

## Manto Cuba-San Antonio Area & Puntilla-Concepcion Area - Technical Summary of Phase I Exploration Results – INCA Project, Chile

SAMEX has compiled Phase I exploration results for the Manto Cuba-San Antonio area and the Puntilla-Concepcion area which are two adjoining target areas (Plate 1, Figures 1 and 2) that comprise a portion of the INCA Project in Chile. A program of Phase domain IP surveys, detailed geologic mapping and twelve drill holes totaling 2,979 meters was completed in the two areas.

### Manto Cuba-San Antonio Area

Phase I exploration in the Manto Cuba-San Antonio area of the INCA Project included a program of detailed geologic mapping, phase-domain IP surveys, and nine core drill holes totaling 2,203.10 meters of drilling. Seven of the drill holes represent a systematic test of a series of four IP anomalies produced from inversion modeling of the data and which are spaced over a one kilometer distance through the San Antonio mine area. Two drill holes near the Manto Cuba mine were also completed to search for indications of deeper seated source porphyry copper intrusional stock or plug, and also, determine if breccia-hosted, high-grade, enriched secondary and underlying, lower grade, primary copper-sulfide mineralization extended southwestward from the Manto Cuba mine toward and beneath the San Pedro cluster of breccia pipes. These exploration activities have provided the following results:

- Phase domain IP survey along four lines, which cross the area, detected in the raw data, moderate to strong, coherent “pant’s-leg”-type anomalies (Plate 2, Figures 3, 4, 5, 7) that coincide with copper-sulfide mineralized breccia pipes and sheeted-vein zones. Correlating these anomalies between lines defined a highly prospective arcuate band (Plate 2, Figure 2) 600 meters long and several hundred meters across that runs from the San Antonio mine swinging southeastwardly to southerly through the Manto Cuba and San Pedro mines and coincides with geologic features of abundant veins/veinlets and numerous breccia pipes indicative of copper-sulfide mineralization at depth.. Modeling of the data produced a series of IP anomalies on one of the lines and which were not apparent in the raw data (Plate 2, Figure 6). Systematic drill testing (DDH-SA-L5 series of holes) of these modeled anomalies found no indication of causative sulfide occurrences and these modeled IP anomalies are now considered to be highly spurious.
- Geologic mapping identified, surface indications of three, previously unknown, tourmalinized breccia pipes; (Plate 2, Figure 2) two are in the vicinity of the San Antonio mine, and one is northeast of the Manto Cuba mine. Examination of the enriched oxide- and secondary sulfide copper ore material from the San Antonio shaft led to the conclusion that miners had there encountered breccia-hosted mineralization in a concealed fourth pipe. In addition, areas of outcropping strong, sheeted veinlets and more-complex stockwork-type, quartz-sericite veinlets with relict oxide-copper mineralization were outlined and found to extend, with local minor fault offsets from the San Antonio mine area in two directions: for +600 meters southeastward, and also more southwestward into the Manto Cuba mine area. These numerous breccia pipe occurrences and strongly veinletted monzonite are positioned in the broad arcuate bend in the regional strike direction of copper-mineralized veining and coincide with the band of moderate to strong anomalous IP responses.
- A thorough review of the **Manto Cuba mine (#1)** and **San Pedro mines** was completed and was facilitated by availability of detailed reports and a complete set of core logs, and assay analyses from a drilling program of 75 churn holes and six core holes carried out in 1971 by ENAMI (Empresa Nacional Minera). Fortunately, split BX core from five of the Manto Cuba mine holes was found still boxed, mostly intact, and in good shape which allowed a first hand look at the old drill intersections through the impressive, high-grade ore body of enriched, secondary sulfide (chalcocite) mineralization, and also the deeper primary copper-sulfide (chalcopyrite and bornite) mineralization. The Manto Cuba (#1) breccia pipe (Plate 1, Figure 2) is the largest in this sector (80 meters across in diameter) and notable for a thick, interval of high-grade, enriched mineralization averaging 3.5% to 5% copper. Based on the data review and mining history, the upper oxide-ore body and enriched oxide- and secondary sulfide ore bodies of three of the mined San Pedro breccia pipes appear to be mostly mined out. The **Manto Cuba** mine was

collapsed in 1992 halting mining of the enriched ore body. Cross sections from the 1971 drilling depicted that the high-grade enriched ore body and underlying primary copper-sulfide mineralization comprises a gently dipping body, which is open-ended and thickening southeastward toward/beneath the San Pedro breccia pipe cluster (Plate 1, Figures 4a, 4b). Two core holes (DDH-MC-L2-01 & -02) (Plate 1, Figure 2) were drilled to test this target and found mineralized-breccia does not extend outward as a gently dipping zone, but is restricted with a steep orientation to within the breccia pipe. These holes also did not find indications of a proximal source porphyry copper intrusional stock or plug.

- Miners, who held a month-to-month lease in 2005 and into 2006 on the San Antonio mine, were observed, extracting via a +/-60 meter-deep shaft, small quantities of high-grade, oxide- and enriched secondary sulfide copper ore hosted by massive sericite rock which has an identical appearance to mined material from the enriched ore body of the Manto Cuba #1 breccia pipe. Samples with conspicuous abundant chalcocite content from the San Antonio mine ore stockpiles ran 6.2% to 9.5% copper. The outcrop area at San Antonio mine is propylitically-altered monzonite with sheeted and stockwork veinlets; so, the much-different nature of the ore material being extracted at the time from the San Antonio shaft was initially surprising. Two core drill holes were completed to test beneath the shaft. DDH-SA-L5-01 and -02 (Plate 1, Figure 3) drilled into discovering that a concealed, steeply west plunging, breccia pipe is present underneath the San Antonio mine area. The drill holes penetrated into the sidewalls of the breccia pipe (San Antonio #1) at depths of 200 meters and 155 meters vertically below the surface, respectively, and well below the level of enriched oxide and secondary sulfide ore. Multiple intervals of weak amounts of breccia-hosted primary copper sulfide (chalcopyrite and bornite) mineralization were intersected in both drill holes with 0.17% copper over individual sample lengths varying from 10 to 28 meters. A second breccia pipe (San Antonio #2) was discovered some 150 meters to the north and has not yet been drill tested. These holes did not test the nature and thickness of the enriched oxide- and secondary sulfide mineralization positioned higher in the wider part of the breccia pipe.
- In summary, the remaining targets in the Manto Cuba-San Pedro-San Antonio area include: the five breccia pipes which still have never been drill tested for enriched oxide- and secondary sulfide mineralization plus deeper primary copper-sulfide and include: San Antonio #2 and #3, Manto Cuba #2, and San Pedro D and E (Plate 1, Figure 2); (b) upper part of the San Antonio mine (#1) breccia pipe for high-grade, enriched oxide- and chalcocite mineralization (Plate 1, Figure 3); and (c) deeper primary copper sulfide mineralization in the Manto Cuba mine (#1) breccia pipe (Plate 1, Figure 4b). These breccia pipes though appear small, ranging between 40 to 80 meters across in diameter. Based on these dimensions, the upper parts of the breccia pipes could, from a volume of rock standpoint, contain small amounts of high-grade, enriched oxide and secondary sulfide-copper mineralization that might amount cumulatively to 600,000 metric tons. This speculative cumulative size does not include the remaining part of the Manto Cuba enriched ore body, which may amount to, at least, an additional several hundred thousand metric tons. The deeper primary copper-sulfide mineralization has never been rigorously pursued by exploration drilling in any of these breccia pipes. While primary copper sulfide mineralization in the Manto Cuba pipe is strong and appears to be of good average grade; (1% to 1.5% copper), the two drill intersections into primary copper sulfide mineralization of the San Antonio mine (#1) breccia pipe were low-grade in comparison. So, the strength of primary copper sulfide content between breccia pipes is likely quite variable. Simply based on known diameters and a minimum 200-meter depth extent, perhaps 5 million cumulative metric tons of mineralization could be present in the breccia pipes, however, speculating on possible cumulative tonnage and average grade of the pipes is difficult with limited drilling results in hand. Several episodes of supergene processes appear to have substantially upgraded the primary copper-sulfide mineralization to form the highly enriched oxide and secondary sulfide ore bodies present in the very upper parts of many of the breccia pipes.

### **Manto Cuba-San Pedro-San Antonio Area Overview**

Mining History - The **Manto Cuba and San Pedro mines** together were historically (1920's –early 1990's) the most important producers of oxide- and enriched copper ores in the district (Inca Project area). Remember that there has never been a near-by facility to process sulfide ore and produce concentrates and production from the

mines was restricted to oxide-copper ore which was processed at the nearby CHATAL acid-leach plant; and direct-shipping/high-grade, oxide and enriched secondary sulfide ores which were sold to ENAMI facilities at Paipote (Copiapo) and El Salado (Diego de Almagro). Early production from breccia pipes in these two areas was sporadic, small, and carried out via crude shafts and tunnels. From mid-1960 into the earliest 1970's, larger scale, open-cut mining was carried out to try to increase oxide-copper production at the Manto Cuba mine. A second attempt at larger scale, underground mining at the Manto Cuba mine was initiated in 1991, but resulted in a catastrophic collapse of the mine workings in early 1992. Since then, only poorly funded, lease operations by local miners have produced, from time to time, small amounts of direct shipping oxide- and enriched secondary sulfide copper ores. The **Manto Cuba** mine breccia pipe (#1) is the largest in this area of the Inca Project with a diameter of +80 meters across. An upper oxide-copper ore body was completely taken out via an open cut mining in the mid- to late 1960's and the size of the open cut indicate as much as 300,000 metric tons reported to perhaps have averaged around 2% copper. A 1971 drilling program outlined a deeper, highly enriched ore body of both oxide and secondary sulfide (chalcocite) copper mineralization; and also penetrated into the top of deeper seated primary copper-sulfide (Plate 1, Figure 4b). Around this time, a 100-meter-deep, production shaft was sunk from the open cut floor to access this ore body, but mining was apparently not initiated until the early 1990's. This initial mining operation (1991 into early 1992) attempted to use a block-caving technique which collapsed the mine workings and also destroyed the lower section of the shaft; and no further serious attempts to re-open the mine have since been tried. Reports from the time period indicate that this operation produced approximately 130,000 (1991) and 20,000 (1992) metric tons of ore, respectively, ranging in grade from 3.5% to >5% copper. The **San Pedro** mines first exploited, via shafts, three (of a cluster of five) breccia pipes (A, B, and C). These breccia pipes are smaller – measuring 30 to 40 meters in diameter, and also produced enriched, oxide-copper and chalcocite ore. By the late 1960's, miners had abandoned the shaft access underground mining, and instead, took out the entire leached interval of the two breccia pipes (B and C) to access and hoist out the enriched oxide- and secondary sulfide copper ore. An estimated cumulative total of around 300,000 metric tons of high-grade copper ore was probably removed. The Manto Cuba and San Pedro breccia pipes all show a similar configuration in section of a leached column of breccia 40 to over 60 meters thick and with negligible copper content, which sits over highly, enriched, oxide and secondary sulfide copper ore bodies, and deeper-seated, lower grade, primary copper -sulfide mineralization. Enriched, oxide and secondary sulfide copper ore in the three **San Pedro** breccia pipes appears to have been largely mined out. However, in 2005-2006, a small group of miners were observed continuing to scrounge high-grade, oxide- and ore from the San Pedro A and C breccia pipes. Only a part of the secondarily enriched ore body at the Manto Cuba mine has so far been mined. No attempt has ever been made to re-open the Manto Cuba mine to take out the remaining part of the enriched ore body, or exploit primary copper-sulfide mineralization present deeper in these breccia pipes. The Manto Cuba #2 breccia pipe and San Pedro D and E breccia pipes, having yet to be explored by drilling, remain untouched by mining. At the **San Antonio mine**, a small group of miners had, just relatively recently, been deepening and extending underground workings from a shaft collared in outcropping veined monzonite. Surprisingly, from 2005 into early 2006 (when their operation was halted), they had begun producing enriched, oxide- and secondary sulfide ore hosted by sericite-altered brecciated monzonite and andesite intrusion similar in appearance to that produced from the Manto Cuba and San Pedro mines. Samples from their hand-sorted, chalcocite-rich ore stockpiles ran 6.2% to 9.6% copper with anomalous gold (0.134 to 0.271 g/mt) and silver (7.3 to 9.6 g/mt). So far, mining has been attempted on only five of eleven known breccia pipes in this area.

Geologic Setting - Geologically, the mines are located on near-vertical, tourmalinized breccia pipes which are hosted by monzonite of the regional batholith. All exposed breccia pipes show surface indications (especially occurrences of relict oxide-copper minerals) of being mineralized. Where concealed beneath capping monzonite, the surface expression includes: strong veining, tourmalinization, and local small pods of tourmalinized-silicified breccia. Strong sheeted veins occur at the margins to the Manto Cuba #1 breccia pipes. All of the breccia pipes have been intruded to some extent by later ring dikes and plugs of andesite. Strong potassic alteration and superposed sericite alteration have affected the breccia and later andesite dikes/plugs and are related to deposition of chalcopyrite and bornite plus some molybdenite. Pyrite appears to be abundant in the upper part of the Manto Cuba #1 breccia pipe, but appears absent or sparse in the other breccia pipes. The breccia pipes range in diameter from 30 to 80 meters and appear to gradually taper downward. Mining has shown that the San Pedro breccia pipes persist open-ended to depths beyond 200 meters; and drilling at the San Antonio mine found that the breccia pipes there extend open ended beyond 300 meters depth. All of the breccia

pipes show classic features of being formed via a collapse mechanism suggesting a source, porphyry plug or stock (cupola) is present at depth. While SAMEX exploration drilling failed to encounter such a source mineralized intrusion, fragments of aplite are present and become more abundant downwards in the intersected lower part of the San Antonio #1 breccia pipe.

### **Scope Of Phase I Exploration Work Program -**

The initial exploration strategy for the San Antonio-Manto Cuba-San Pedro area was to search for source porphyry copper intrusional stocks and plugs at depth beneath and in the vicinity of the Manto Cuba and San Pedro cluster of copper-mineralized breccia pipes and veined zones. The possibility that the Manto Cuba #1 breccia pipe might be part of a more extensive gently dipping breccia body was also chosen for drill testing. Overall, compared to other targets on the Inca Project property holdings, exploring the individual, small breccia pipes was deemed to be of low priority.

Geophysical IP Survey – Four of the regional Phase-Domain IP lines cross the Manto Cuba-San Antonio area (Plate 2, Figure 2). Lines 2 and 5 used a 100-meter “a”-spacing; and Lines 9 and 10 used a 200-meter “a”-spacing. Line 2 was also re-run using the wider 200-meter “a”-spacing. Raw data from the IP surveys plotted on pseudo section profiles on Lines 2, 5, and 10 clearly define a “pant’s leg”-form (Plate 2, Figures 3, 4, 7) moderately strong IP anomalies (11 to 17 milliradianes). The “pant’s leg” anomaly (11 to 16 milliradianes), on Line 5 correlates with surface outcropping oxide-copper veins and veinlets of the San Antonio mine ridge area and a chalcopyrite-bornite-mineralized, concealed, breccia pipe (San Antonio #1) was discovered by drilling to be positioned beneath ridge. A second breccia pipe (San Antonio #2) is located 200 meters to the west also lies within this IP anomaly. On Line 2, the strong IP anomaly is centered over the Manto Cuba mine breccia pipe which is known to have abundant relict pyrite and chalcopyrite with the enriched ore body of secondary copper-sulfide mineralization and bornite and chalcopyrite-pyrite primary mineralization that persists to great depth (>180 meters). A less-distinct “pant’s leg” effect IP anomaly (11 to 17 milliradianes) on Line 10 (Plate 2, Figure 5) appears to be related to newly discovered San Antonio #3 breccia pipe and zone of strong sheeted veinlets. The results of the 200-meter “a” spaced lines indicates further that sulfide mineralization persists to depths greater than 350 meters. Inverse modeling of the data for Line 5, however, produced in profile view, a series of three significant-appearing IP anomalies spaced over a 1,000-meter distance (Plate 2, Figure 6). One of these modeled anomalies could be related to outcropping veined monzonite in the vicinity of the San Antonio mine and two breccia pipes; the other three anomalies occur in areas covered by alluvial gravels or large mine dumps. No indication of significantly sized, porphyry-copper intrusional stocks or plugs was detected to search depths of the IP survey.

Geologic Mapping – Detailed geologic mapping carried out over the area resulted in discovering surface indications of three, new, tourmalinized breccia pipes which are targets for enriched oxide- and secondary sulfide, and deeper primary copper sulfide mineralization. The nature of enriched ore material at the San Antonio mine indicated the miners had encountered a fourth breccia pipe without strong surface expression. Two of the discovered pipes (San Antonio #2, and #3 pipes) are in the vicinity of the San Antonio mine (#1 breccia pipe), and one (Manto Cuba #2 pipe) is positioned 150 meters north east of the Manto Cuba mine. In addition, areas of strong-sheeted veinlets and more-complex stockwork type quartz-sericite veinlets with relict oxide-copper mineralization were traced out and found to trend for over a 600-meter distance in arcuate fashion from the San Antonio mine southeastward into the Manto Cuba mine area and then southward through the San Pedro mine. The combination of numerous breccia pipe occurrences and strongly veinleted monzonite with indications of being likely copper-sulfide mineralized and the near-coincident position in the broad arcuate band of anomalous IP values (10 to 15 milliradianes) pointed to the widespread occurrence of copper-sulfide mineralization and presented an intriguing geologic setting for possible deeper seated source porphyry copper intrusional stocks and plugs.

Manto Cuba Mine Study – A thorough review of the **Manto Cuba mine (#1 )** breccia pipe was facilitated by access to a complete set of core logs, down-hole assay analyses and numerous specific gravity measurements on core, and a plethora of cross sections from a drilling program of 75 shallow (30 to 60 meters) churn holes and six deeper core holes (to 180 meters) carried out in 1971 by ENAMI. This data had been previously worked up in great detail and made public as a Master’s Thesis published in 1974 at the University of Chile-Santiago

(Ortiz, 1974). As an added bonus, split, narrow diameter, BX core from five of the diamond drill holes was found still boxed, little disturbed, and in good shape enabling an excellent first-hand look at the mineralization and alteration features down to a depth of 180 meters within the breccia pipe. The drill results and above-mentioned study clearly showed that the Manto Cuba breccia pipe (#1) is comprised of an upper leached cap, upper oxide-copper ore body, an underlying second thick leached interval, a second thick interval of highly enriched, oxide- and secondary sulfide (chalcocite) copper mineralization, and deeper primary copper-sulfide mineralization. This sequence indicates the breccia pipe was affected by two episodes of strong supergene processes. Hence, twice, copper was leached from upper parts of the pipe and moved to be re-deposited at deeper levels to form the extraordinarily enriched, deeper second interval of oxide- and secondary sulfide (chalcocite) copper mineralization. A similar sequence of thick leached capping, underlying enriched oxide- and secondary sulfide copper ore body, and deeper primary copper-sulfide mineralization was also demonstrated by the study for the three of the small San Pedro mine breccia pipes (A, B, and C) (Plate 1, Figure 2). The drill cross sections from the above study depicted the Manto Cuba (#1) breccia pipe to be floored by monzonite and rooted in a package of well-mineralized/strongly altered andesite plug, dikes, and breccia which was thickening in a southeasterly direction toward and possibly extending beneath the San Pedro cluster of breccia pipes.

Manto Cuba Core Drilling – Two, steeply inclined, drill holes DDH-MC-L2-01 and -02 were completed by SAMEX near the Manto Cuba mine to test for the possible down-dip, southeastward continuation of a gently dipping wedge of enriched and underlying primary sulfide mineralization depicted in the drill sections. Both holes intersected propylitically altered monzonite with distinctly different abundances of chalcopyrite bearing fracture veinlets with sericite alteration halos. In DDH-MC-L2-01, only scattered intervals of chalcopyrite bearing fracture veinlets that diminish in abundance with depth were found and these carry 103 ppm to 1760-ppm copper. Chalcopyrite bearing fracture veinlets were abundant throughout the entire length (191.65 meters) of DDH-MC-L2-02 whose entire length proved to contain anomalous with copper values ranging from 117 ppm to 5680 ppm and averaging 523 ppm. The latter drill hole appears to be closer and passing down through the alteration/weakly mineralized border zone to the Manto Cuba (#1) breccia pipe. The drill holes demonstrate that the primary copper-sulfide mineralization does not extend outside the pipe with a gentle southeastward dip as depicted on the earlier cross sections. In light of these results, the (unsurveyed) narrow diameter, BX core holes of the 1971 ENAMI program likely wandered (Plate 1, Figure 4a) and flattened significantly; and drilled out of the breccia pipe side walls and into border zone monzonite leading to constructing erroneous cross sections depicting the layered package of altered and mineralized rock to be floored and dipping gently southeastward. The orientation of the primary copper-sulfide mineralized/altered zones is concluded to be likely much steeper to near vertical, to be restricted to within the pipe, and to extend to great depth. This interpretation is more plausible based on the character of the IP anomaly on Line 2, our limited drilling results (MC-L2-01 & -02), and from our experience in drilling numerous other pipes in the Inca project area of which some were open-ended to drilling depths beyond 400 meters. The primary copper-sulfide mineralization (chalcopyrite and bornite) in the 1971 drill core is shown to carry good copper grades probably averaging between 1% to 1.5% copper – perhaps with credits in molybdenum and gold which were not systematically analyzed for in the 1971 assay results. The abundance of copper sulfide minerals observed in the drill core seems compatible with this range of copper values. The character of the IP anomalies generated using both 100- and 200-meter “a” spacings indicates the copper-sulfide mineralization likely persists down in the Manto Cuba (#1) breccia pipe to great depths (>300 meters), but this would require further drill testing to confirm.

San Antonio Core Drilling – The core drilling for the San Antonio area was planned first to test the “pant’s leg” IP anomaly on Line 5 and beneath the mine shaft. The inversion model- generated IP anomalies on Line 5 (Plate 2, Figure 6) would then be systematically tested with a series of widely spaced inclined holes. DDH-SA-L5-01 (Plate 1, Figure 3) was positioned to drill southwestward beneath the San Antonio mine shaft – an area of outcropping veined and propylitically altered monzonite, and down into the apex area of the “pant’s leg” IP anomaly. The drill hole penetrated through abundant oxide copper and deeper chalcopyrite-bearing veinlets, and at 180 meters drilling depth, through the sidewall and down into a steeply west-dipping breccia pipe positioned directly beneath the San Antonio mine shaft. The entire breccia pipe (San Antonio breccia pipe #1) was crossed in diagonal fashion from 180.0 to 305.0 meters and at this depth interval is approximately 40 meters across. Variable amounts of copper sulfide were intersected as disseminations and breccia void in-fill of chalcopyrite with strong sericite alteration, and bornite with deeper secondary biotite-magnetite alteration. The upper part of this drill hole, within veined monzonite wallrock, carries consistently anomalous copper values

(>103 ppm to 3850 ppm) with several veins to two meters running up to 2.14% (21400 ppm) copper. The best mineralized interval of breccia (286.0 to 305.0 meters) runs 0.20% copper with anomalous gold 0.135 ppm. A second hole (DDH-SA-L5-02), positioned 150 meters to the west, penetrated vertically down and entered the same breccia pipe hangingwall at a depth of 130 meters. Several intervals of stronger copper-sulfide (bornite) mineralization were intersected from 140 meters to 270 meters depth. The hole was stopped at 300 meters depth in magnetite-rich/biotite-altered breccia containing minor amounts of bornite. Both of the two better mineralized intervals – 147.10 to 157.35 meters and 246.00 to 271.50 meters run 0.17% Cu. These holes show that the San Antonio shaft is collared in the veined/monzonite capping roof to the #1 breccia pipe and at a depth of around 50 or 60 meters crosses down into the top of the breccia pipe. Based on the nature of stockpiled ore material, the upper part of the San Antonio #1 breccia pipe contains a highly enriched interval of oxide- and secondary sulfide mineralization of similar appearance to that mined at the Manto Cuba mine breccia pipe. The vertical thickness of the enriched upper part of the #1 breccia pipe is unknown. Both drill holes intersected the breccia pipe well below the interval of enriched chalcocite-laden mineralization encountered by local miners.

The series of drill holes - DDH-SA-L5-05, -06, and -07 (Plate 2, Figures 6, 7), which were completed to test the model-generated IP anomalies on Line 5, failed to intersect any significant sulfide-mineralized feature that might explain the IP anomalies. Weakly anomalous copper values (100ppm to 551 ppm) are present throughout much of DDH-SA-L06 and 07 and reflect sparse disseminated chalcopyrite and few scattered veinlets. With the exception of a relatively small number (24) of 166 sample intervals, almost the entirety of DDH-SA-L5-05 carries weakly (110 ppm) to highly anomalous (5320 ppm) copper values to a depth of 404.20 meters. The latter hole is closest to and drilling toward the San Antonio mine area of breccia pipes and densely veinletted monzonite. So, the model-generated IP anomalies outboard to the San Antonio mine tested by these holes are now considered to be spurious. However, DDH-SA-L5-03 and 04 did penetrate through parts of the border zone halos comprised of veinletted monzonite with quartz-tourmaline, sericite and potassic alteration halo related to the San Antonio #1 and #2 breccia pipes. From 5.00 to 124 meters drilling depths, DDH-SA-L5-03 contains weakly (115 ppm) to highly anomalous (2160 ppm) copper values which gradually diminish away from the San Antonio #1 breccia pipe. A similar range of anomalous copper values (115 ppm to 3670 ppm) was found from 125.4 to 269.40 meters in DDH-SA-L5-04 and can be explained by the drill hole passing through the border zone just north of the San Antonio #2 breccia pipe.

Discussion – For the amount of drilling completed, no indication was found of a well-mineralized, intrusional porphyry copper stock or plug being situated within mining reach in the area of breccia pipes and veined monzonite. A portion of the enriched chalcocite mineralization at the Manto Cuba mine may still remain, and enriched oxide- and secondary sulfide copper mineralization could be present in the seven other breccia pipes in the area. The untested portions of these breccia pipes require further exploration to determine the cumulative potential of the Manto Cuba-San Antonio area.

**Significant Geochemical And Assay Results – Drill Holes DDH-SA-L5-01 and -02 San Antonio Mine Area, INCA Project Region III, Chile**

Drill Hole No.	From	To	Intercept Length	Au	CuTot	CuSol	Ag	CuTot	Notes
	m.	m.	m.	ppm	%	%	ppm	ppm	
DDH-SA-L5-01	72.00	78.00	6.00	0.108	0.43	0.013	0.6	4388	Vein and sericite alteration halo.
	incl.: 73.65	74.35	0.70	0.581	2.02	0.022	1.2	>10000	Vein.
	82.00	109.00	27.00	0.067	0.19	0.074	<0.6	1989	Veinletted interval.
	115.00	123.00	8.00	0.148	0.50	0.086	8.45	5095	Vein and sericite alteration halo.
	incl.: 117.00	119.00	2.00	0.042	1.19	0.191	32.1	>10000	Vein, includes 2170 ppm (0.22%) Mo.
	143.00	149.00	6.00	0.094	0.77	0.007	1.4	8383	Vein zone.
	incl.: 143.00	145.00	2.00	0.201	2.14	0.019	3.1	>10000	Vein.
	173.00	187.00	14.00	0.053	0.19	0.006	<0.5	1839	Vein zone.

	201.00	214.05	13.05	0.078	0.18	0.006	0.8	1759	Altered andesite ring dike.
	286.00	305.00	19.00	0.135	0.20	0.017	<0.7	1873	Mineralized breccia; disseminated bornite with biotite-magnetite alteration.
SA-L5-02	5.00 41.00	41.00 50.00	36.00 9.00	0.012 0.013	0.05 0.08	0.017 0.03	0.6 0.9	530 750	Leached interval of altered veinlet monzonite.
	98.00	103.50	5.50	0.042	0.31	0.004	0.6	3124	Veined interval.
	103.50	131.50	28.00	0.055	0.07	0.010	<0.6	710	Alteration halo to breccia pipe.
	147.10	157.35	10.25	0.030	0.17	0.008	0.9	1648	Mineralized breccia; weak disseminated chalcopyrite.
	246.00	271.50	25.50	0.229	0.17	0.025	1.2	1795	Disseminated bornite in biotite-magnetite altered breccia.
	286.00	301.25	15.25	0.103	0.06	0.009	<0.6	592	Magnetite-rich biotitized breccia, minor bornite content; lowest part of drill intercept.

### **Puntilla-Concepcion Vein Zone**

Phase I exploration in the Puntilla-Concepcion area of the INCA Project included a program of IP surveys and three drill holes along the Puntilla and the Matilde mine areas (Plate 3, Figure 2). This exploration provided the following results:

- A strong electrical response (13 to >30 milliradianes) was detected along three geophysical phase-domain IP lines over an area measuring +1000-meters long (open-ended to the northwest) and up to 300-meters across, and is centered over Puntilla-Concepcion system of gold bearing, copper-sulfide veins and numerous veinlets (Plate 4, Figure 2).
- Parts of the vein system can readily be traced along the surface and, at the eastern end of the zone, were found to splay out into a horsetail pattern. In places, principal veins have been mined at shallow levels for oxide- and enriched (chalcocite) copper ore at the Puntilla, Matilde and Concepcion mines. At greater depth (by +/-200 meters) in the Puntilla mine, where the veins appear to increase sufficiently in width (>1 meter), small quantities of high-grade, copper-sulfide ore have been historically extracted (Plate 3, Figures 3, 7, 8). Ore shipment records from the last mining operation in 2000, the most recent year of production, show grade ranges of 3.13% to 6.8% copper, 17.3 to 47.1-g/mt silver, and 0.75 to 2.58 g/mt gold (SAMEX has not verified these grades).
- Three core drill holes were completed totaling 775.55 meters in the vicinity of the Matilde shaft and in an area where the Puntilla veins splay out into the horsetail pattern. This location is also where the strongest IP response occurs. Numerous minor veinlets and several thicker veins of copper-sulfide were intersected. The prominent veins carry from 1.25% copper with 0.323 g/mt gold to 1.75% copper and 0.180 g/mt gold over the 1.5-meters sample length. Many other intervals of veins 1120 ppm (0.11%) to 9520 ppm (0.95%) contain highly anomalous copper also over the 1.5-meter sample width. Although the IP response is strongest in the Matilde area, this may not have been the optimum place to conduct initial drill testing. The veins are more numerous, but splay out, becoming spread further apart, and perhaps are narrower, and separated by thicker intervals of poorly mineralized (veinletted) rock.
- The Puntilla-Concepcion vein system is quite different from the copper-molybdenum-mineralized breccia pipes and breccia complexes, which have received much more attention, and remains an intriguing “grassroots” exploration play. The abundance of veins with dominantly simple, copper-sulfide content and their well-developed pyrite-sericite alteration halos cutting propylitically altered monzonite wallrock are characteristic of a more distal position to a porphyry-copper intrusion source. Considering the considerable untested strike length of the vein system, and indications that veins thicken, increase in copper content, and gain an important gold credit, or content, with depth justifies further exploration drilling. This drilling effort should be focused down across the central core area of the vein system and in the direction of the source intrusion to search for areas where veins could

comprise sheeted clusters with sufficient widths and high-grade copper-gold content to be mined to support higher levels of underground production.

### **Matilde-Puntilla-Concepcion Vein System Overview**

**Background** – The Puntilla-Concepcion vein system was acquired as part of the large landing holding comprising the INCA project where exploration over the past two years has mostly been focused on numerous targets of breccia pipes and complexes hosting copper-molybdenum-gold mineralization. Several mines along individual veins of the system have, on a small scale, produced vein-hosted oxide- and sulfide-copper ore of higher, direct-shipping grade dating back to well before the early 1970's. Dumps comprised of discarded monzonite wallrock laced in chalcopyrite veinlets with distinct sericite alteration halos attracted attention. Technical reports and reliable information on the entire history of production is scant. Eventually copies of two reports on the mining activity at the Puntilla mine and nearby Matilde mine were eventually obtained from ENAMI (Empresa Nacional Minera.). The reports are summaries of visits by ENAMI geologists to examine small-operator mining activities in 1991 and 2000, respectively. In 1991, the Puntilla #2 shaft had been deepened to a depth of nearly 237 meters where one of the sulfide veins had been found to thicken to over a meter in width and to be comprised mostly of chalcopyrite. Sampling across the vein at seven locations along the 100 meters of drifting shows widths of 0.45 to 1.60 meters (most over a meter in thickness) and copper grades of 1.12% to 4.46% with a credit shown in the four samples analyzed for gold to range from 11.0 to 21.0 g/mt. Thicker segments of the vein from 1.08 to 1.6 meters width were being exploited at the time via sub-level stoping to a height of 50 meters above the level of the drift. Individual ore blocks of variable size containing 1900 to 3200 metric tons each had been outlined for future mining and approximately 32,000 metric tons of 2.41% Cu and >10 g/mt gold of total reserves were identified within this short drift segment. Later, in the year 2000 during a second property visit; ENAMI geologists noted miners at Puntilla were operating out of the #1 shaft at a depth of 300 meters and records of small ore shipments purchased by ENAMI disclosed that during the six-month period immediately before this visit, show grades of 3.13% to 6.8% copper and with a 0.75 to 2.58 g/mt gold credit (SAMEX has not verified the grades in the ENAMI reports). At the same time, the geologists inspected the small-miner activity at the nearby Matilde shaft, which was being sunk on another of the numerous veins crossing the area. The vein was found to be too narrow and a mine cross cut to the south at the 50-meter depth level intersected, 39 meters away, another thicker oxide-copper vein 0.5 to 1.0 meters in width, and with drift samples running 1.15% to 5.08% copper and a small gold credit (0.2 to 0.7 g/mt). In context of the geologic setting of a wide, veined zone and indications of good copper grades possibly accompanied with a significant gold credit or content appearing in the veins at greater depth; SAMEX took an interest in initiating exploring the large zone for both a bulk-tonnage target, and also individual or groupings of thicker veins with sufficient width and high-grade copper-gold content.

### **Scope Of Phase I Exploration Work Program –**

**Geologic Mapping** – Two principal vein zones, Puntilla and Concepcion, strike west-northwest (N50° to 70°W) and dip steeply to the north and cross cut monzonite of the regional batholith (Plate 3, Figure 2). At the surface the vein zones are comprised of sheeted, narrow veinlets up to several meters width and outlying narrower veins measuring tenths of meters in width. The veins can be traced along the surface for over 350 meters and, in a southeastern direction, the Puntilla veins splay out into more-numerous smaller veinlets, which show a classic “horsetail”-like configuration. The Matilde shaft is located in the “horsetail” part of the Puntilla vein zone. In a westward direction, the vein system appears to be simpler with fewer and thicker, but more prominent veins. The Puntilla and Concepcion mines are positioned on this part of the vein system. Further in a westward direction, the veins disappear beneath gravel cover, but their readily identifiable IP response on Line 3 further west shows that they continue for, at least, another +350 meters in that direction (open-ended). At the surface, the veins are comprised of oxide-copper and Fe-oxide (limonitic) minerals with minor quartz gangue and distinct sericite alteration halos. Dump material at the Puntilla shafts abundantly indicates that at depth, the wallrock of propylitically-altered monzonite is laced with abundant veinlets comprised of mostly chalcopyrite, or some of pyrite, with pyrite-quartz-sericite or dark-green chlorite alteration halos. The nature and character of the veins and veinlets (copper-rich with well-developed alteration) indicate they were derived from a distal and/or deeper, porphyry-copper intrusional source.

Geophysical IP Survey – As part of the regional survey, three, geophysical phase-domain IP lines (L-1, -3, and -4) were run crossing perpendicular to the vein system – all with “a” spacings of 100 meters and line spacing of 350 meters (Plate 4, Figure 2). Line 1 (Plate 4, Figure 8) is positioned directly over the area of the Puntilla shafts with purpose of observing the electrical response off of an area of veins, which have been exploited for high-grade copper sulfide ore. In profile, two of these lines show a similar, strong, electrical response (20 to >30 milliradians) with a distinct “pant’s leg” effect in profile which is centered over the vein systems. The “pant’s leg” effect on Line 3 is offset via faulting from the projected trace of the vein systems in an area of gravel cover. This coherent electrical response is consistent with a causative body of steep orientation, tabular form, great depth extent, and continuity between the lines - which is likely the bulk effect of the zone of strongly sulfide-veined and veinletted monzonite rock.

Core Drilling – In total, 775.55 meters of exploration core drilling have been completed. Core drilling was initially planned to test the strongest IP anomaly, which was identified on Line 4 some 380 meters southeast of the Puntilla mine and not far from the Matilde shaft (Plate 4, Figure 7). The decision where to try the first test was, in part, based on situating the drill rig to avoid possibly intersecting mine workings at the Puntilla mine – whose full extent are not known. Drill hole DDH-PU-L1-01 was drilled inclined southwestward to a depth of 281.45 meters. A second hole (DDH-MA-01) was then drilled inclined southwestward and directly below the Matilde shaft to a depth of 302.95 meters. In both of these holes, the orientation of veinlets was noted to gradually turn to an acute angle (sub parallel) to the core axis suggesting that the vein zone is curved with depth and dipping steeply to the southwest. To take a second look at this possibility and ensure a southerly dipping vein zone was not being missed, a short hole (DDH-MA-02) was then drilled northeastward beneath the Matilde shaft to a depth of 191.15 meters. Results from these three drill holes seem to show that veinlet abundance and thicknesses diminish with depth in a southwest direction indicating that the holes were progressing away from the desired target comprised of the central part of the Puntilla-Concepcion vein zone. In addition, this interpretation would imply that perhaps the IP anomalies as plotted by raw data and modeling are erroneously offset/shifted some distance off of their possible actual position centered midway over the Puntilla-Concepcion vein zones.

Drilling Results – DDH-PU-L1-01 – The first drill hole is located on IP Line-4 and positioned as an inclined hole to drill down across the target area defined beneath the apex position of the “pant’s leg” anomaly and was stopped at depth of 281.45 meters. The drill hole intersected abundant copper-sulfide veinlets from depths of 2.40 to 267.0 meters, but no vein of significant width. The veinlets are strongest in the hole from 2.40 to 233.00 meters suggesting as the hole was drilling downward gradually away from the more intense veining; and that an untested part of the vein zone might lie beneath covered llano north of the drill pad. The widths of the chalcopyrite veins is in centimeters to tenths of meters and carry, over the 1.50 meter sample length, from 1220 ppm to 6830 ppm (0.12% to 0.68%) copper with elevated detectible to anomalous gold values (0.011 to 0.161 g/mt ton). Intervening wallrock runs typically 22 ppm (propylitically altered) to 998-ppm copper (variably veinletted). The entire hole proved to be moderately anomalous in copper averaging 450-ppm over the entire 281.45 meters.

DDH-MA-01 and MA-02 - A decision was made to move the drill to test (DDH-MA-01) directly below the Matilde shaft, where interesting dump material of monzonite laced with quartz-chalcopyrite veinlets with pyrite-sericite halos attracted interest. A second inclined hole (DDH-MA-02) was drilled back to the northeast. These holes DDH-MA-01 and -02, similar to the first hole, intersected variable abundances of minor chalcopyrite veinlets, but did not intersect any individual veins of significant thickness. Veined intervals, all with sample lengths of 1.5 meters, run 1150 ppm to 1.75% (17500 ppm) copper with detectible to anomalous gold (>0.01 ppm to 0.323 ppm). Intervening blocks of propylitically monzonite carry 15 ppm to 732-ppm copper with both holes over their entire lengths averaging 342 ppm and 243 ppm, respectively.

Discussion – The Puntilla-Concepcion vein system is an extensive, copper-sulfide vein zone hallmarked by a strong geophysical IP expression, which extends for over a 1000-meter distance; and is open ended to the west beneath gravel covered llano (plains). This vein system comprises a target type, which is much different geologically than the numerous breccia targets pursued at other locations on the INCA project. The sheeted-character and simple chalcopyrite content of the veins with their well-developed pyritic-sericite alteration halos cutting propylitically-altered monzonite remain intriguing, although limited exploration drilling, so far at only

one location, did not yield significant results. Perhaps, these drill holes being placed to test where the IP anomaly appeared strongest, but where the Puntilla vein system splays out into a horsetail zone, was not an optimal location. In addition, eventual decrease in veinlet abundance and narrowing of width suggests the holes may be positioned too far to the southwest to have provided good test down through the central part of the vein system. After reviewing the drill results in light of mining records, which show both improvement with width and copper grade of the veins at depth, plus the appearance of a possible important gold credit or high content, further exploration drilling is warranted. Specifically, two target types are still considered viable – (1) individual veins, or vein clusters, of sufficient width (>1.5 meters) and with high-grades of copper (>3%) and an important gold credit or content (>3.0 to >10 gt/mt); and (2) wide zones of narrower sheeted veins amenable to underground bulk mining techniques, but still retaining suitable high grades.

**Significant Geochemical And Assay Results – Drill Holes DDH-PU-L1-01, MA-01 & MA-02 Puntilla-Matilde Area, INCA Project Region III, Chile**

Drill Hole No.	Vein Zone	From	To	Width	Au	CuTot	CuSol	Ag	Cu
		m.	m.	m.	ppm	%	%	ppm	ppm
DDH-PU-L1-01		11.40	14.40	3.00	0.0335	0.15	0.026	1.02	1540
		38.40	39.90	1.50	0.056	0.33	0.227	3.00	3310
	VZ-1	47.40	51.90	4.50	0.071	0.31	0.250	0.93	2880
		53.40	54.90	1.50	0.033	0.34	0.243	<0.5	3060
		95.40	96.90	1.50	0.012	0.27	0.069	<0.5	2570
	VZ-2A	102.90	104.40	1.50	0.048	1.03	0.054	4.2	9520
	VZ-2B	116.40	123.90	7.50	0.011	0.11	0.008	0.6	1072
	VZ-3	227.40	233.40	6.00	0.035	0.31	0.008	0.7	3015
DDH-MA-01	VZ-2A	11.40	15.90	4.50	0.034	0.38	0.180	0.7	3887
	VZ2IB	35.40	41.40	6.00	0.111	0.47	0.274	2.2	4803
	Incl.	39.90	41.40	1.50	0.323	1.25	0.579	3.7	>10000
		86.40	87.90	1.50	0.018	0.24	0.034	0.9	2480
		120.90	122.40	1.50	0.044	0.23	0.024	0.8	2280
	VZ-4	144.90	146.40	1.50	0.093	0.64	0.030	2.6	6480
	VZ-5	203.40	204.90	1.50	0.036	0.25	0.008	<0.5	2340
DDH-MA-02		107.40	110.40	3.00	0.056	0.36	0.083	1.8	3285
	VZ-5	111.90	114.90	3.00	0.101	1.19	0.051	4.7	11660
	Incl.	111.90	113.40	1.50	0.180	1.75	0.066	6.9	>10000
	VZ-4	128.40	129.90	1.50	0.030	0.46	0.035	1.2	4120

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*The geologic technical information in this report was prepared by Robert Kell, Vice-President Exploration for SAMEX MINING CORP. and Phil Southam, Geologist. Mr. Kell and Mr. Southam are “qualified persons” pursuant to Canadian Securities National Instrument 43-101 concerning Standards Of Disclosure For Mineral Projects. Geochemical analyses on samples were performed by ALS Chemex, an internationally recognized and ISO certified laboratory complying with the international standards ISO 9001:2000 and ISO 17025:1999. Except where otherwise noted, the analytical and test data underlying the information disclosed herein was verified by or under the supervision of Mr. Kell and Mr. Southam.*

*This report includes certain “forward looking statements”. Without limitation, statements regarding potential mineralization and resources, exploration results, and future plans and objectives of the Company are forward-looking statements that involve various risks. Actual results could differ materially from those projected as a result of the following factors, among others: risks inherent in mineral exploration; risks associated with development, construction and mining operations; the uncertainty of future profitability and uncertainty of access to additional capital.*

*The TSX Venture Exchange has neither approved nor disapproved of the information contained herein.*