	7.5	0.79
RCHE-07-53	117.0	123.0	6.0	1.60
RCHE-07-54	58.5	127.5	69.0	1.09
includes	76.5	88.5	12.0	2.03
includes	108.0	126.0	18.0	1.62
RCHE-07-54	139.5	196.5	49.5	1.57
includes	154.5	189.0	31.5	2.17
RCHE-07-55	61.5	150.0	85.5	1.17
RCHE-07-56	64.5	94.5	30.0	1.34
RCHE-07-57	78.0	126.0	48.0	1.16

Phase 3 Significant Drill Hole Intervals

Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
RCHE-07-57	177.0	243.0	55.5	1.71
includes	180.0	195.0	15.0	3.18
RCHE-07-58	64.5	123.0	39.0	0.93
RCHE-07-59	73.5	103.5	30.0	0.88
RCHE-07-60	40.5	126.0	85.5	1.05
RCHE-07-61	52.5	127.5	75.0	1.08
RCHE-07-62	48.0	87.0	36.0	0.77
RCHE-07-63	37.5	124.5	87.0	0.80
includes	58.5	78.0	19.5	1.36
RCHE-07-64A	69.0	120.0	51.0	1.44
RCHE-07-65	45.0	85.5	33.0	1.61
RCHE-07-65	127.5	141.0	13.5	0.77
RCHE-07-66	78.0	159.0	78.0	0.84
includes	78.0	124.5	43.5	1.14
RCHE-07-67	88.5	268.5	163.5	0.87
includes	180.0	213.0	33.0	1.58
RCHE-07-68	166.5	184.5	16.5	1.46
RCHE-07-69	145.5	174.0	25.5	0.79
RCHE-07-70	183.0	204.0	21.0	0.59
RCHE-07-71	118.5	135.0	16.5	0.80
RCHE-07-72	18.0	69.0	51.0	0.69
includes	24.0	39.0	15.0	1.13
RCHE-07-73	19.5	102.0	67.5	0.92
RCHE-07-74	106.5	112.5	6.0	0.99
RCHE-07-74	247.5	258.0	9.0	0.59
RCHE-07-75	60.0	76.5	16.5	0.84
RCHE-07-76	82.5	163.5	79.5	1.04
includes	87.0	127.5	40.5	1.48
RCHE-07-78	162.0	180.0	18.0	0.78
RCHE-08-79	31.5	70.5	39.0	1.73
includes	54.0	69.0	15.0	3.74
RCHE-08-79	100.5	145.5	45.0	0.72
includes	106.5	124.5	18.0	1.21
RCHE-08-80	57.0	93.0	36.0	2.53
RCHE-08-80	123.0	177.0	54.0	0.73
RCHE-08-81	76.5	117.0	40.5	1.15

Phase 3 Significant Drill Hole Intervals

Hole	From (metres)	To (metres)	Interval Length	Gold (g/t)
RCHE-08-82	37.5	91.5	33.0	0.38
RCHE-08-83	168.0	187.5	19.5	0.42
RCHE-08-93	262.5	300.0	34.5	1.40
includes	283.5	297.0	13.5	2.06
RCHE-08-94	249.0	300.0	51.0	1.13
RCHE-08-96	163.5	225.0	61.5	0.69
includes	205.4	219.0	13.5	1.28
RCHE-08-97	172.5	235.5	55.5	0.35
RCHE-08-98	240.0	255.0	15.0	1.21