Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada V6C 0B3

File Note

Teck

File Note To: Walter Tejada, Joe Ruetz, and Adrian King Date: 20th September, 2012

From: Darren Jones

RE: Santa Barbara Au-Ag-Cu-(Pb-Zn) third party project evaluation.

Regional Magmatic, Tectonic and Metallogenic history

The Santa Barbara project is located on the eastern flank of the Cordillera Occidental in Southern Peru´s Tertiary Main Magmatic Arc, on the south-western margin of the Altiplano region (+3,800m.a.s.l).

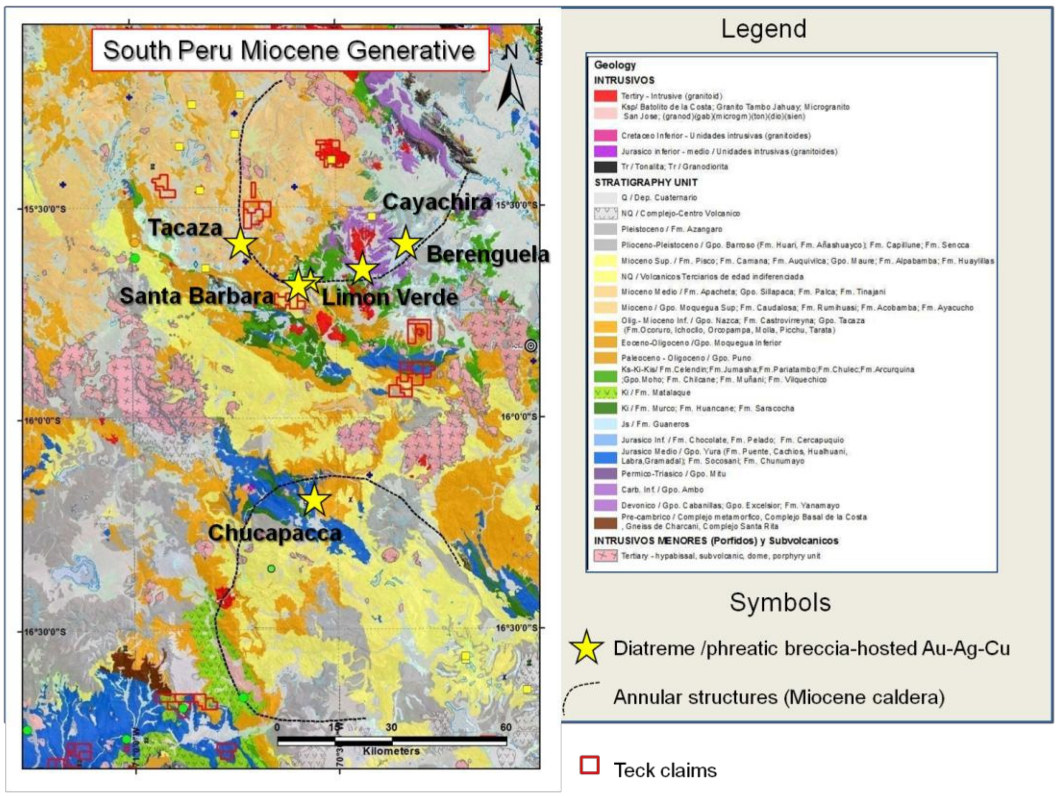

Figure 1. Published geological map around Santa Barbara and Chucapaca ISE polymetallic districts

Magmatic activity *(shown as yellow and orange colors* ***in Figure 1***), however, has not been spatially- or temporally continuous throughout this belt, typically intensifying and spreading at the onset and during the waning stages of tectonic compression, whilst being suppressed at times of peak compression. Peak tectonic compression, directed from the NE and SW, at ~80Ma (the Andean Orogeny), was responsible for the regional D1 fold and thrust fabrics affecting the Jurassic-Cretaceous sedimentary rocks – uplifted and exposed as NW-SE trending basement blocks *(shown as blue and green colors in* ***Figure 1****)*. Reactivation of compressional tectonics again at ~40Ma, during the so-called Incaic Orogeny, resulted in tightening of anticlinal folds, and, in the region-wide deposition of the molasse-like Puno Group - the clastic products of prolonged erosion of uplifted areas. In the Santa Barbara area, however, these clastic units are absent, suggesting that this area has remained a topographic high, or has been subject to increased uplift (doming?) and deeper erosion. In early Oligocene times (~31 to 26 Ma) the Santa Barbara area saw a resurgence of sub-aerial magmatic activity and the subsequent deposition of the Tacaza Group shoshonitic andesite volcanic pile, possibly fed by the large monzogabbro stock located immediately to the south.

During the early stages of the subsequent phase of tectonic uplift (the Quechua Orogeny) in the Upper Oligocene to early Miocene times, several discrete calc-alkaline sub volcanic centers were emplaced into this area, possibly along the margins of existing structures (such as the 8km-diameter "Santa Lucia" circular structure / tectonic depression) and/ or into localized pull-apart basins formed due to NE-SW extensional stress acting on the structurally complex NW-trending Lagunillas trough and fault zone (Clark, et al,1990). Into this setting was emplaced the Santa Barbara Complex – dated by Clark et al, 1990, at 23.5 ± 1 Ma - including the Cerro Hermoso diatreme eruptive centre and a series of radial and cone-sheeted breccia dikes and a mineralized ISE polymetallic vein system. Other contemporaneous phreatic and phreatomagmatic breccia-hosted ISE deposits in the region include; the Berenguela Ag-Cu (Au) polymetallic district (dated ~27 Ma), the Limon Verde Ag-Cu (Au) district (26.4-28.2Ma) and the Tacaza Cu-Pb-Ag deposit (~26Ma), as shown in ***Figure 2.***

50km south of the Santa Barbara area, during later Miocene times, similar magmatic, tectonic, and metallogenic activities were active during the emplacement of the Canahuire diatreme breccia-hosted deposit, in the Chucapaca project. Notably, both the Santa Barbara and Chucapaca mineral districts are located at the intersection of an interpreted caldera rim structure and prominent NW-trending Miocene-aged strike-slip fault zones, with mineralization, in both cases, hosted partially in late Tertiary-aged felsic sub volcanic/ volcanic vent facies (i.e. diatreme) and partially in the underlying and surrounding basement carbonate rocks (***see Figure 1).***

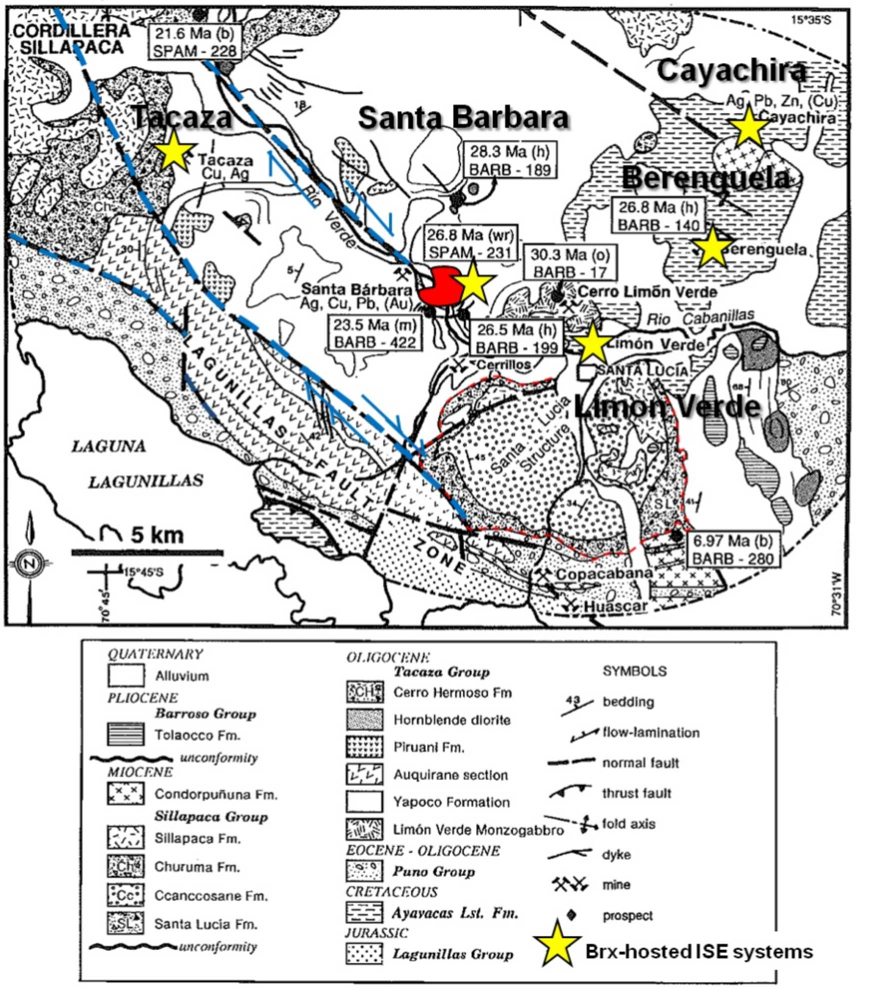

Figure 2. *Regional geology -structure and age -dating of ISE polymetallic systems in the Santa Lucia area (after Clark et al ,1990)*

Santa Barbara Project Overview

During late 2011 the owner of the claims covering the area, Mr Manuel Paredes, was contacted, and a property visit by the author, Darren Jones (Principal Geologist Teck Gold), and Juan La R uta (Teck Peru field assistant) was arranged, between the 3rd and 6th November 2011. During this visit we specifically concentrated on recce -style mapping and sampling the Cerro Hermoso portion of the project, between the 3rd and the 4th and on the 6th of November. The Santa Barbara Mine claim, proper, which is under a commercial agreement with Corp Minera Kcoriwasi S.A.C, was visited together with Mr Paredes, on the 5th November.

During the project evaluation, 93 rock and 42 talus fines geochemical samples were taken. Results from this data together with observations made by the author are presented in this File Note.

Location and access

The Santa Barbara project is located in the historic Santa Lucia polymetallic mining district, in the Southern Peru Department of Puno, located approximately 5km NW of the mining town of Santa Lucia (with approx 5,000 habitants) at altitudes of between 4,100 -4,400m.a.s.l. The historic Santa Barbara mine site occupies the western side of the broad Verde River valley with the Cerro Hermoso area occupying the eastern side (***see Figures 3, 4 and 5***). The Santa Barbara project is dissected by the Verde River, which flows to the south east. The main Arequipa -Puno paved highway runs parallel to the river, on its southwestern side.

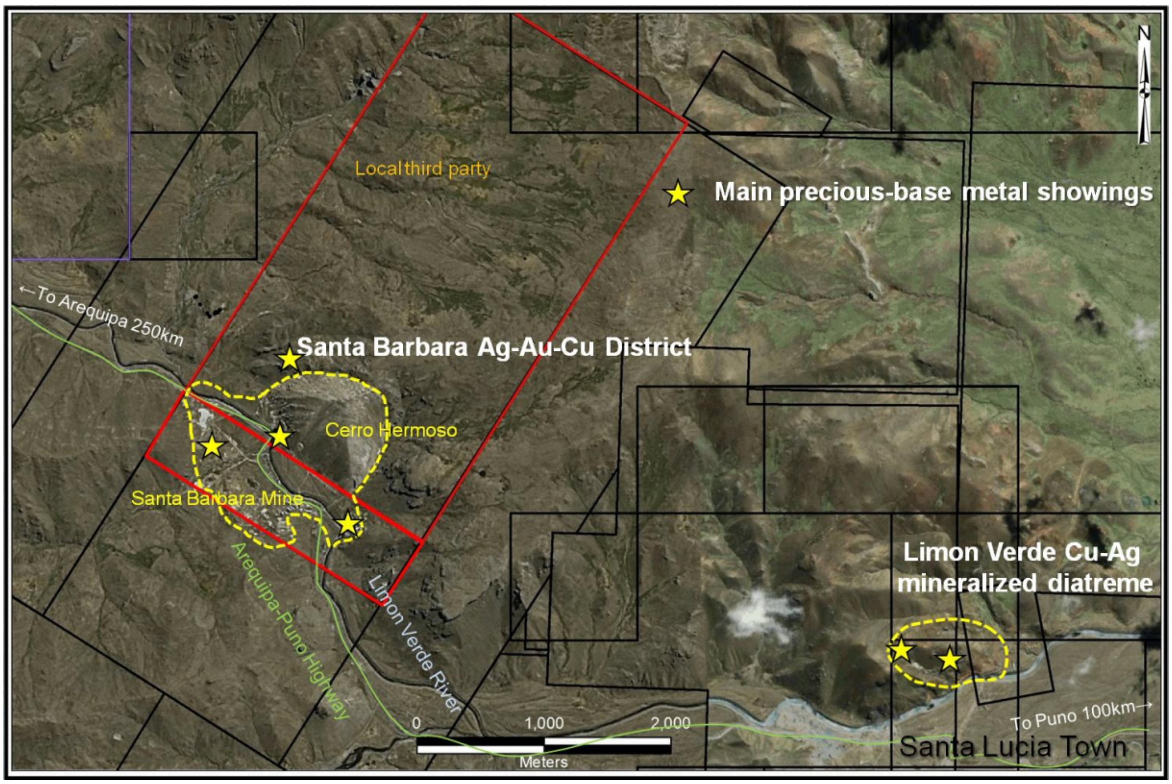

Figure 3. *The Santa Lucia District, Puno, S.Peru (with the Santa Barbara Project outlined in red)*

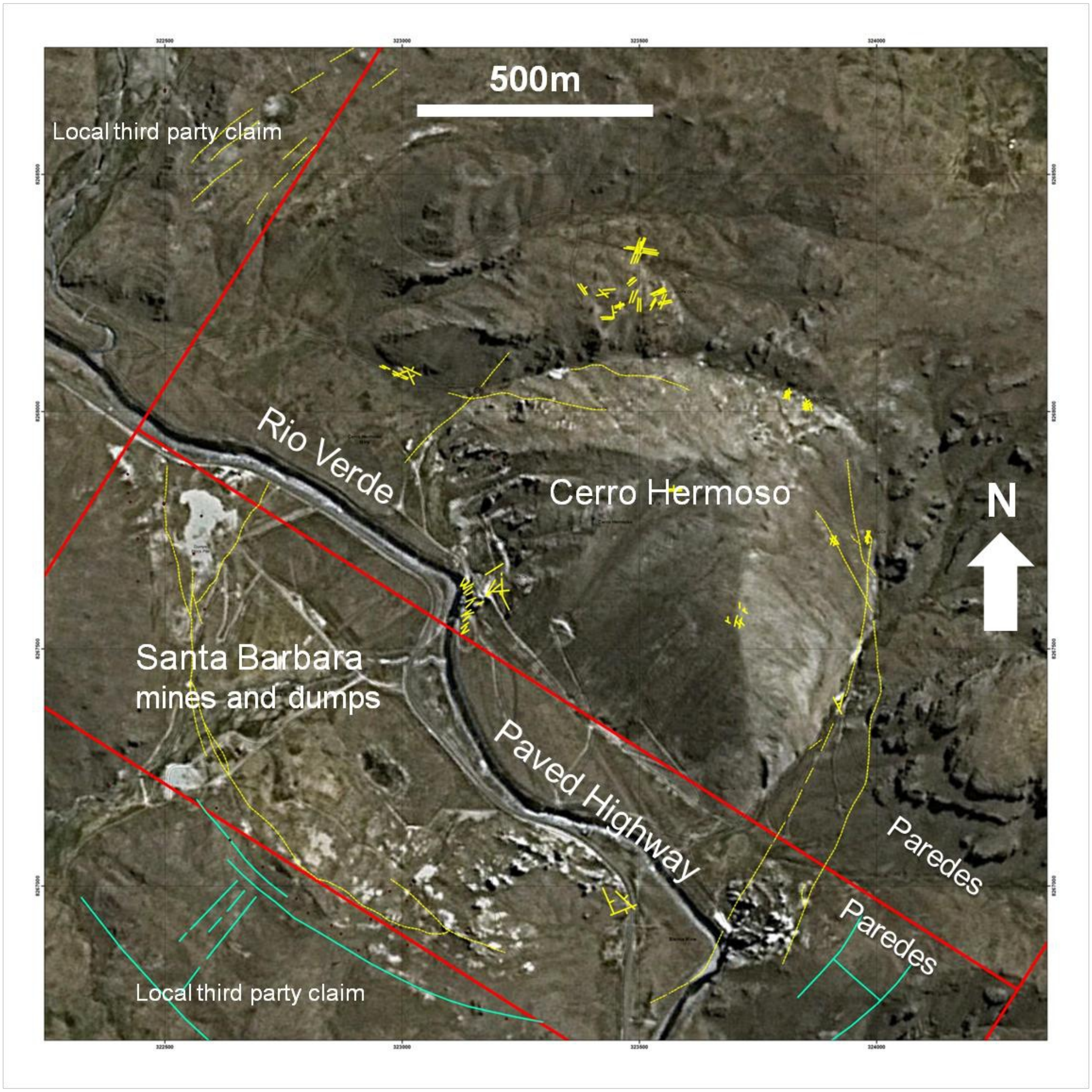

***Figure 4**. The Santa Bar bara Project (outlined in red)*

Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada V6C 0B3

+1 604 699 4000 Tel
+1 604 699 4718 Fax
www.teck.com

Figure 5. *Panoramic photo of Santa Barbara project, taken from top of Cerro Hermoso, looking to the SW.*

Tenure

The Santa Barbara project is covered by two contiguous NE -oriented mining and exploration concessions, owned by Mr Manuel Paredes of Arequipa, and shown in black outline in ***Figure 6***. These are; the smaller Haariana 2008 -02-01claim that covers the old Santa Barbara mines and dumps and processing plant and the larger Lucia Josefina 2008 -11-27 claim covering the Cerro Hermoso part of the property. Both claims were staked by Mr Paredes in 2008 soon after the previous long -time owner and mine operator, Minsur S.A, abandoned them. Mr Paredes is also actively trying to acquire the surrounding mining claims from local owners.

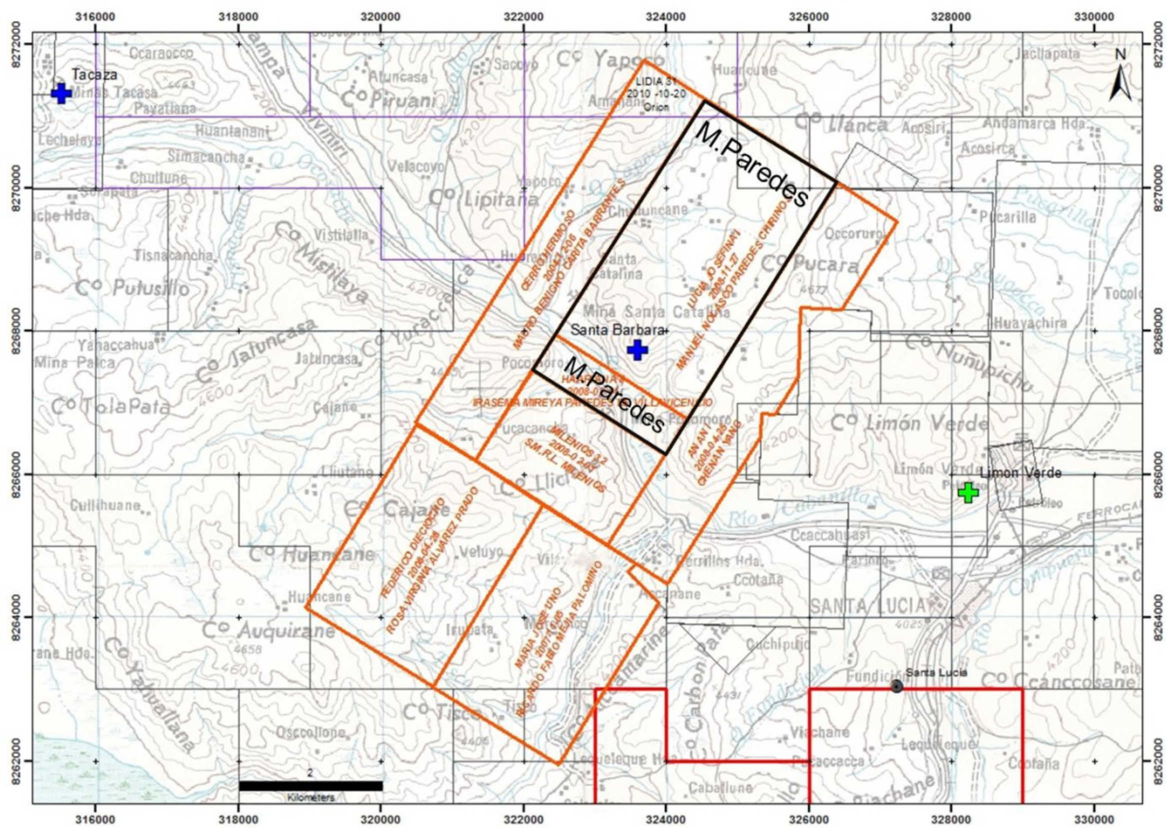

Figure 6. *Third party tenure over the Santa Barbara project and mining district, highlighting the two claims owned by Mr.Paredes (in black) and the surrounding other local thrid party claims (in red)*

Project History

Early producing years – pre 1960´s

Modern mining activity in the Santa Barbara project have been producing silver for at least the early part of 20th Century, when the Anglo-American firm Lampa Mining Co exploited the main veins.

Later producing years - late 1960 -1990.

Minsur S.A (a local Peruvian mining company) re-established production in the late 1960´s and early 1970´s, up until 1990, to become one of Peru´s largest silver producers, by exploiting three of the highest-grade silver-copper-gold veins, on the project. These veins were exploited by underground shrinkage stopes, with mine developments down to 360m level below surface, on the western side of the river (the Santa Barbara vein system), and down to 80m depth on the eastern side (the Cerro Hermoso and Mina Blanca veins). The mines on the Santa Barbara project are estimated to have averaged grades of 15 oz Ag + 2%Cu, 1%Pb + Au. Lack of ventilation, flooding and roof collapse inhibited extensive underground development.

Modern Exploration – 1988-1989

Minsur S.A also conducted exploration outside of the producing mine areas. Their work on the eastern side of the river valley included an IP/Res survey and extensive surface rock chip and trench sampling, followed up by a limited (possibly four holes) surface drilling program in 1988-89 ***(see Figure 14)***.

The results of the surface rock sampling are broadly known because they have been effectively repeated by Teck during this latest evaluation visit. The detailed results of the IP survey are unknown but, apparently, a significant "anomaly" was detected below the Cerro Hermoso breccia body. The results of the drill holes are unknown, but poor ground conditions, apparently, meant that the drill targets were only partially tested (person. comm. Paredes).

Acedemic study - 1984-1990

In 1984-86 Alan Clarke and Hardolph Wasteneys completed a 1:50,000 scale geological map with a 15km radius around the Santa Barbara mine, including the larger Santa Lucia district, sponsored by Minsur, S.A. This work was the basis for Wasteneys´s PhD, completed in 1990 at Queen´s University, and titled "Epithermal silver mineralization associated with a mid-Tertiary diatreme: Santa Barbara, Santa Lucia district, Puno". This work included delimination of the volcanic structures (diatreme), measurements of stratigraphic sections, rock samples collected for radiometric dating and petrochemical study. Several other short papers were then published by Wasteneys and Clark et al in 1990 related to specific aspects of the epithermal vein district at Santa Barbara and their relationship to the Santa Barbara diatreme (e.g. Wasteneys, H.A., and Clark, A.H., 1990 and Wasteneys, H.A., et al, 1990).

Current deals and operations

In March 2011 the owner of the claims covering the Santa Barbara project (the Paredes family, represented by Mr. M.Paredes) signed a 50-year commercial profit-sharing agreement with a Peruvian mining company, Corp Minera Kcoriwasi S.A.C, whereby the latter would re-establish production of precious- and base-metals from historic tailings/dumps on the Haariana 2008-02-01claim, which covers the historic Santa Barbara mine. According to Mr Manuel Paredes the Lucia Josefina 2008-11-27 claim is also included in the commercial agreement with Corp Minera Kcoriwasi, but is not specifically named in the legal document that Teck has been provided with.

Minera Kcoriwasi´s Managing Director, and chief financial backer, is a Guatemalan businesswoman (Miss Zara Noguera) who, as part of the agreement, has invested approximately US$1.3M in equipment and plant, during 2011. This capital has purchased new mining equipment, constructed an on-site 350-500 t/p/d gravity separation plant and laboratory, and also funded geotechnical, geological and geochemical studies of precious-metals contained in tailings, dumps and colluvial cover ***(see Figure 7)***.

Figure 7. *Stockpiling gold-bearing colluvium, southern flanks of Cerro Hermoso, Santa Barbara project*

The results of these studies have been made available to Teck. Minera Kcoriwasi have apparently defined 270,000 tonnes of tailings material at the Santa Barbara mine site with average grade of 154g/tAg, 1.24g/tAu and 0.95%Cu (5g/tAu eq) for ~50,000 ounces Au (eq), and a further 500,000 tonnes of gold-bearing colluviums, at the Cerro Hermoso area, averaging 1.5g/, for ~25,000 ounces Au.

Also recently, small scale production has commenced again, after a 20 years lapse, processing pre-crushed stockpiled dump material at the Santa Barbara Mine and small amounts of recently

exploited high grade material from the Santa Barbara, Cerro Hermoso and Mina Blanca veins. Blended together his material grades 2,160g/tAg, 16%Cu and 3g/tAu (or ~63g/tAu eq). Minera Kcoriwa si is currently selling (to a smelter in Nazca) around 3 tonnes of this material per month (with an approximate commercial value of US$10k). The agreement divides profits from these sales - after deduction of tax and processing costs - 88% to Corp Minera Kcoriwasi SAC and 12% to Mr Paredes. Mr. Paredes 12% of profits is not subject to deductions of the initial cost of the equipment purchase and plant construction by Kcoriwasi.
Both Mr. Paredes and Minera Kcoriwasi SAC have expressed interest in any future agreement whereby Teck invests money to systematically explore the project, in exchange for a percentage earn-in. This could eventually lead to a 100% buy-out by Teck for sequenced cash payments.

Results of work done by Teck 2010 -2011

Project work

Geological mapping - 2011

Between the 3rd and 6th November 2011, the author and one field assistant, completed recce-style geological-alteration mapping on the Cerro Hermoso portion of the project - covered by the Lucia Josefina 2008-11-27 claim block, the results of which are shown in ***Figure 14*** and its accompanying Legend in ***Figure 14 a.***

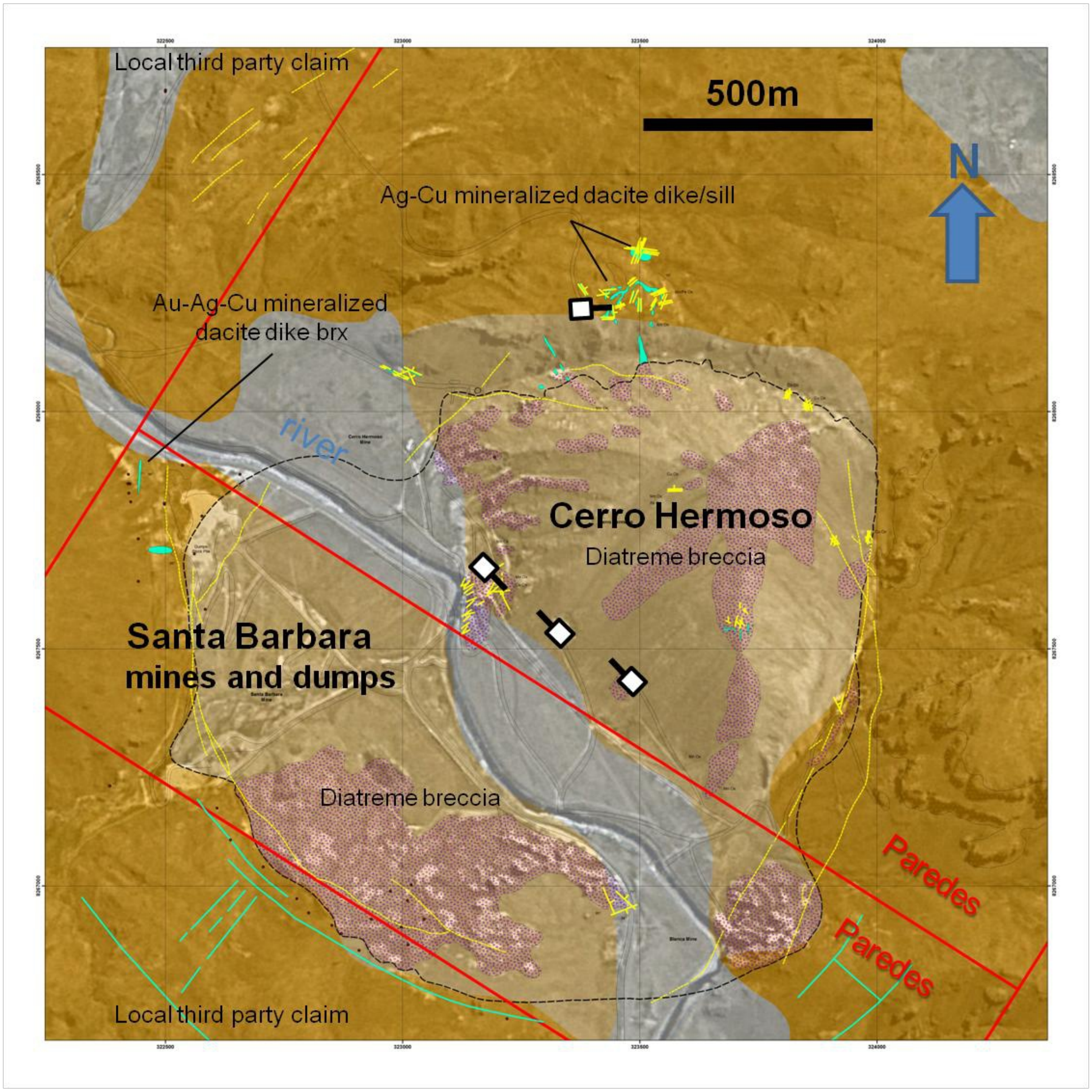

***Figure 1 4**. Recce Geoloical Map (Teck February 2012) Santa Barbara project.*

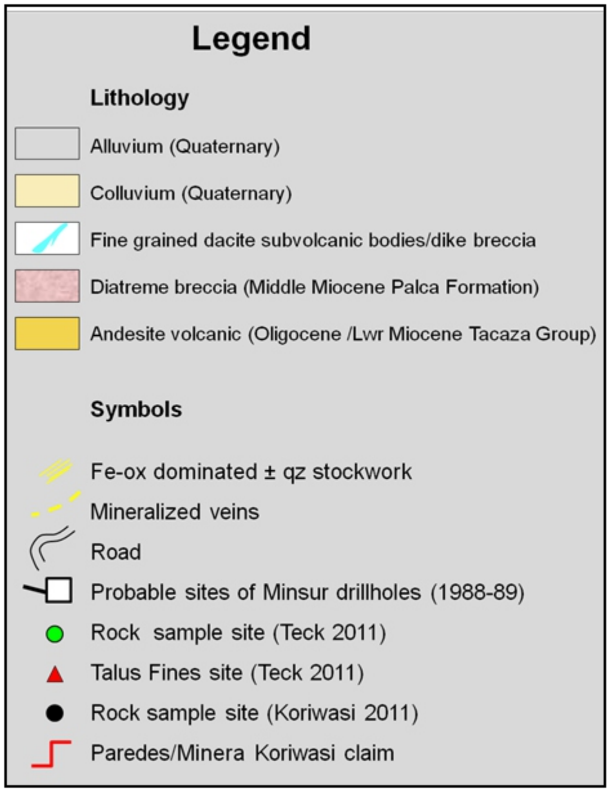

***Figure 14a**. General legend for work done Teck at the Santa Barbara project.*

<u>*Mineralization-bearing host rock description*</u>

Precious- and base-metal ISE mineralization at the Santa Barbara project is hosted in four rock types;

1. The oldest of these, which does not outcrop, are the Upper Cretaceous-aged limestones (Celendin and Jumasha Formations) that form the basement rock in this general area. Although not exposed on surface, they are present in the deepest parts of the historic workings and can be seen as mineralized blocks on the mine dumps. In the Santa Barbara mine, on the western side of the river, these carbonate rocks were encountered at depths of +300m below surface, where they are also locally mineralized. On the eastern side of the river, in the Mina Blanca mine, the same basement carbonates occur in the workings at 80m below surface, and are also locally mineralized. The difference in the depth from surface to basement limestone, from either side of the Verde River valley, which dissects the district, suggests that there may be an important structure trending along the NW to WNW-trending valley bottom, with possible east-side up block movement kinematics. This structural trend would effectively parallel the so-called

"Lagunillas Fault Zone", which, according to Clark, et al 1990, has been active during Oligocene -Pliocene times ***(see Figure 2).*** A notable bend ("jog") in the direction of the river valley as it passes through the Santa Barbara project may be reflecting the complex structural pattern here, with the probability of a down-dropped western block the result of localized extension /pull apart basin development, within a NW-trending strike-slip fault duplex, during Tertiary times.

2. Unconformably overlying the limestone basement rocks are Oligocene -aged hornblende - bearing shoshonitic (high K -calcalkaline) andesitic /diorite sub volcanic /sills of the Tacaza Group (32-24Ma from Clarke et al, 1990). These were fed from large calderas formed during a period of locally extensional tectonics, just prior to a major compressional event. These rocks are also host to probably contemporaneous ISE occurrences (i.e. the Tacaza project and others).
3. At the Santa Barbara project, these rocks are then intruded by a large, 1.5km², roughly circular, sub volcanic felsic vent - *the Santa Barbara Complex* – here, and elsewhere, described as a "*diatreme*". Clarke et al, 1990, dated the diatreme at 26.83±0.28Ma, from clay-altered tuff filling the diatreme vent - an almost contemporaneous date with the surrounding Tacaza Group andesite host rocks (26.9±2.7Ma) - and he therefore placed it in the same rock package. But, "geologic error in the date may be high" according to Clarke, and others, based on field relations, have assigned the diatreme to the unconformably overlying Palca Group, of Lower Miocene -aged.
   The diatreme occupies the topographic features known as Cerro Hermoso, Cerro Blanco and Cerro Pocomoro. It has an inverted-cone shape and is filled with poorly stratified and variably welded moderate to coarse-grained (lapilli-sized) polymictic rhyodacitic pyroclasts, making up more than 50% of the diatreme fill. These tuffs dip at 30° into the axis of the diatreme. Argillic alteration, involving bleaching and pyritization, has affected a large part of the diatreme fill. Other minor clast types include fine grained "wispy" tuff (fiamme or juevenile clasts ?) and red/brown micro -porphyritic andesite (pre-existing wall rock clasts), all interpreted to be locally derived, and *monzo granite*, presumed to from a sub-volcanic intrusive and the source of hydrothermal and magmatic fluids that formed the diatreme and subsequent mineralized system. No clasts of the underlying carbonate basement rocks were observed, even though the deeper workings on the NW side of the Sanat Barbara mine have intersected the contact between the limestone basement and diatreme. Diatreme fill extends from 4,500m at the top of Cerro Hermoso, to at least the 3,832m level in the Santa Barbara mine. Cone - and radial fractures have developed during the initial doming and then subsidence of the central core of the diatreme and these have been preferentially filled with high-grade polymetallic veins and hydrothermal and cone-sheet dacitic/phreatic breccia dikes, themselves cut with veinlets and stockworks. The conical fracture pattern arrayed around the margins of the diatreme dip into the centre of the breccia at 070° and display centroclinally plunging slickensides and extensional fabrics (Wasteneys et al, 1990). The temporal (i.e. genetic) link between the

polyphase ISE mineralization events, and the emplacement of the "diatreme" complex is yet to be fully established, but is interpreted to be near-contemporaneous.

4. The main mineralization events are in fact most spatially coincident with the emplacement of the dacitic sub volcanic bodies and sills and phreatic - and phreatomagmatic breccia dikes, with cone-sheet and radial orientations around the margin of main diatreme body. An $^{40}Ar/^{39}Ar$ date on hydrothermal sericite from a phyllic-altered breccia dike hosting one of the high-grade Santa Barbara veins, has returned an age of 23.5 ± 0.5 Ma. These intrusive breccia dike bodies were observed, by the author, cutting the andesite host rocks, at the northern margin of the diatreme on Cerro Hermoso, and also cutting the diatreme complex itself, at the Santa Barbara mine site.
   These dikes record phreatic - and phreatomagmatic explosions which generated, respectively, qz-hematitic-cemented "jigsaw-puzzle" wall-rock breccia and multi-stage granite-fragment hetrolithic breccia, emplaced by fluidization (Wasteneys, 1990 PhD). Similar mineralized polyphase breccias are described from other ISE deposits worldwide including Roşia Montană in Romania (215Mt @ 1.5g/tAu) and Peñasquito in Mexico (1.835Bt@ 0.37gtAu, 23.9 g/tAg, 0.27%Pb, 0.64%Zn or 1.20g/tAu(eq)).
   In the areas where they are observed, the breccia dikes, at the Santa Barbara project are affected by moderate to strong pervasive white clay (sericite) alteration. Historically, this fine-grained altered breccia dike was termed "tuffa" by the miners of the Santa Barbara veins when they encountered it in the underground workings. Evidently, the dikes are traceable for up to 1km laterally and up to 200m vertically (to the limit of the underground workings), with the best developed dikes lying in the southern margin of the diatreme, forming two series – an inner set close to the margin and an outer set 200m from the contact. Individual dikes vary in width from <1meter up to 10 meters wide, in the central section of the mine, but are also reportedly up to 50 meters wide in some underground workings (pers. comm. M. Paredes). Apart from hosting many of the high-grade polymetallic veins, which were being exploited from these addits, they also host lower-grade polymetallic stockwork mineralization - the "*breccia dike-hosted mineralization*"- style noted below.
   The full extent of this style of mineralization remains undocumented, as it was neither historically exploited nor explored. It is therefore highlighted, in this report, as one of the mineralization styles that could have particular potential at the Santa Barbara project for generating bulk-tonnage ore. Given the strong vertical (and lateral) mineralogical zonation within the Santa Barbara vein system, it is possible that these dikes could host significant early and higher-grade bornite-chalcocite + electrum mineralization at depth on the western side of the valley, below the historic underground workings, and/or at shallow depths on the structurally up-thrown eastern side. Other potential must exist at depth, beneath the diatreme breccia body, for a larger mineralized sub-volcanic body and/or porphyry intrusive that fed these breccia dikes.

For the moment, all that can determined is that the margins of the breccia body were most favorable for the emplacement of the main vein system which was superimposed onto these polyphase series of concentric and radial dacitic and phreatic - to phreatomagmatic breccia dikes and bodies, but which themselves may also have introduced a lower grade stockwork-type mineralization event.

Geochemical sampling

During the four days spent on the property by Teck, 93 rock and 42 talus fines geochemical samples were also collected. The majority of these geochemical samples were taken from the Cerro Hermoso, including all of the talus fines, and 78 of the rock samples. The remaining 15 rocks were taken from the dumps at the Santa Barbara mine site. Minera Kcoriwasi has taken 31 rock samples from surface exposures of the Santa Barbara vein system, since 2011. The distribution of all these samples is shown in ***Figure 15.***

Talus Fines sampling results

Talus fines samples, taken from the lower slopes of the Cerro Hermoso, have detected anomalous gold (i.e. >0.05ppm or >50ppbAu) in one area located due north of the main outcropping mineralized diatreme breccia body **(*see Figure 16*).** This area has already been highlighted from Minera Kcoriwasi surface sampling and is currently the centre of their activity to stockpile gold-bearing colluviums ready for gravity separation. Their studies have estimated 500,000 tonnes of gold-bearing colluvium, in this area, averaging 1.5g/tAu. Further geochemical sampling is required to establish the hard-rock source of this gold.

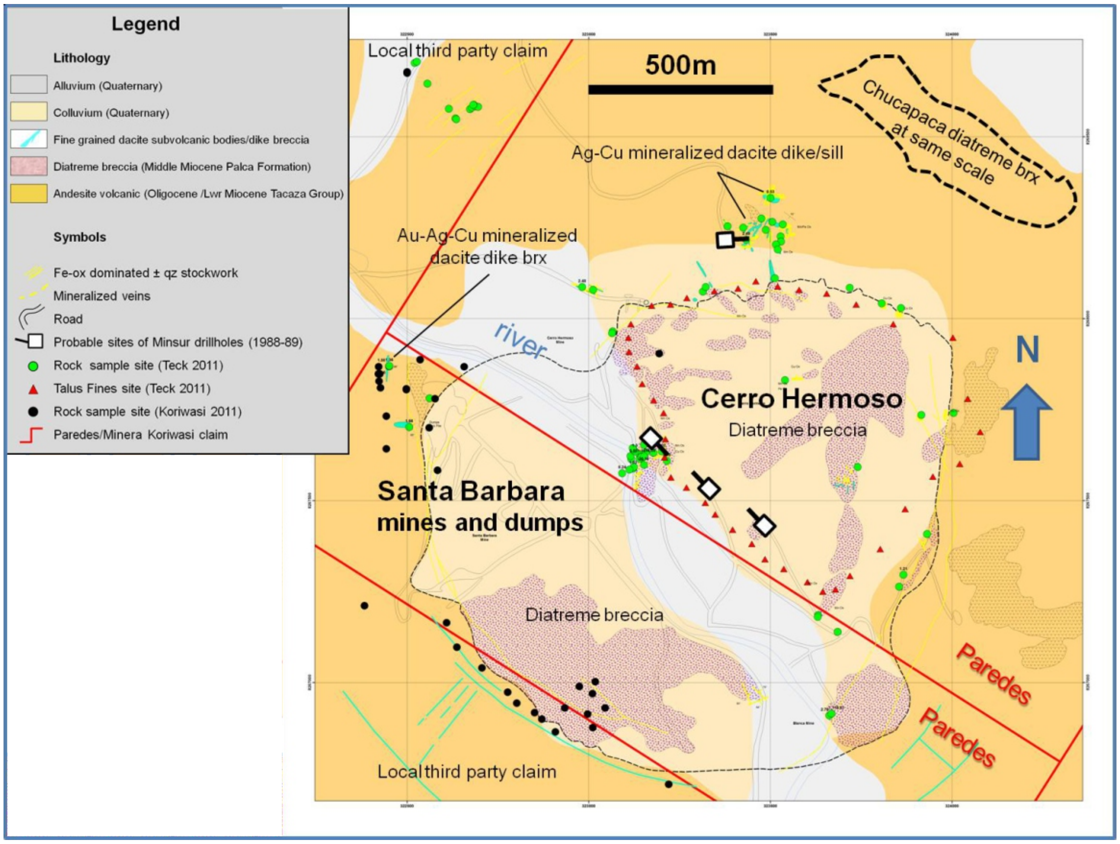

***Figure 15**. Distribution of recent surface rock and talus fines sampling (Teck and Minera Kcoriwasi, 2011).*

Rock sampling results

Teck´s surface rock sampling has detected anomalous gold, silver and copper from the margins of the diatreme breccia underlying Cerro Hermoso. This reflects the distribution of veins and veinlets, in the rocks at and parallel to this contact, observed during mapping and sampling ***(see Figures 16, 17 and 18).***

Assay results in rock are best described in relation to the different mineralization styles observed and sampled.

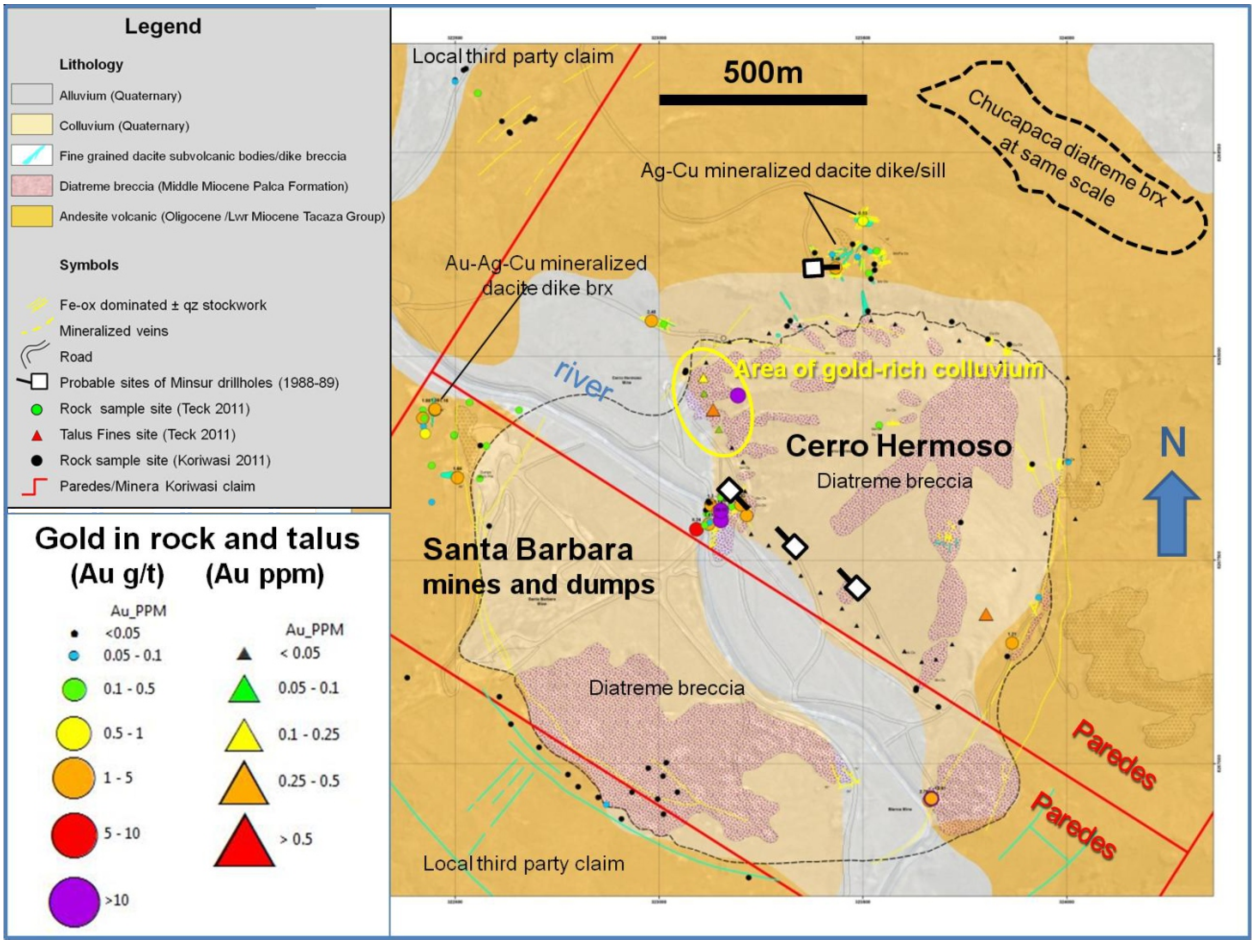

Figure 1 6. *Gold (g/tAu) in rock and talus fines samples Teck and Minera Kcoriwasi, 2011) .*

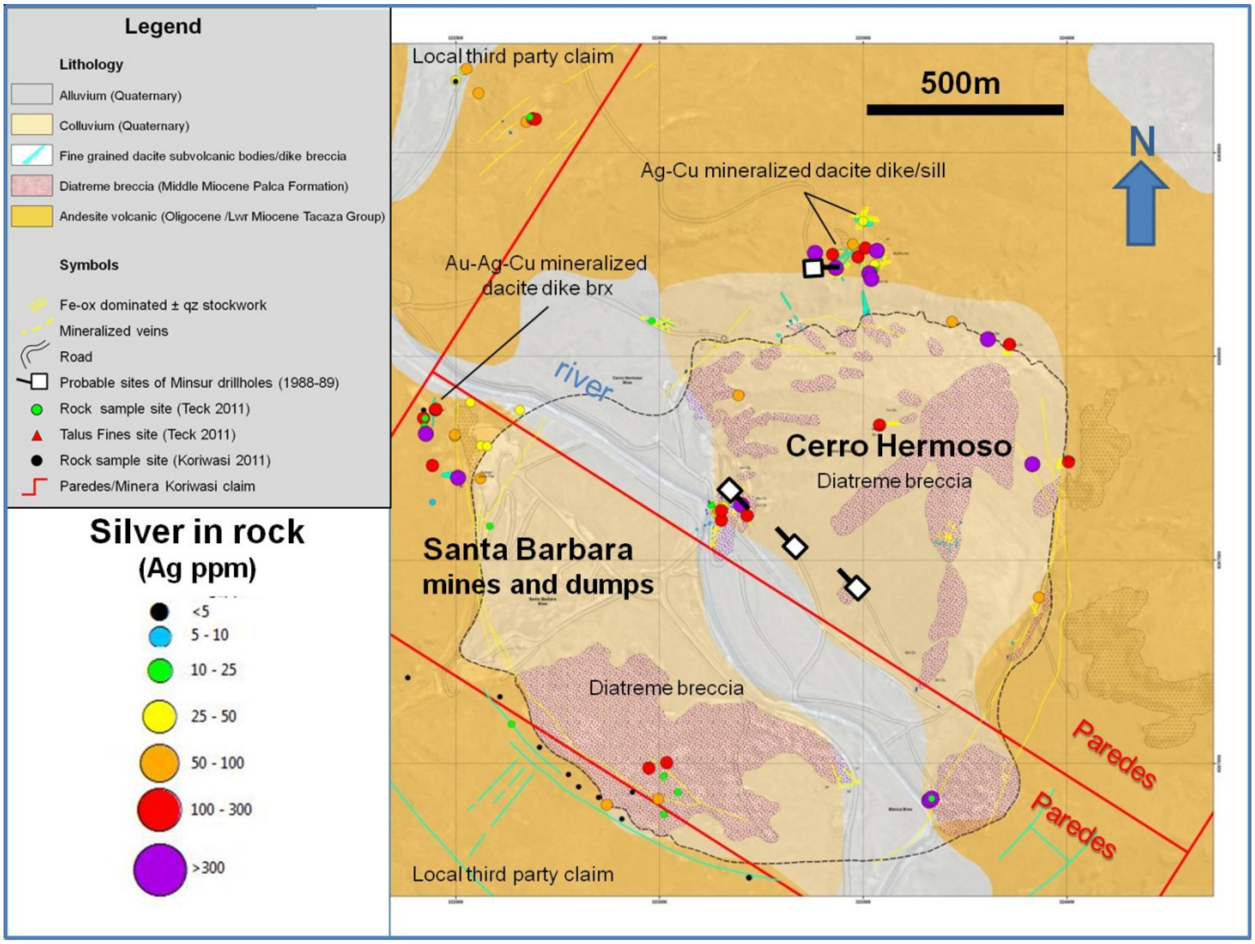

***Figure 17**. Silver (ppm Ag) in rock samples Teck and Minera Kcoriwasi, 2011).*

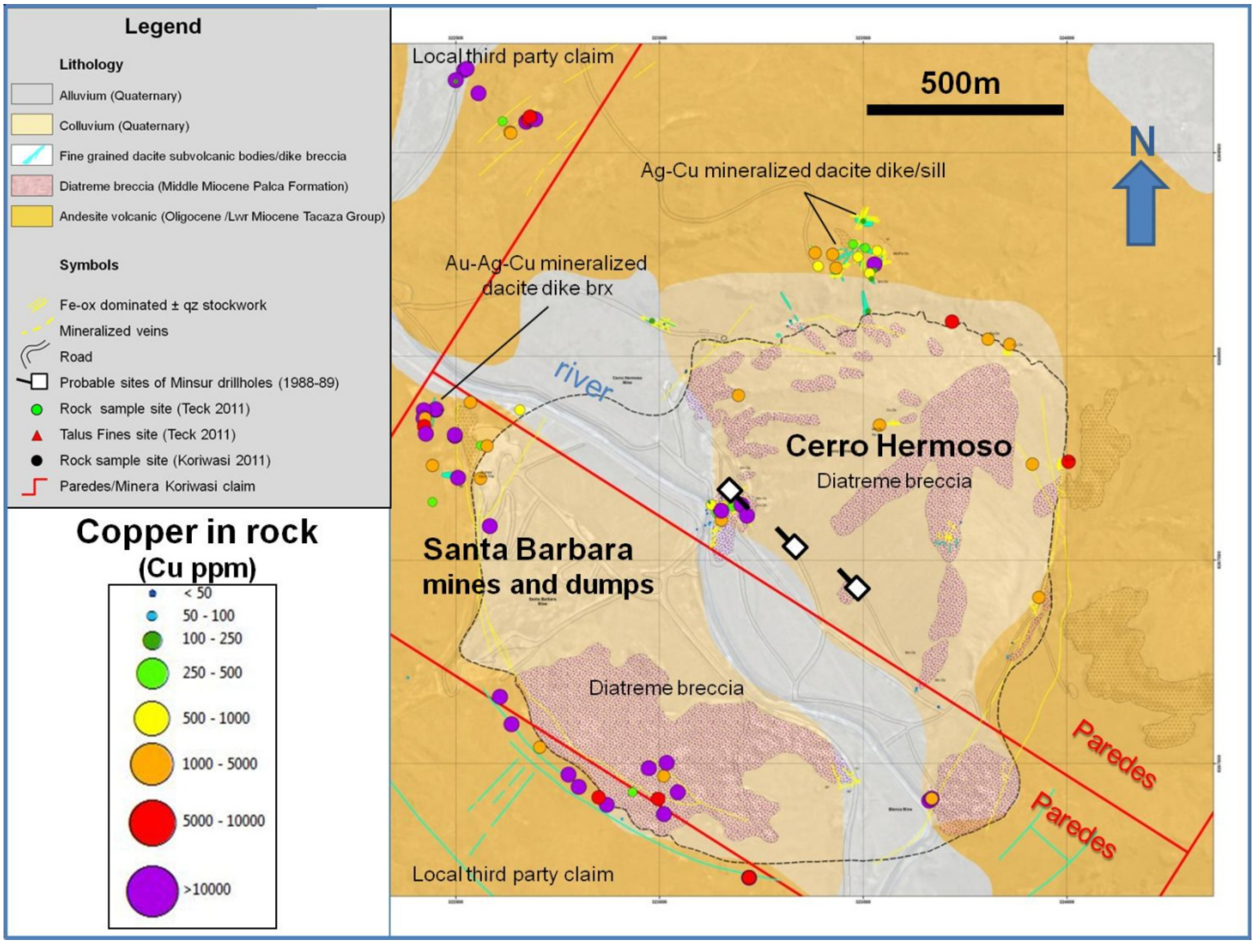

***Figure 18**. Copper (Cu ppm) in rock samples Teck and Minera Kcoriwasi, 2011).*

Vein mineralization

Veins in the Santa Barbara project are generally narrow, from 0.3m to 1.5m, splayed, and appear to be largely paralleling concentrically the contact margins of the large diatreme breccia body (centered on Cerro Hermoso) as a semi-continuous sheeted conical fracture pattern around it. Where mapped in detail by H. Wasteneys, for his PhD thesis in 1990, they are shown to dip at ~70° into the inverted-funnel shaped diatreme body (***see Figure 19).***

Guange in these veins is dominantly carbonate (calcite, siderite, dolomite and manganese carbonates). Only locally is quartz a significant component, and then, it is fine-grained silica. Commonly, veins are sulphide-only.

Four mineralized stages have been determined in detail (Wasteneys, et al, 1990) from the ***Santa Barbara*** project:

- *Early Stage* - early magnetite replaced by hematite -quartz -pyrite and low Fe sphalerite.
- *Main Base Metal Stage* – at depth, dominated by the hypogene assemblage bornite and chalcocite ± electrum, replaced progressively at shallower levels by enargite, chalcopyrite -galena and digenite then luzonite and finally betekchtinite ($Pb_2(Cu,Ag)_{21}FeS_{15}$) + quartz in an upwards and outward zonation front.
- *Tennantite Stage* – early tennantite, replaced by argentian tennantite (pearceite ($(Ag,Cu)_{16}As_2S_{11}$)), banded tetrahedrite, chalcopyrite, galena and sphalerite. The tennantite is observed to be replacing earlier bornite -chalcocite of the Main Stage - a similar observation is made also at Chucapaca.
- *Carbonate Stage* – Early barite and Mn-dolomite replaced by siderite -rhodonite and then by later calcite.

Silver

Silver solid solution in chalcocite -bornite and tennantite accounts for significant proportions of the silver grades.

Gold

Gold, in the veins, occurs as electrum (70% gold / 30% silver) deposited during the Main Base Metal Stage with chalcopyrite and galena and replacing earlier pyrite -sphalerite dominated mineralization of the Early Stage. Gold, also as electrum, is locally very concentrated in the bornite-rich veins. A similar gold paragenesis is described from the recently discovered diatreme -hosted Canahuire deposit located 50km south of the Santa Barbara project, and which is worth highlighting further.

At the Canahuire deposit (aka Chucapaca project) two stages of mineralization have been described (Dusci, et al 2011):

- *Early Stage* - comprising pyrrhotite (at the core of the system, grading down and out to a distal magnetite -pyrite halo), pyrite, chalcopyrite, arsenopyrite, sphalerite with siderite gangue.
- *Main Stage* – (partially replacing the early pyrite) and comprising gold, electrum, maldonite, pyrite, arsenopyrite, marcasite, chalcopyrite, tetrahedrite, tetradymite, stibnite-bismuthinite and other Bi, Sb and Ag -sulphosalts, sphalerite and galena. Gangue is dominantly carbonate (siderite and impure rhodochrosite), quartz, chalcedony, opal, clays and adularia.

At the Santa Barbara project, the veins from the western part of the property (i.e. the Santa Barbara mine itself) had higher silver and lower gold grades than those from the eastern parts of the project, as divided by the Verde River valley. Metal grades from the Santa Barbara mine area are reported to range from 500-2,500 g/tAg, 15 -30%Cu, 0-3g/tAu, and with several percent combined Pb and Zn locally. Grades from the veins at the Mina Blanca and Cerro Hermoso mines (from the south eastern side of the project) are reported as being ~15g/tAu with multi -

ounce Ag, and multiple percent Cu, Pb and Zn. Teck´s limited rock sampling of selected vein material on the Santa Barbara project generally confirm these grades. The vein system at Santa Barbara project is classified as ***Intermediate Sulphidation Epithermal (ISE)*** type based on the dominant sulphide assemblage (chalcopyrite, tennantite, Fe-poor sphalerite). ***See Figures 20 - 23.***

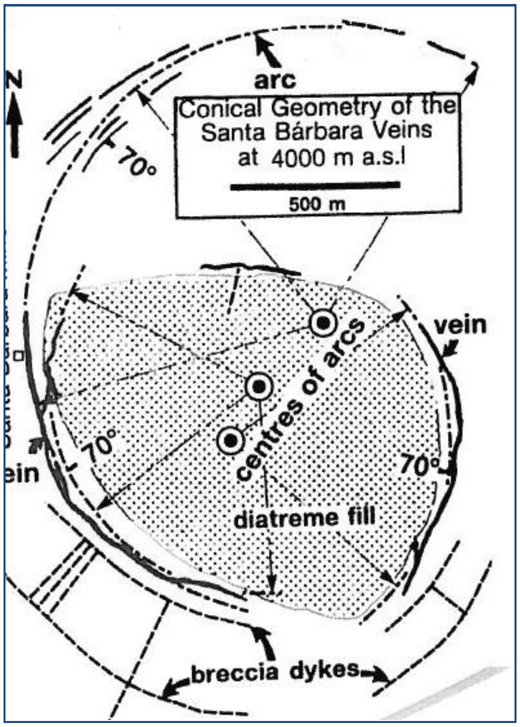

***Figure 19**. Mapped conical epithermal silver veins surrounding the Santa Barbara diatreme (after Wasteneys et al, 1990).*

Figure 20. *Narrow limonite - (sulphide) only veinlets cutting clay-altered phreatic dacite breccia dike in the Santa Barbara mine addit.*

Figure 21. Rythmically banded siderite-calcite vein material on dumps at the Santa Barbara mine.

Figure 22. *Mn- and Fe-oxide brecciated and cemented diatreme breccia – Cerro Hermoso.*
Teck sample with assay results.

Figure 23. *Cu/Fe/Mn -oxide only narrow veinlts cutting clay -altered diatreme – Cerro Hermoso . Teck sample with assay results.*

Intrusive -hosted mine ralization

From the authors g eological mapping , examination of dump material at the Santa Barbara mine , conversations with Mr. Paredes and observations by previous workers (Wasteneys , et al, 1990) it is evident that there is a preferentially -mineralized dacite /phreatic breccia dike intrusive phase - the so -called "tuffa" rock type - present on the Santa Barbara project. These intrusive bodies are cut by the high –grade silver -dominant epithermal veins, but are also affected by weak to locally strong intens ity stockwork of Au-Ag-Cu-Pb-Zn-Mo-bearing dark metallic grey sulphosalt/sulphide -only and locally open -spaced quartz -carbonate veinlets ***(see Figures 24 and 25)***. It still needs to be established whether these mineralized stockwork s are associated with the main vein event, or whether they are essent ially contemporaneous with the emplacement of the intrusive bodies (as suggest ed by Mr. M.Paredes) .

In the Santa Barbara mine, t hese mineralized intrusive bodie s were historically considered marginal grade (i.e. a veraging between 90 -300g/tAg, 2 -3%Cu, and ~1g/tAu) , compared with the high grade ore veins. Of the six grab samples collected , by Teck, from the dumps of stockworked dacite they average : *0.7g/tAu (0.15 -1.88g/tAu), 107g/tAg (27 -249g/tAg), 0.80%Cu (0.46 -4.1%Cu), 0.34%Pb (0.032 -1.42%Pb), 0.19%Zn (0.0 3-0.49%), 80ppm Mo (2 -242ppmMo).* ***See Figure 2 4.***

On the eastern side of the river , at the Cerro Hermoso area, the author has also observed, mapped and sampled similar -looking fine -grained dacite bodies (si lls, plugs and dikes) that occur on the margins of the large diatreme breccia body. Here they are cut by a, locally strong, stockwork of open -space quartz -carbonate (siderite) and Fe/Mn/Cu -oxide veinlets (but no veins are present) . Results from 15 rock sam ples taken by Teck from these outcrops returned an average of: *0.26g/tAu (1 -525ppbAu), 161g/tAg (13 -300ppmAg), 101ppmMo (6 -647ppmMo), 0.23%Cu (75ppm -2%Cu), 0.31%Pb (138ppm -3.09%Pb) and 518ppmZn.* ***See Figure 25 .***

147583 - 0.47g/tAu, 29g/tAg, 0.46%Cu, 0.5%Pb

Figure 24*. Silver sulphosalts (dark grey sulphide)-only veinlets, with sericite haloes cutting white-clay altered dacite intrusive («tufa») Santa Barbara mine dumps. Teck sample with assay results.*

147324 – 0.28g/tAu, +300g/tAg, 214ppmMo, 0.37%Pb

Figure 25*. Fe/Mn/Cu-oxide and siderite veinlets cutting white-clay altered dacite sub-volcanic. Northern margin of diatreme breccia Cerro Hermoso. Teck sample with assay results.*

Diatreme breccia-hosted mineralization

The main exposure of mineralized diatreme breccia outcrops on the eastern bank of the river (southern flank of the Cerro Hermoso) and is easily accessible by the dirt road that fords the river opposite the entrance to the Santa Barbara mine site. The mineralized exposure extends for 100m along the river bed and for approximately 100m upslope to a series of old workings, but then is potentially concealed under colluvial and alluvial cover on all sides. Mineralization comprises steeply dipping, roughly NE-SW trending, en-echelon carbonate-Mn/Cu oxide veinlets that are highly anomalous in gold (and copper), but only weakly anomalous in silver (***see Figure 26***). A NE-SW lineation is evident in the remote image, trending through this area, suggesting that this mineralized zone may have a more predominant structural control, which may correspond to a dilational Reidel shear structure linking two NW-SE trending extentional structures.

Previous selective sampling of these veinlets by Teck, in August 2011, returned between *30-56g/tAu*. More systematic and representative rock sampling had previously been undertaken by Minsur S.A, who sampled this exposure with a rock-sawn channel and 10-15cm deep panel cuts. The results of this historic sampling are unknown, but Teck has reproduced them with 5m continuous rock chip samples, using the same channel and panels. Results of this work, by Teck in November 2011, returned *50m @1g/tAu, including 5m @8.5g/tAu* ***(see Figure 27)***.

Figure 26*. Au-bearing Mn-oxide/carbonate-only narrow veinlets cutting clay-altered diatreme – Cerro Hermoso. Teck sample with assay results.*

Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada V6C 0B3

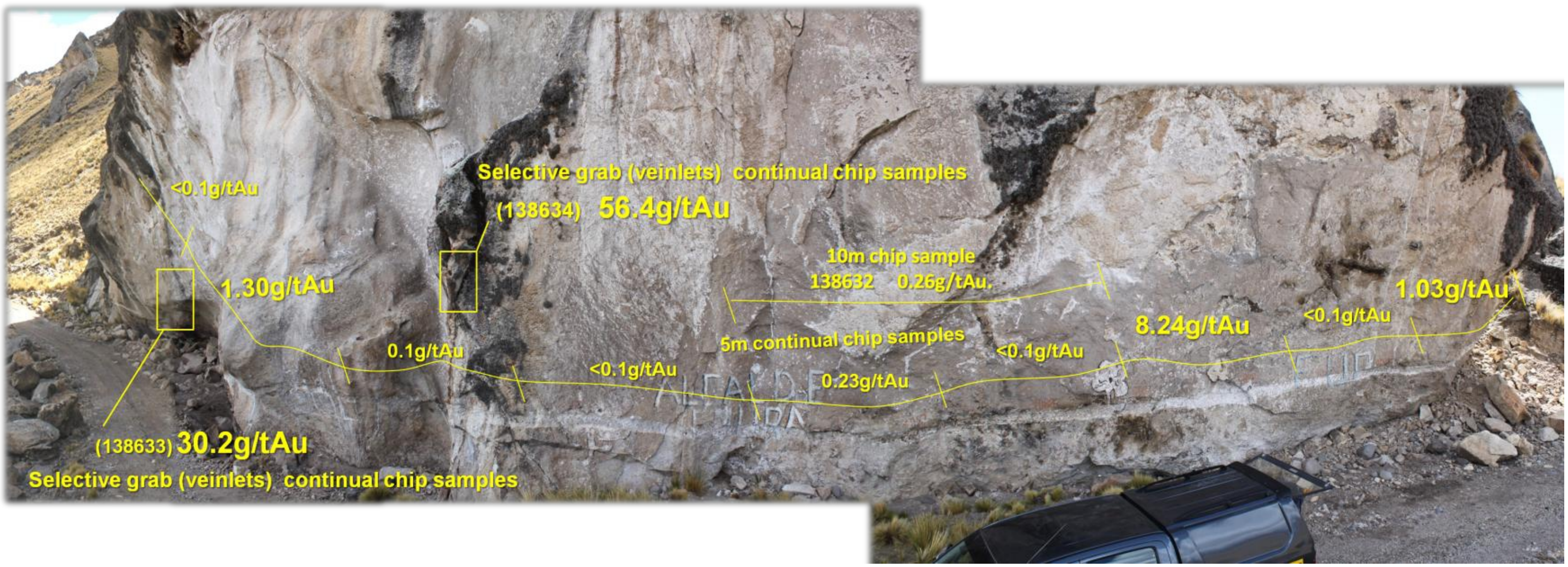

Figure 27. *Teck 2011 continuos chip - and selected grab samples Mn-ox veinlets cutting diatreme breccia –Cerro Hermoso . Teck samples with assay results.*

Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada V6C0B3

File Note

Carbonate replacement mineralization

Sulphide replacement mineralization of carbonate rocks is described from the lower levels, 360m below surface, of the Santa Barbara mine (on the western side of the river) and also at levels of 80m at the Mina Blanca mine (on the eastern side of the river). Mineralization is dominantly base-metal rich and forms narrow (up to 3m thick) replacement bodies, but magnetite bodies might also be expected to occur, particularly around the margins of the diorite/andesite sub-volcanic sill emplacement of the younger Tacaza Group.

Alteration

Across the Santa Barbara project hydrothermal alteration comprises dominantly weak pervasive white clay and local chlorite/smectite-replacement of clasts in the diatreme breccia, and phyllic alteration around vein and stockwork mineralized zones. Intense serictic selvages ("D" veins) where observed to sulphide-veins and veinlets affecting fine-grained dacite bodies.

N.B at the Canahuire deposit, intense and extensive sideritisation of diatreme breccia and host carbonate rocks accompanies Au-Ag and Cu ore. Sideritisation at the Santa Barbara project has not (yet) been identified, except as vein guange, but this may be related to, a) the interpreted deeper level of erosion of the diatreme breccia pipe at Santa Barbara and/or, b) the lack of surface exposed limestone basement. A detailed investigation of carbonate basement blocks on the dumps at the Santa Barbara and Mina Blanca mines, brought up from the deepest portions of the old underground mine working, should be made to catalogue the nature of mineralization and alteration of these rocks.

Respectively submitted
Darren Jones
Principal Geologist

September 2012

References

Dusci, M., et al, 2011, ABSTRACT and NOTES from presentation at NewGenGold 2011, Perth. The discovery and resource development of the Canahuire gold-copper-silver deposit, Chucacapa project, southern Peru.

Clark, A, et al., 1990, ABSTRACT, Geologic and geochronologic constraints on the metallogenic evolution of the Andes of southeastern Peru. Economic Geology November 1990 v. 85 no. 7 p. 1520-1583.

Jones, D.N., 2011, Internal File Note: Exploration Search Criteria for intermediate-sulphidation epithermal (ISE) gold deposits.

Wasteneys, H.A., 1990, Epithermal silver mineralization associated with a mid-Tertiary diatreme: Santa Barbara, Santa Lucia district, Puno: Unpublished Ph.D. thesis, Kingston, Queen´s Uni., 367p.

Wasteneys, H.A., and Clark, A.H., 1990, Mineralogical zoning in an epithermal silver vein system, Santa Barbara mine, Santa Lucia district, southeastern Peru. (abs) Geol. Assoc. Canada Mineralog. Assoc. Canada Program with Abs, v.15, p.137.

Wasteneys, H.A., and Clark, A.H., Arenas, M.J., and Valdivia,R.,1990, Conical epithermal silver veins surrounding a diatreme, Santa Barbara mine, Santa Lucia district, southeastern Peru. (Abs) Geol. Assoc. Canada Mineralogy. Assoc. Canada Program with Abs, v.15, p.137-138.