Haquira Copper Project Apurimac, Peru

Preliminary Economic Evaluation Update NI 43-101 Technical Report

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1.0 SUMMARY

Antares Minerals Inc. ("Antares"), a TSX listed company, retained Tetra Tech MM, Inc. (Tt) to complete a Canadian National Instrument 43-101 compliant updated Preliminary Economic Assessment for the Haguira Copper Project, which is comprised of the Haguira East (including nearby Potato Patch zone) and Haquira West deposits ("Project") located in southern Peru. The previous Preliminary Economic Assessment Report (PEA) dated February 29, 2008 was completed by Chlumsky, Armbrust & Meyer, LLC (CAM). As part of this exercise, Tt completed a review of the additional exploration drilling data (2008 and 2009), past work by other operators and consultants, and independently created and updated the three-dimensional computerized geologic models. This report provides not only an update on the leachable portion of the deposits, but also updates the primary sulfide portion of the deposits as well. The geology and resources were updated from this drilling program in a Resource Update NI 43-101 Technical Report dated April 16, 2010. All appropriate Sections from this Technical Report are utilized in this Updated PEA, with the exception of Sections 16, 18 and 24 which have been modified from the April 16, 2010 Technical Report (TR) to reflect the changes developed in the revised preliminary economic analysis. Whereas, the CAM PEA of 2008 contained mine plans for just the leachable blocks of the resource, this PEA update focuses on the entire resource, leachable and sulfide, along with underground potential resources that can be mined and processed on Antares's mining concessions. The resulting preliminary economics are found at the end of Section 24.

This PEA incorporates the recent increase to Haquira's resource as a result of drilling completed in 2008 and 2009 - This study is preliminary in nature and has used Measured (M), Indicated (IND), and Inferred (INF) resources in the determination of the inpit resources. The reader is cautioned that inferred resources are considered too speculative geologically to have economics applied and there is no certainty that the economic results can be achieved.

1.1 Location and Access

The Haquira project is located in the Apurimac Department of southern Peru, approximately 270 kilometers (km) northwest of Arequipa or approximately 80 kilometers (km) southwest of Cuzco. Access from Arequipa is by paved and unpaved roads, with a driving time of approximately 12-14 hours. Access from Cuzco is by recently improved paved and unpaved roads, with a driving time of approximately 6 hours. Xstrata Copper has announced corporate approval to construct the Las Bambas Project, Haquira should benefit from the infrastructure improvements, primarily access roads and power lines. This PEA assumes the project does not benefit from the sharing of infrastructure with the Las Bambas project.

The Haquira property is in the Andes at elevations of 3,500 to 4,400 meters (m), and consists of treeless, gently rolling hills with grassy vegetation and some rocky ridges. Rainfall is abundant between December and March (summer), while night time freezing temperatures are reached during the winter months of June to August. Snow on the ground is rare. Antares does not anticipate any operating restrictions due to weather constraints.

1.2 Ownership

Minera Antares Peru S.A.C., beneficially 100% owned by Antares Minerals Inc., is legally registered in Peru, and is in good legal standing. Minera Antares Peru S.A.C. entered into an agreement to acquire the core of the Haquira property under the terms of a 100% purchase option agreement, from Minera Phelps Dodge Peru S.A.C. ("PD Peru"), on March 4, 2005. Antares has earned a 100% interest in the core of the property by completing option payments

totaling US\$15 million over a 5-year period. The final payment of US\$5 million was completed on February 23, 2010 and title transfer is currently in process and scheduled to be completed in September, 2010. In addition, upon completion of a feasibility study, if the in situ copper mineral resource, at a 0.3% total copper cut off grade, exceeds 2.2 billion pounds (lbs) of copper amenable to SX/EW processing (greater than 50% recovery by standard sequential leach analysis), Antares must make an additional payment to PD Peru equal to US\$0.01 for each pound of copper in excess of the 2.2 billion-lb threshold. The resource estimate presented in this study estimates the amount of in situ copper resource, at a 0.3% total copper cut off grade and amenable to SX/EW processing, to be approximately 2.26 billion pounds of copper. This estimate is not calculated in the same manner that will be required to determine the additional payment but provides a reasonable approximation for reference and implies that the additional payment would be approximately US\$600,000. Additional drilling will continue to modify the resource estimate prior to completion of a feasibility study and the final determination of the amount of the additional payment.

The Haquira project mineral property consists of 24 mining concessions. Antares has a 100% interest in 17 of these mining concessions and the option to acquire up to a 60% interest in the remaining 7 mining concessions (Cristo de los Andes property) by means of an option agreement with Minera del Sureste S.A.C. (MISOSA). The total area of the concessions is 20,900 ha, although due to an overlap as explained below, the effective area may be slightly less: 20,635 ha. The block is contiguous with, and immediately south of, the Las Bambas Special District, which was established by the Peruvian government in 1992 to guide investment and development of the long-known Ferrobamba, Chalcobamba, Sulfobamba, and Charcas deposits (collectively the Las Bambas Deposits).

According to Antares' legal counsel, Estudio Grau, and documentation provided by Antares, all 24 concessions were filed in good order, and are in good standing under Peruvian mining law. Two of the concessions (Claudita 17 and 18) overlap into Las Bambas Special District and, it is possible that 265 hectares (ha) on these two concessions are not under Antares' control. However, the legal status of the overlap is unclear, and in any case, there are no drill holes and no mineral resources described in the PEA on or near either of the two concessions.

1.3 Permitting and Environmental

Antares has the necessary permits for all exploration conducted to date, and will obtain any additional permits that may be required for future exploration and operations.

Baseline environmental studies for inclusion in the Environmental and Social Impact Assessment (ESIA) have been initiated including surface water hydrology and water quality, seep and spring surveys, air quality, climatology and noise studies. Geochemical characterizations of waste rock, tailings and heap leach residues and hydrogeologic studies including baseline ground water quality characterization have been initiated. These studies will help to establish environmental baseline conditions to support design, permitting, operations, and closure of the Haquira Project.

Antares, PD Peru and MISOSA hold the mineral rights to the property with the title of the PD Peru mining concessions currently in the process of formal transfer to Antares. Surficial rights over the mining concessions are held by local communities. The eventual acquisition of surface rights by Antares for mine development may result in relocation of some local residents from the area since they are engaged primarily in subsistence herding and farming. A resettlement plan is being formulated.

To the best knowledge of Antares and Tt, there are no significant environmental or social issues on the Haquira property, except those associated with surface-rights ownership, as mentioned above. There has been no past mining on the property and there are no artisanal miners currently on the property.

1.4 Geology

The Haquira project is located in the southeast part of the Andean cordillera in Peru, where parallel belts of Paleozoic and younger rocks are intruded by Tertiary (Oligocene) diorites and monzonites, including the Haquira porphyry.

On the Haquira property, the Jurassic-Cretaceous sedimentary sequence consists of several formations containing arenites (quartzose sandstones), siltstones, and shales. The overlying Ferrobamba Limestone does not crop out in the immediate area of known mineralization, but has been identified elsewhere nearby on the property. The sedimentary rocks are folded into a series of major folds with wavelengths of 1 to 3 km, with some thrusting.

Oligocene intrusives occur as stocks and sinuous dikes, the latter spatially related to faults and/or fractures that strike north-northwest. Most of the intrusions are medium-grained to porphyritic diorites, quartz diorites, monzonites, and monzodiorites. The Oligocene intrusions silicified the arenites and converted some of the finer grained siltstones and shales into dipside-, biotite-, and epidote-bearing hornfels. The most important intrusive phase found to-date is the Haquira monzonite porphyry, which is currently thought to be the main mineralizing intrusive body. It contains abundant disseminated chalcopyrite, pyrite, and molybdenite. The better primary (hypogene) copper grades tend to be associated with the Haquira porphyry.

Pliocene and younger (post-mineral) tuffs and alluvium overlie the Oligocene and older rocks.

1.5 Mineralization

Mineralization at Haquira is related to porphyry-copper systems generated by the Oligocene intrusives, including the Haquira Porphyry. Mineralization occurs not only as copper oxide and secondary (supergene) chalcocite in the form of sub-parallel enriched secondary or supergene copper blanket, but also in the form of copper sulfide-bearing stockworks and sheeted-vein systems of interesting grades in underlying primary (hypogene) porphyry-copper style. In addition, there is some potential for skarns developed in carbonate rocks adjacent to the porphyry intrusives.

The primary (hypogene) mineralization is spatially associated with two stock-like bodies of Haquira Porphyry and associated dike swarms. Quartz- and sulfide-bearing stockworks and sheeted-vein systems typical of porphyry copper systems have been recognized in these stocks and the surrounding sedimentary stratigraphic section, especially in proximal silicified and hornfelsed fine-grained sedimentary rock units. The primary mineralization exhibits a strong structural control, with pyrite, chalcopyrite, molybdenite, and trace amounts of bornite and gold occurring in well-fractured structural zones. Outward from the central zones, the sulfides are pyrite-chalcopyrite, and beyond a halo of pyrite-specularite. Disseminated and fracture controlled mineralization occurs in arenites and quartzites.

Initial drilling at the Haquira project focused on definition of the near-surface secondary copper mineralization. However, drilling at the end of the 2006 campaign in the Haquira East area

encountered higher-grade primary Cu-Mo-Au mineralization at the bottom of several holes. Drilling in 2007-2009 has investigated this style of mineralization with deeper drilling.

Secondary (supergene) mineralization occurs at Haquira in the form of a secondary chalcocite blanket and as copper oxide minerals. Chalcocite "blankets" are best formed in and proximal to structures, which occur in both Haquira West and Haquira East.

Mineral zones have been defined at the Haquira project which describe the succession of copper-mineral assemblages. These are similar to zones described at many other porphyry-copper deposits in North and South America which have undergone supergene weathering and enrichment. In summary, these zones are:

- **Zone 1:** Leached Cap;
- **Zone 2:** Oxide Zone, with secondary Cu-oxides (chrysocolla, malachite, brochantite, cuprite, black Cu oxides, Cu-Mn wads, etc);
- **Zone 3:** Mixed Oxides & Supergene Sulphide Enrichment;
- **Zone 4:** Supergene Sulphide Enrichment, with secondary chalcocite;
- **Zone 5:** Mixed Supergene Enrichment & Primary Cu-Mo-Fe Sulfides;
- **Zone 6:** Primary Cu-Mo-Fe Sulfides, with chalcopyrite, bornite, molybdenite, hypogene chalcocite, pyrite, and minor secondary chalcocite;
- **Zone 7:** Primary Fe-Sulfide Zone, or Pyrite Zone, consists of pyrite and does not contain any Cu- or Mo-sulfide minerals. No BkCuOx, BGCuOx, or YelCuOx minerals, and only trace amounts of FeOx and/or MnOx should occur;
- **Zone 8:** Cover, colluvium or soil; and
- **Zone 9:** No Mineralization, outside the influence of the Haquira porphyry system.

Antares constructed cross-sections showing geology (lithology and structure), mineral zones, and total copper grade, which formed the basis for development of a three-dimensional geologic block model Tt used in the mineral resource estimation. Mineralization of potentially economically leachable grades occurs mainly in Zones 2, 3, 4, and 5.

The region is highly mineralized, and there is good potential for additional discoveries of primary porphyry, secondary enrichment, and skarn mineralization. In late 2006, Antares' deep drilling at Haquira East yielded several significant intercepts of primary porphyry-style mineralization, just beneath the secondary enrichment blanket. The Haquira East deep drilling program in 2007-2009 has confirmed and substantiated these results.

1.6 Exploration, Drilling, and Sampling

Skarn-related copper and iron mineralization has been known for many years at the Las Bambas District, approximately 10 km north of the Haquira property. PD Peru embarked on a regional stream-sediment sampling program in the area surrounding the Las Bambas District in 2000 which lead to the identification of the Haquira prospect. During 2001 through 2003, PD Peru carried out induced-polarization surveys, geologic mapping, soil geochemistry, and performed reverse-circulation and diamond core drilling at Haquira. The drilling totaled 61 reverse circulation holes of 7,920 m, plus 24 core holes of 3,460 m. This work encountered both primary and secondary porphyry-style Cu-Mo mineralization at the Haquira West and Haquira East zones.

In 2005-2006, Antares drilled a total of 56 reverse circulation holes of 8,465 m, plus 74 core holes of 11,283 m. This work was principally focused on delineation and expansion of the leachable secondary copper resource but also resulted in the discovery of higher grade primary Cu-Mo-Au mineralization at the Haquira East zone in late 2006.

Antares continued drilling at Haquira during 2007 and 2008 with completion of an additional 71 core holes totaling 37,769 meters. Much of this work focused on delineation of the primary Cu-Mo-Au mineralization at Haquira East. Of this drilling, 6 core holes were drilled for metallurgical testing. In 2009, Antares completed an additional 13 holes totaling 6,775.60 m.

Antares developed written protocols in 2005 to instruct on proper sampling procedures. In 2006, Antares modified the methodology slightly for collection of wet reverse circulation drill samples, to ensure that significant loss of sample did not occur during wet drilling conditions. The unused splits of reverse circulation drill cuttings are stored in Antares' warehouse in Arequipa. Core samples were handled in standard fashion to ensure integrity of data. One-half of each sampled core interval was placed in storage in Antares' warehouse in Arequipa.

Bags with prepared samples for assay were transported by ALS Chemex to the ALS Chemex sample prep facility and assay laboratory in Lima. Shipping documents prepared by Antares showed only sample numbers with no location data. ALS Chemex is responsible for sample transport and handling. No Antares officers or directors are involved in sample preparation or transport.

All sample preparation and analysis was completed at the ALS Chemex preparation facility in Arequipa and the ALS Chemex laboratory in Lima, which complies with standards ISO 9001:2000 and ISO 17025:1999. Samples are dried, then a 1,000-g split is pulverized to minus 200-mesh to produce a sample pulp. All samples are analyzed for Total Cu using a 4-acid digestion and AAS finish. Any samples that exceed 1% Cu are re-analyzed utilizing an aqua regia digest with an AA analysis. Any samples with greater than 0.1% Total Cu are automatically selected for sequential Cu analysis and sequential Cu cyanide analysis.

ALS Chemex controls data quality with the use of reagent blanks, reference materials, and replicates. The results of ALS Chemex standards, blanks, and duplicates are reported to Antares.

Antares has in place an independent quality assurance and quality control program to ensure the reliability of sampling and analysis of drill samples at Haquira. Antares independently inserts certified control standards, coarse field blanks, and duplicates into the sample stream to monitor data quality. The insertion rate is a minimum of 10% control samples (standards, blanks, and duplicates) for drilling sample batches. The results of data quality controls are carefully reviewed prior to the public release of any data. Antares also periodically makes unannounced laboratory visits to inspect cleanliness and assess overall ALS-Chemex lab performance.

Tt believes that the preparation and analysis of samples represent standard industry practice and are acceptable for use in mineral resource estimation.

The assay database was provided to Tt as an Access database. While on-site at the project and in Arequipa, Tt reviewed the database preparation procedures with the Antares staff and believes that Antares is following standard industry practice in preparation of the drill hole database. Only drill hole data were used for the mineral resource estimate.

Tt spot-checked about 10% of the database against the assay certificates and found no discrepancies. Tt noted that the mineralogy observed in the core was consistent with the copper assays. Based on these checks, Tt believes that the database has been prepared according to standard industry practice and is suitable for the development of geological and grade models for use in mineral resource estimation.

1.7 Metallurgy

Antares proposes to develop a copper open pit, utilizing both a heap leach, solvent extraction - electro-winning facility and a flotation concentration facility for the Haquira Copper Project. The prior and on-going metallurgical test work has been and is being conducted to reflect this goal.

In 2006 and 2007, Antares submitted oxide and leachable sulfide material to METCON Labs in Tucson, Arizona. The material submitted was from mineral Zones 2, 3, 4, and 5, and thus contained mainly oxide and secondary-sulfide minerals, with only small amounts of primary sulfides in Zone 5 material.

In 2006, 40 composite samples were prepared from coarse rejects from RVC and core holes, selected to represent the complete range of combinations of lithology, grade, and mineralization styles. No outcrop or trench material was used. Sulfuric acid bottle-roll tests were conducted on 1,000-g test charges and subjected to bottle roll agitation leaching for a 96-hour leach cycle with sampling at 4- and 24-hour intervals to determine copper extraction versus time. Metallurgical calculations were performed to determine the gangue acid consumption, total copper and iron extractions.

Bottle roll tests were conducted in 2007 on 14 of the 40 composite samples at a particle size of 100% minus 10 mesh. Each 1,000-g test charge was subjected to bottle roll agitation leaching for a 360-hour leach cycle with sampling at 4- and 24-hour intervals to determine copper extraction versus time. Metallurgical calculations were performed to determine the gangue acid consumption, total copper and iron extractions.

The bottle-roll studies showed that:

- The composite samples are amenable to extraction of copper using acid solution containing 10 g per liter of sulfuric acid and 6 g per liter of ferric iron;
- The extended leach cycle of 360 hours increased copper extraction on each sample;
- An average recovery of 75% of Total Cu is indicated in tests to date; and
- Locked-cycle ferric-leach column tests should confirm acid-leach recoveries, cycle times, and process methodology.

In 2008 Antares submitted several hundred kilograms of drill core samples representing the various lithologies (Haquira porphyry, Pararani porphyry, fine grained clastic sediments and quartzite) to RDi Labs in Denver, Colorado for additional bottle roll and column leach tests. Ore composites were made to test the full range of rock types and mineral blends. Nine composite samples were prepared and bottle roll and static bucket tests processed with varying amounts of sulfuric acid and ferric sulfate. In addition, fourteen open-circuit column tests were performed. Based on the test results of the column tests, it was projected that the heap leaching of copper will recover approximately 78% of the copper and the acid consumption will be approximately 8 kg/t.

Additionally in 2008, Antares submitted two 20 kg samples of analytical rejects for metallurgical scoping study for the flotation of copper, molybdenum, gold and silver to Resource Development Inc., (RDi). In addition, one 10 kg sample of half cores, HQ/NQ size, was also sent for grinding characterization tests.

The metallurgical testwork included sample preparation and characterization, Bond's ball mill work index determination and rougher flotation tests. Mineralogical study indicated that copper minerals present in the two samples were predominantly chalcopyrite and bornite with minor amounts of molybdenite and pyrite. Copper minerals liberated at a relatively coarse size (75% liberation at 28 mesh). Molybdenite may require fine grind for liberation.

Bond's ball mill work index was determined to be 12.78 which are within the range of values reported for porphyry copper ores. Rougher flotation scoping tests results, given in Table 16.13, indicated that a simple reagent suite consisting of potassium amyl xanthate, diesel fuel and methyl isobutyl carbonyl will float majority of copper, gold and molybdenite values in the ore. The rougher concentrate recovered 95% and 92% of copper from Composite No. 1 and No. 2, respectively. The molybdenite recovery was dependent on feed grade; the higher the feed grade, higher the molybdenite recovery. The first two minutes of rougher flotation recovered over 85% of copper at a concentrate grade of 29% to 30% Cu.

Conceptual process flowsheets were postulated for both processes based on the limited testwork. The flowsheets are similar to conventional Cu/Mo ores being processed in the U.S. The basis for the selection of the flowsheet and the assumptions are given in section 16.3.

SECTION 16 details the results of these investigations.

1.8 Mineral Resource Estimate

The mineral resource estimate has been generated from drill hole sample assay analyses and a two-pass protocol was used to determine whether an estimated block fell within a measured, indicated, or inferred classification as well as a class beyond inferred, a so called inferred-geo classification.

The first pass utilized jackknifing of composite values. Jackknifing or model validation is a computer technique that removes samples one at a time and then predicts what its value is using samples that utilize the search and variogram parameters being investigated. The estimate is then compared to the real value. FIGURE 17-18 shows original composite %TCu values versus the estimated value based on estimates using a 50m search radius. Note that if the estimate were perfect, then points would fall on the 45-degree line. The jackknife estimation has a of correlation of 0.90. The figure also has a reference ellipse which contains 80% of the points falling adjacent to the 45-degree line. This jackknifing technique has been done at successively larger search ranges. Each study produces a scatter plot and a correlation coefficient listed in TABLE 1-1 (shown below).

Search Range	Search Criteria Max. composites per DH / Min Required	Correlation	Initial Class Index	Initial Class Designation
0-50m	4/4	.9	1	measured
50-125m	4/4	.7	2	indicated
125-400m	4/4	.4	3	inferred
400-600m	4/4	.2	4	Inferred-geo

 TABLE 1-1:
 Resource Classification – First Pass

In addition, kriging generates an estimation error (kriging error), which is a measure of reliability. FIGURE 17-19 uses a probability plot to explore the kriging errors for the %TCu estimates. At the kriging error of 1.35 a break in the plot occurs. Any block with an error greater than this value is adjusted to the next higher class index. For example, a block that has an initial classification with index an of 2 and with an kriging error of 1.36 will be given a class index of 3.

An additional adjustment is done on inferred blocks with a kriging error greater than 1.46. These blocks are given a non-classified status.

TABLE 1-2 details the Haquira West mineral resources broken out by combined measured and indicated in a subtotal and inferred in an additional subtotal by various cutoff grades. The Haquira West mineral resources are limited to a maximum depth of 300 meters below surface.

TABLE 1-3 summarizes the Haquira East mineral resources broken out by measured plus indicated subtotal and inferred in an additional subtotal at various cutoff grades. Haquira East mineral resources are further broken out into two subtotals; blocks above 700 meters and those below. The base case cutoff grade for the leachable resources is 0.20% TCu. The base case cutoff grade for the primary sulfide resources is 0.30% TCu. Both of these values are representative of actual operating cutoff grades in use as of the date of this report.

MEASURED + INDICATED RESOURCES											
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	7,385	1.49	0.67	0.64	0.023	3.24	67.3	0.011	1.36
	5000	0.80	11,792	1.26	0.55	0.55	0.022	3.04	74.8	0.011	1.27
	5000	0.70	16,050	1.12	0.48	0.50	0.021	2.96	78.2	0.011	1.21
	5000	0.60	21,763	1.00	0.42	0.46	0.021	2.78	80.7	0.010	1.16
MEAS. + INDICATED	5000	0.50	31,123	0.86	0.35	0.40	0.020	2.62	84.0	0.010	1.07
ENRICHED (SECONDARY)	5000	0.40	46,408	0.73	0.29	0.34	0.019	2.31	76.1	0.009	1.01
(< 300M DEEP)	5000	0.30	74,433	0.58	0.23	0.27	0.017	2.00	67.2	0.008	0.92
	5000	0.25	100,426	0.50	0.19	0.24	0.016	1.84	62.2	0.007	0.88
	5000	0.20	130,429	0.44	0.17	0.21	0.015	1.72	59.5	0.007	0.83
	5000	0.10	199,772	0.34	0.13	0.16	0.014	1.54	54.8	0.006	0.78
	6000	1.00	3,782	1.47	0.07	0.13	0.028	2.54	142.2	0.012	1.74
	6000	0.80	8,143	1.15	0.06	0.13	0.026	2.64	124.0	0.010	1.66
	6000	0.70	11,073	1.05	0.05	0.12	0.026	2.75	117.4	0.010	1.69
	6000	0.60	14,544	0.95	0.05	0.12	0.026	2.77	121.7	0.010	1.69
MEAS. + INDICATED	6000	0.50	22,156	0.81	0.05	0.11	0.024	2.56	107.1	0.010	1.60
PRIMARY	6000	0.40	33,012	0.69	0.04	0.10	0.023	2.24	89.9	0.009	1.52
(< 300M DEEP)	6000	0.30	54,743	0.55	0.03	0.08	0.021	1.83	75.0	0.009	1.45
	6000	0.25	78,192	0.47	0.03	0.07	0.019	1.70	68.6	0.008	1.37
	6000	0.20	117,388	0.39	0.03	0.06	0.018	1.58	63.3	0.007	1.31
	6000	0.10	288,869	0.24	0.02	0.05	0.015	1.29	54.4	0.006	1.18
	ALL	1.00	11,167	1.48	0.47	0.47	0.025	3.00	92.7	0.012	1.49
	ALL	0.80	19,935	1.22	0.35	0.38	0.024	2.88	94.9	0.011	1.43
	ALL	0.70	27,124	1.09	0.30	0.35	0.023	2.87	94.2	0.011	1.41
	ALL	0.60	36,307	0.98	0.27	0.32	0.023	2.78	97.1	0.010	1.37
TOTAL MEAS. + INDICATED	ALL	0.50	53,279	0.84	0.22	0.28	0.022	2.60	93.6	0.010	1.29
ENRICHED + PRIMARY	ALL	0.40	79,420	0.71	0.19	0.24	0.020	2.28	81.8	0.009	1.22
(< 300M DEEP)	ALL	0.30	129,176	0.57	0.15	0.19	0.018	1.93	70.5	0.008	1.14
	ALL	0.25	178,618	0.49	0.12	0.16	0.017	1.78	65.0	0.008	1.09
	ALL	0.20	247,816	0.41	0.10	0.14	0.016	1.65	61.3	0.007	1.06
	ALL	0.10	488,641	0.28	0.07	0.09	0.014	1.39	54.5	0.006	1.02

 TABLE 1-2:
 Haquira West – Classified Mineral Resources

INFERRED RESOURCES											
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	321	1.47	0.71	0.68	0.024	5.45	61.7	0.008	1.18
	5000	0.80	486	1.27	0.59	0.58	0.022	4.47	59.8	0.007	1.15
	5000	0.70	816	1.05	0.53	0.43	0.018	3.44	52.7	0.008	0.92
	5000	0.60	1,788	0.83	0.39	0.33	0.017	2.85	62.9	0.009	0.80
INFERRED	5000	0.50	3,301	0.70	0.33	0.28	0.014	2.61	55.9	0.009	0.74
ENRICHED (SECONDARY)	5000	0.40	6,574	0.57	0.25	0.23	0.012	1.91	41.7	0.007	0.66
(< 300M DEEP)	5000	0.30	15,835	0.44	0.18	0.18	0.009	1.35	34.5	0.005	0.54
	5000	0.25	24,511	0.38	0.15	0.16	0.010	1.34	33.4	0.005	0.54
	5000	0.20	35,648	0.33	0.13	0.14	0.010	1.23	35.7	0.005	0.52
	5000	0.10	71,847	0.24	0.10	0.10	0.010	1.08	41.8	0.004	0.51
	6000	1.00	2,037	1.39	0.02	0.04	0.016	1.62	57.2	0.005	1.00
	6000	0.80	3,627	1.17	0.03	0.07	0.018	1.85	66.6	0.006	1.10
	6000	0.70	4,928	1.06	0.03	0.07	0.019	1.87	65.8	0.007	1.30
	6000	0.60	8,810	0.87	0.03	0.07	0.019	1.92	71.4	0.007	1.36
INFERRED	6000	0.50	15,793	0.73	0.03	0.07	0.017	1.87	62.1	0.007	1.25
PRIMARY	6000	0.40	25,345	0.62	0.02	0.06	0.016	1.60	51.6	0.006	1.13
(< 300M DEEP)	6000	0.30	68,091	0.44	0.02	0.04	0.012	1.02	32.3	0.005	0.92
	6000	0.25	101,246	0.39	0.01	0.04	0.012	0.97	35.3	0.005	0.91
	6000	0.20	155,358	0.33	0.01	0.03	0.012	0.97	33.2	0.005	0.93
	6000	0.10	473,249	0.20	0.01	0.03	0.011	0.93	41.0	0.004	0.96
	ALL	1.00	2,358	1.40	0.11	0.12	0.017	2.15	57.8	0.006	1.02
	ALL	0.80	4,113	1.18	0.10	0.13	0.019	2.16	65.8	0.006	1.10
	ALL	0.70	5,745	1.06	0.10	0.12	0.019	2.09	64.0	0.007	1.25
	ALL	0.60	10,598	0.87	0.09	0.11	0.019	2.08	70.0	0.007	1.27
INFERRED	ALL	0.50	19,094	0.73	0.08	0.10	0.017	2.00	61.0	0.007	1.16
ENRICHED + PRIMARY	ALL	0.40	31,919	0.61	0.07	0.10	0.015	1.66	49.5	0.006	1.03
(< 300M DEEP)	ALL	0.30	83,926	0.44	0.05	0.07	0.011	1.08	32.7	0.005	0.85
	ALL	0.25	125,758	0.38	0.04	0.06	0.011	1.04	34.9	0.005	0.84
	ALL	0.20	191,006	0.33	0.03	0.05	0.011	1.02	33.7	0.005	0.85
	ALL	0.10	545,095	0.21	0.02	0.04	0.011	0.95	41.1	0.004	0.90

				MEA	SURED + INDI	CATED RESOUR	CES				
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	6,252	1.19	0.30	0.47	0.053	2.21	44.4	0.040	0.65
	5000	0.80	11,202	1.06	0.29	0.41	0.045	1.95	38.5	0.035	0.63
	5000	0.70	17,018	0.95	0.28	0.36	0.040	1.71	38.7	0.030	0.61
	5000	0.60	24,617	0.86	0.27	0.32	0.036	1.58	33.1	0.025	0.58
MEAS. + INDICATED	5000	0.50	34,982	0.77	0.25	0.28	0.031	1.62	28.7	0.021	0.57
ENRICHED (SECONDARY)	5000	0.40	47,229	0.68	0.23	0.25	0.027	1.51	25.2	0.018	0.53
(< 700M DEEP)	5000	0.30	61,464	0.61	0.20	0.23	0.023	1.40	22.1	0.016	0.54
	5000	0.25	71,274	0.56	0.19	0.21	0.022	1.40	20.5	0.014	0.52
	5000	0.20	84,539	0.51	0.17	0.19	0.020	1.28	18.9	0.013	0.51
	5000	0.10	132,540	0.38	0.13	0.15	0.015	0.99	16.0	0.010	0.45
	6000	1.00	20,403	1.18	0.02	0.17	0.095	3.22	22.5	0.032	1.09
	6000	0.80	50,711	1.01	0.02	0.16	0.086	2.81	14.6	0.027	0.95
	6000	0.70	76,217	0.92	0.02	0.16	0.079	2.59	15.3	0.024	0.88
	6000	0.60	105,929	0.85	0.02	0.14	0.071	2.36	17.5	0.022	0.84
MEAS. + INDICATED	6000	0.50	143,401	0.77	0.02	0.13	0.063	2.12	19.0	0.020	0.81
PRIMARY	6000	0.40	181,518	0.70	0.02	0.12	0.055	1.90	16.6	0.018	0.80
(< 700M DEEP)	6000	0.30	222,078	0.64	0.02	0.11	0.049	1.73	15.2	0.017	0.79
	6000	0.25	247,832	0.60	0.02	0.10	0.046	1.64	14.4	0.016	0.79
	6000	0.20	276,066	0.56	0.02	0.10	0.042	1.54	14.2	0.015	0.80
	6000	0.10	360,933	0.46	0.02	0.08	0.035	1.30	13.9	0.012	0.85
		4.00	00.055	4.40		0.04	0.005		07.0	0.004	
	ALL	1.00	26,655	1.18	0.09	0.24	0.085	2.98	27.6	0.034	0.99
	ALL	0.80	61,913	1.02	0.07	0.21	0.079	2.65	18.9	0.029	0.89
	ALL	0.70	93,235	0.93	0.07	0.19	0.072	2.43	19.5	0.025	0.83
	ALL	0.60	130,546	0.85	0.07	0.18	0.064	2.21	20.5	0.022	0.79
TOTAL MEAS. + INDICATED	ALL	0.50	178,383	0.77	0.07	0.16	0.057	2.02	20.9	0.020	0.76
	ALL	0.40	228,747	0.70	0.07	0.15	0.050	1.82	18.4	0.018	0.74
(< 700M DEEP)	ALL	0.30	283,542	0.63	0.06	0.14	0.043	1.66	16.7	0.016	0.74
	ALL	0.25	319,106	0.59	0.06	0.13	0.040	1.58	15.8	0.016	0.73
	ALL	0.20	360,606	0.55	0.06	0.12	0.037	1.48	15.3	0.014	0.73
	ALL	0.10	493,473	0.44	0.05	0.10	0.030	1.21	14.4	0.012	0.74

 TABLE 1-3:
 Haquira East – Classified Mineral Resources

MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	6000	1.00	8,665	1.54	0.01	0.03	0.151	5.45	797.5	0.015	1.27
	6000	0.80	15,540	1.25	0.01	0.02	0.111	4.20	470.2	0.015	1.17
	6000	0.70	23,120	1.09	0.01	0.02	0.092	3.55	337.0	0.013	1.11
	6000	0.60	30,811	0.98	0.01	0.02	0.079	3.10	265.2	0.013	1.05
TOTAL MEAS. + INDICATED	6000	0.50	45,500	0.84	0.00	0.02	0.063	2.54	189.7	0.013	0.99
PRIMARY	6000	0.40	62,791	0.73	0.00	0.01	0.052	2.15	140.8	0.012	0.92
(>= 700M DEEP)	6000	0.30	77,818	0.66	0.00	0.01	0.047	1.93	115.8	0.011	0.87
	6000	0.25	87,022	0.62	0.00	0.01	0.044	1.82	104.5	0.011	0.85
	6000	0.20	95,286	0.58	0.00	0.01	0.042	1.72	96.9	0.010	0.84
	6000	0.10	115,315	0.51	0.00	0.01	0.036	1.51	81.3	0.009	0.80

				INFE	RRED RESOU	RCES (<=700M D	EEP)				
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	2,050	1.13	0.40	0.58	0.016	1.47	101.3	0.004	0.68
	5000	0.80	3,576	1.04	0.38	0.50	0.017	1.88	79.4	0.004	0.62
INFERRED	5000	0.70	4,815	0.96	0.34	0.46	0.016	1.61	89.2	0.005	0.71
ENRICHED (SECONDARY)	5000	0.60	10,594	0.79	0.31	0.31	0.014	1.24	56.3	0.005	0.67
(< 700M DEEP)	5000	0.50	16,489	0.71	0.28	0.27	0.013	1.21	44.8	0.005	0.65
	5000	0.40	19,845	0.67	0.26	0.25	0.013	1.16	41.7	0.005	0.63
	5000	0.30	24,701	0.61	0.23	0.24	0.013	1.07	36.2	0.005	0.69
	5000	0.25	28,423	0.56	0.21	0.22	0.012	0.99	33.1	0.005	0.67
	5000	0.20	36,514	0.49	0.18	0.19	0.011	0.87	27.3	0.005	0.64
	5000	0.10	90,885	0.28	0.10	0.11	0.009	0.64	20.3	0.003	0.48
	6000	1.00	3,204	1.18	0.02	0.15	0.096	3.20	36.8	0.030	1.13
	6000	0.80	10,273	0.98	0.02	0.14	0.082	2.67	17.7	0.021	0.96
INFERRED	6000	0.70	16,449	0.89	0.02	0.14	0.077	2.49	18.1	0.019	0.89
PRIMARY	6000	0.60	25,076	0.81	0.02	0.13	0.067	2.22	20.8	0.018	0.85
(< 700M DEEP)	6000	0.50	38,147	0.72	0.02	0.11	0.054	1.89	23.1	0.016	0.86
	6000	0.40	73,621	0.59	0.02	0.09	0.037	1.41	16.7	0.012	0.92
	6000	0.30	123,065	0.49	0.02	0.08	0.028	1.17	14.0	0.011	0.89
	6000	0.25	177,569	0.43	0.02	0.07	0.024	0.99	12.3	0.009	0.89
	6000	0.20	242,889	0.37	0.02	0.06	0.020	0.86	11.6	0.008	0.87
	6000	0.10	587,927	0.23	0.01	0.04	0.013	0.57	12.2	0.005	0.86
	ALL	1.00	5,254	1.16	0.17	0.32	0.065	2.52	61.9	0.020	0.96
INFERRED	ALL	0.80	13,848	1.00	0.11	0.23	0.065	2.46	33.6	0.017	0.87
ENRICHED + PRIMARY	ALL	0.70	21,264	0.91	0.09	0.21	0.063	2.29	34.2	0.016	0.85
(< 700M DEEP)	ALL	0.60	35,670	0.81	0.11	0.18	0.051	1.93	31.3	0.014	0.80
	ALL	0.50	54,636	0.72	0.10	0.16	0.042	1.69	29.6	0.013	0.80
	ALL	0.40	93,466	0.61	0.07	0.12	0.032	1.35	22.0	0.011	0.86
	ALL	0.30	147,766	0.51	0.06	0.10	0.026	1.15	17.7	0.010	0.86
	ALL	0.25	205,992	0.44	0.05	0.09	0.022	0.99	15.1	0.009	0.86
	ALL	0.20	279,404	0.39	0.04	0.08	0.019	0.86	13.6	0.008	0.84
	ALL	0.10	678,811	0.24	0.02	0.05	0.012	0.58	13.3	0.005	0.81

				INFERRI		ES (>= 700M DEE	P)				
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	6000	1.00	12,571	1.59	0.00	0.01	0.178	6.24	654.8	0.012	1.18
	6000	0.80	19,310	1.35	0.00	0.01	0.140	5.16	453.2	0.012	1.17
	6000	0.70	26,514	1.19	0.00	0.01	0.117	4.39	358.8	0.011	1.11
	6000	0.60	50,735	0.93	0.00	0.01	0.082	3.26	256.3	0.010	1.04
INFERRED	6000	0.50	79,729	0.78	0.00	0.01	0.065	2.66	182.5	0.009	1.02
PRIMARY	6000	0.40	121,788	0.66	0.00	0.01	0.050	2.16	128.5	0.009	0.97
(>= 700M DEEP)	6000	0.30	142,516	0.62	0.00	0.01	0.046	1.99	112.4	0.010	0.97
	6000	0.25	169,990	0.56	0.00	0.01	0.041	1.81	96.4	0.009	0.92
	6000	0.20	213,460	0.49	0.00	0.01	0.035	1.57	80.5	0.008	0.88
	6000	0.10	317,109	0.38	0.00	0.01	0.026	1.19	57.5	0.007	0.81

1.9 InPit and Underground Resources

Haquira contains no mineral reserves as defined by CIMM standards. All categories of the estimated mineral resources - Measured (M), Indicated (IND), and Inferred (INF), have been used in the determination of inpit mineral resources. All categories have been used in developing production schedules and preliminary cash flow analyses. This study is preliminary in nature and has used Measured (M), Indicated (IND), and Inferred (INF) resources in the determination of the inpit resources. The reader is cautioned that inferred resources are considered too speculative geologically to have economics applied and there is no certainty that the economic results can be achieved. The inpit resources are developed from open-pit mining scenarios. The inpit resource estimates were derived from three dimensional grade and geologic block models developed by Tt as described in SECTION 17.

To guide design of an ultimate pit and to determine the best extraction sequence, Tt utilized the Whittle[®] LG algorithm to establish guides to mineable shapes within the mineral resource block model. The ordinary kriging estimate of total gold in the model was imported to Gemcom's[®] Whittle[®] mine optimization software. Estimates for mine and processing costs were prepared from a comparison of actual and handbook costs for similar operations.

For the Haquira Copper Project, one potential operating scenario is being considered. It involves a conventional truck and shovel, open-pit mine design with SX-EW heap-leaching process creating copper cathode, and a sulfide flotation process producing a bulk sulfide concentrate that is shipped off-shore for smelting. TABLE 1-4 lists the input parameters used for the Whittle[®] mine optimization runs for the potential development scenario. No additional constraints such as property boundaries or existing infrastructure locations were applied to the preliminary Whittle[®] mine optimization run. The average achievable pit slope was estimated at 45°. A copper price of \$2.25 per pound is used as the base case.

TABLE 1-4: Whittle [®] mine op ANTARES MINERA	timization parameters – SX NLS INC. – HAQUIRA COPPER September 2010										
Parameter Units Value											
Average Pit Slopes	Degrees	45									
Metal Price											
Copper	US\$/lbs	2.25									
Metal Recovered											
Copper (cathode)	%	78									
Copper (concentrate)	%	89.3									
Mining Cost	\$US/tonne processed	1.24									
Processing Cost (SX-EW)	\$US/tonne processed	3.29									
Processing Cost (Flotation)	\$US/tonne processed	4.35									
Freight & Refining (Cathode)	\$US/Ib Copper	0.009									
Freight & Refining (Concentrate)	\$US/lb Copper	0.22									
General & Administrative Costs	\$US/tonne milled	0.13									
Environmental & regulatory Costs	US\$/tonne milled	0.10									

TABLE 1-5 summarizes the results of the pits designed using the Whittle[®] mine optimization software outlines as a guide. TABLE 1-6 summarizes the results of the Underground Mining scenario. For this PEA, the SX-EW processing production rate was set at 10,900,000 tonnes per year or approximately 30,000 tonnes per day and the Flotation processing production rate was set at 36,500,000 tonnes per year or approximately 100,000 tonnes per day. An 18 month pre-production period will strip 129,750,000 tonnes of waste. Average yearly waste movement of 86,500,000 tonnes is scheduled from year 1 through year 19. Year 20 (final year of waste movement) will see a total waste movement of 18,199,000 tonnes.

Year One SX ore processing is expected at a full 10,900,000 tonnes of Leach material and Year One flotation production set at 18,250,000 tonnes. Subsequent years will continue to process 10,900,000 tonnes of SX leach material through year 19. In year 20, the final year of SXEW production, the schedule is to mine and stack approximately 1,800,000 tonnes.. Flotation material will initially be produced solely from InPit resources. In year 5 underground production would commence at a rate of approximately 10,000 tonnes per day (Underground material would be extracted by means of long-hole stoping with paste fill to allow simultaneous operation of the underground and open pit operations). The 10,000 tonnes per day of underground production would displace a similar tonnage of sulfide material from the open pit to maintain a constant 100,000 tonnes per day feed rate to the flotation concentration plant. The net result will be an increase in pounds produced due to the higher grades from the underground production.

Underground ore production is expected to continue at 3,650,000 tonnes per year. In year 16 the production rate will decrease to 1,700,000 tonnes The underground mine will cease production at the end of year 16. InPit production will then increase to maintain the constant 100,000 tonnes per day flotation feed rate through Year 19. Year 20 will have 26,383,000 tonnes of flotation feed after which the flotation plant will be shutdown.

-	TABLE 1-5: ANTARES		.S INC. –			tation Scena ER PROJECT		
		4	vg. Meta	I Grades		Waste Tonnes	Total Tonnes	Stripping Ratio
Resource Class	Tonnes ('000)	Cu (%)	Au (g/t)	Ag (g/t)	Мо (%)	('000)	('000)	(W:O)
Measured	128,830	0.512	0.023	1.082	0.010	N/A	N/A	N/A
Indicated	432,106	0.477	0.036	1.644	0.010	N/A	N/A	N/A
Measured + Indicated	560,936	0.485	0.033	1.155	0.010	N/A	N/A	N/A
Inferred	307,781	0.372	0.022	1.154	0.007	N/A	N/A	N/A
Total	868,717	0.445	0.029	1.387	0.009	1,791,449	2,660,166	2.06

ТАВ		MINERALS INC	urces – SX and F HAQUIRA COPPER ber 2010		
			Avg. Met	al Grades	
Resource Class	Tonnes ('000)	Cu (%)	Au (g/t)	Ag (g/t)	Мо (%)
Measured	3,752	1.056	0.088	3.424	0.013
Indicated	17,271	1.020	0.085	3.342	0.013
Measured + Indicated	21,023	1.026	0.086	3.357	0.013
Inferred	20,827	1.103	0.104	4.026	0.011
Total	41,850	1.070	0.096	3.740	0.012

1.10 Cash Flow Analysis

The cash flow analysis developed for mining and processing the measured, indicated and inferred resources currently defined at Haquira includes the following input parameters:

- Base Case Metal prices:
 - Copper price of US\$2.25 per pound,
 - o gold price of US\$907 per ounce,
 - o silver price of US\$14.85 per ounce and;
 - molybdenum price of US\$13.00 per pound.
- SX-EW copper recoveryoft 78 percent.
- Flotation process copper recoveryoft 89 percent, gold recovery of 72 percent, silver recovery of 72 percent, and molybdenum recovery of 57%.
- Open Pit Mine operating cost of \$3.79 per tonne of ore processed
- Underground Mine operating cost of \$20.60 per tonne of ore processed
- Process operating cost of \$3.19 per tonne of ore processed for the SX-EW plant and US\$4.11 per tonne of ore processed for the flotation plant.
- General & Administrative costs are estimated at US\$0.03 per tonne of ore processed
- Concentrate transport and smelting costs were based on the following:
 - Cathode Truck Freight \$/tonne Cu shipped \$20.00
 - Concentrate Truck Freight (Mo Con) \$/tonne shipped \$200.00
 - Concentrate Slurry and Rail Transport Cost \$/tonne shipped \$37.54
 - Concentrate Ocean Freight / Port Handling \$/tonne shipped \$58.
 - Concentrate Deduction(Cu) 1.0% of concentrate tonnes
 - Concentrate Deduction (Au) 0.04 Oz from concentrate assay
 - o Concentrate Deduction (Ag) 1.00 Oz from concentrate assay
 - Treatment Charge \$55.00/tonne of concentrate
 - Refining Charge Cu \$0.06/lb contained
 - Refining Charge Mo \$1.00/lb contained
 - o Refining Charge Au \$5.00/oz contained
 - Refining Charge Ag \$0.40/oz contained

- o Payment Rates
 - 99.5% of Cu in cathode
 - 96.5% of Cu in concentrate
 - 99.0% of Mo in concentrate
 - 92.5% of Au in concentrate
 - 95.0% of Ag in concentrate

TABLE 1-7 provides a cash flow summary for the project. This cash flow indicates a before tax net present value (NPV) of US\$2.077 billion for the project at a 8 percent discount rate, and assumes a constant 2010 US dollar.

TABLE 1-8 summarizes the sensitivity of the Net Present Value ("NPV") of the projected cash flows at discount rates of 0%, 4%, 6%, 8%, 10%, 12%, 16%, and 20% for variation in Capex, Opex and copper price.

Table 1-7: Before Tax Cash Flow Summary Open Pit and Underground Mine Before Tax Cash Flow Haquira Copper Project

Description - Option 3: 30,000 tonnes/day processed SX and 100,000 tonnes/day processed Flotat	ion - 237,000 tonnes/day waste movement									
		Yr -2	Yr -1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	
MINE PRODUCTION SCHEDULE (000s tonnes)										

0,000 tonnes/day processed :	SX and 100,000 tonnes/day processed Flotation - 2	37,000 tonnes/day waste mov	ement Vr. 2	V- 1	V- 1	V- 2	V- 2	V- 4	V- 5	V- 6	V-7	V- 9	V- 0	Vr 10	V- 11	V- 10	V- 12	V- 14	V- 15	V- 16	V- 17	V- 10	Vr 10	V- 20	V- 24	V- 22	V= 22	V= 24	Totals
INE PRODUCTION SCHEDUL Waste Mov	E (000s tonnes) ed tonnes		43,250	86.500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	86 500	18 199					1.791.449
Ore Mined (Ore Mined (O	SX) tonnes			-	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900 32,850	10,900 32.850	10,900 32.850	10,900 32,850	10,900	10,900 34,800	10,900	10,900	10,900	1,834 26,383	-	-	-		208,934 659,783
Ore Mined (UC	G Flot) tonnes				18,250	36,500	36,500	-	3,650	3,650	3,650	32,850 3,650	32,850 3,650	3,650	3,650	3,650	3,650	3,650	3,650	1,700	-			-					41,85
Total Material			43,250	86,500	115,650	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	46,416	-	-	-		2,702,01
DNCENTRATOR SCHEDULE																													
(- Leach Feed	(000s tonnes) Ore Grade, Cu% (SX) =		- 0.000%	.000%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	10,900 0.422%	1,834 0.422%	0.422%	0.422%	0.422%		208,9
	SX Recovery % = Copper Cathode Produced (000s lbs) =		0% -	- 0%	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 79,098	78% 13,309	- 78%	78%	78%		1,516,1
- Flotation Feed (Pit)	(000s tonnes)				18.250	36,500	36,500	36.500	32,850	32,850	32.850	32,850	32,850	32,850	32.850	32,850	32,850	32,850	32.850	34,800	36,500	36,500	36,500	26,383					659,7
- Flotation Feed (UG)	(000s tonnes) Ore Grade, Cu% (Open Pit Flotation)	_		•	- 0.564%	0.564%	- 0.564%	- 0.564%	3,650 0.564%	3,650	3,650	3,650 0.564%	3,650 0,564%	3,650	3,650 0.564%	3,650 0.381%	3,650 0.314%	3,650 0.314%	3,650 0.314%	1,700 0.314%	- 0.314%	0.314%	- 0.314%	0.314%	- 0.314%	- 0.314%	- 0.314%		41,8
	Ore Grade, Cu% (UG Flotation) = Flotation Recovery Cu%	-	89%	89%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%	1.060%		
	Concentrate Grade Cu% : Cu Concentration Ratio	= 28%	28%	28%	28%	28% 50	28%	28%	28% 46	28% 46	28% 46	28% 46	28% 46	28% 46	28% 46	28%	28%	28%	28% 72	28% 80	28%	28% 89	28% 89	28% 89	28%	28%	28%		
	Open Pit Cu Concentrate Producec (000s tonnes))			328	657	657	657	46 591 123	591	591	40 591 123	46 591 123	591	591	399 123	329 123	329 123	329	348 57	366	366	366	264		-			9, 1,
	UG Cu Concentrate Produced (000s tonnes) Total Tons of Concentrate Produced (000s tonnes)		-		328	657	657	657	714	123 714	123 714	714	714	123 714	123 714	523	452	452	123 452	406	366	366	366	264		-			1, 10,
AL PRODUCTION																													
	Copper Cathode Produced (000s lbs Copper (in Con) Produced - (000s lbs	s) .)	:	1	79,098 202,639	79,098 405,278	79,098 405,278	79,098 405,278	79,098 440,920	79,098 440,920	79,098 440,920	79,098 440,920	79,098 440,920	79,098 440,920	79,098 440,920	79,098 322,570	79,098 279,240	79,098 279,240	79,098 279,240	79,098 250,601	79,098 225,634	79,098 225,634	79,098 225,634	13,309 163,093					1,516, 6,755,
	Gold (in Con) Produced - (000s Oz. Silver (in Con) Produced - (000s Oz.)		1	16 676	31 1.353	31 1.353	31 1.353	36 1,533	36 1,533	36 1,533	36 1,533	36 1,533	36 1,533	36 1,533	25 1,226	21 1,114	21 1,114	21 1,114	17 993	14 887	14 887	14 887	10 641		-	-		24,
	Moly (in Con) Produced - (000s lbs				3,440	6,880	6,880	6,880	6,742	6,742	6,742	6,742	6,742	6,742	6,742	3,853	3,027	3,027	3,027	2,880	2,752	2,752	2,752	1,989		-			97,3
NUES (\$000s)	Treatment Charge - \$/tonne Concentrate	= \$ 55.00	(expressed in \$ 000s)		(17.874.47) \$	(35.748.95) \$	(35.748.95) \$ (;	(35.748.95) \$	(38.892.83) \$	(20.002.02) ¢	(38,892.83) \$	(20 002 02) ¢	(20 002 02) ¢	(38.892.83) \$	(38.892.83) \$	(28,453.37) \$	(04 604 00) 6	(24.631.28) \$	(04 604 00) \$	(22.105.10) \$	(10.002.79) \$	(19.902.78) \$	(19.902.78) \$	(14.386.17) \$	e		e e		(595,9
	Peruvian Gov't Royalty : Refining Charge (Cu) - \$/lb contained	= 1% - 3%	(expressed in \$ 000s)	ŝ	(17,113.19) \$	(30,713.99) \$	(30,713.99) \$ ((24,073.52) \$ (2	(30,713.99) \$	(32,923.10) \$	(32,923.10) \$	(32,923.10) \$	(32,923.10) \$	(32,923.10) \$	(32,923.10) \$	(32,923.10) \$	(24,645.21) \$	(21,706.89) \$	(24,031.28) \$ (21,706.89) \$ (16,586.83) \$	(21,706.89) \$	(19,860.88) \$	(18,257.97) \$	(18,257.97) \$	(18,257.97) \$ (13,402.64) \$	(9,752.28) \$	- \$		s		(513,8 (401,2
	Refining Charge (Au) - \$/Oz. contained	= \$ 5.00	(expressed in \$ 000s) (expressed in \$ 000s)	\$	(12.50) \$	(25.00) \$	(25.00) \$	(25.00) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(19.69) \$	(14.72) \$	(14.72) \$	(14.72) \$	(6.17) \$	- \$	- \$	- \$	- \$	- \$		s - s	1.1	(4
	Refining Charge (Ag) - \$/Oz. contained Refining Charge (Mo) - \$/Ib contained		(expressed in \$ 000s) (expressed in \$ 000s)	\$ \$	(139.24) \$ (3,440.00) \$	(278.48) \$ (6,880.01) \$		(278.48) \$ (6,880.01) \$	(327.67) \$ (6,742.41) \$	(327.67) \$ (6,742.41) \$		(327.67) \$ (6,742.41) \$	(327.67) \$ (6,742.41) \$	(327.67) \$ (6,742.41) \$	(327.67) \$ (6,742.41) \$	(281.48) \$ (3,852.80) \$	(264.84) \$ (3,027.20) \$	(264.84) \$ (3,027.20) \$	(264.84) \$ (3,027.20) \$	(234.83) \$ (2,880.18) \$	(208.66) \$ (2,752.00) \$	(208.66) \$ (2,752.00) \$	(208.66) \$ (2,752.00) \$	(150.83) \$ (1,989.21) \$	- \$	1	s - S S - S	1.1	(5,3 (97,3
Pa	syment (99.5% contained Cu in Cathode) @ Cu price	= \$ 2.25	(expressed in \$ 000s)	\$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	29,795 \$	- \$	- \$; - \$		3,394,3
	Payment (96.5% contained Cu in Con) @ Cu price = Payment (92.5% contained Au) @ Au market price =		(expressed in \$ 000s) (expressed in \$ 000s)	\$ \$	435,580 \$ 2,099 \$	871,161 \$ 4,198 \$	871,161 \$ 4,198 \$	871,161 \$ 4,198 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	693,376 \$ 3,306 \$	600,236 \$ 2,472 \$	600,236 \$ 2,472 \$	600,236 \$ 2,472 \$	538,676 \$ 1,036 \$	485,008 \$ - \$	485,008 \$ - \$	485,008 \$ - \$	350,574 \$ - \$	- \$ - \$	- 9		-	14,521,8 71,5
	Payment (95% contained Ag) @ Ag market price = Payment (99% contained Mo) @ Mo market price =		(expressed in \$ 000s) (expressed in \$ 000s)	\$ \$	4,911 \$ 44,273 \$	9,822 \$ 88,546 \$	9,822 \$ 88,546 \$	9,822 \$ 88,546 \$	11,557 \$ 86,775 \$	11,557 \$ 86,775 \$	11,557 \$ 86,775 \$	11,557 \$ 86,775 \$	11,557 \$ 86,775 \$	11,557 \$ 86,775 \$	11,557 \$ 86,775 \$	9,927 \$ 49,586 \$	9,341 \$ 38,960 \$	9,341 \$ 38,960 \$	9,341 \$ 38,960 \$	8,282 \$ 37,068 \$	7,359 \$ 35,418 \$	7,359 \$ 35,418 \$	7,359 \$ 35,418 \$	5,319 \$ 25,601 \$	- \$ - \$	- 5	5 - S 5 - S	-	188,9 1,252,7
	Total Revenue (\$ 000s)			\$	613,327 \$	1,053,086 \$	1,053,086 \$	1,053,086 \$	1,124,514 \$	1,124,514 \$	1,124,514 \$	1,124,514 \$	1,124,514 \$	1,124,514 \$	1,124,514 \$	856,862 \$	761,856 \$	761,856 \$	761,856 \$	702,169 \$	650,341 \$	650,341 \$	650,341 \$	375,324 \$	- \$	- \$	- \$	-	17,815,1
M Pr Er Ta Di	ining - Underground	\$/tonne ore mined \$/tonne ore mined \$/tonne ore mined \$/tonne ore mined \$/tonne ore mined \$/tonne ore mined TOTAL	\$3.79 \$20.60 \$ - \$ 3.90 \$ - \$ 0.10 \$ - \$ 0.05 \$ - \$ 0.05 \$ - \$ 0.03 \$ - \$ \$ 0.03 \$ - \$	- \$ - \$ - \$ - \$ - \$ - \$ - \$ - \$	150,443 \$ - \$ 112,644 \$ 2,915 \$ 879 \$ 1,458 \$ 875 \$ 269,214 \$	173,294 \$ - \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 368,317 \$	- \$ 184,732 \$	173,294 \$ - \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 368,317 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	168,869 \$ 75,186 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 439,078 \$	171,298 \$ 35,018 \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 401,339 \$	171,614 \$ - \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 366,637 \$	1,422 \$	171,614 \$ - \$ 184,732 \$ 4,740 \$ 1,759 \$ 2,370 \$ 1,422 \$ 366,637 \$	- \$ 117,300 \$ 2,822 \$ 1,271 \$ 1,411 \$ 847 \$	- \$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ - \$		5 - S 5 - S		3,290,9 862,0 3,555,1 91,0 33,8 45,5 27,3 7,905,8
IGHT COST (\$000s)																													
C	oncentrate Truck Freight (Mo Con)	\$/tonne Cu shipped \$ \$/tonne con shipped \$	20.00 \$ - \$ 200.00 \$ - \$	- \$ - \$	719 \$ 657 \$	719 \$ 1,313 \$		719 \$ 1,313 \$	719 \$ 1,429 \$	719 \$ 1,429 \$		719 \$ 1,429 \$			719 \$ 1,429 \$	719 \$ 1,045 \$	719 \$ 905 \$	719 \$ 905 \$	719 \$ 905 \$	719 \$ 812 \$	719 \$ 731 \$	719 \$ 731 \$	719 \$ 731 \$		- \$ - \$	- \$	- \$; - \$	-	13,7 21,8
		\$/tonne con shipped \$ \$/tonne con shipped \$	37.54 \$ - \$ 58.00 \$ - \$	- \$ - \$	12,323 \$ 19,040 \$	24,647 \$ 38,080 \$	24,647 \$ 38,080 \$	24,647 \$ 38,080 \$	26,814 \$ 41,429 \$	26,814 \$ 41,429 \$	26,814 \$ 41,429 \$	26,814 \$ 41,429 \$	26,814 \$ 41,429 \$	26,814 \$ 41,429 \$	26,814 \$ 41,429 \$	19,617 \$ 30,308 \$	16,982 \$ 26,237 \$	16,982 \$ 26,237 \$	16,982 \$ 26,237 \$	15,240 \$ 23,546 \$	13,722 \$ 21,200 \$	13,722 \$ 21,200 \$	13,722 \$ 21,200 \$	15,324 \$	- \$ - \$	- 9	s - s s - s		410, 634,
			\$ - \$ 1.00	- \$	32,739 \$	64,759 \$	64,759 \$	64,759 \$	70,390 \$	70,390 \$	70,390 \$	70,390 \$	70,390 \$	70,390 \$	70,390 \$	51,690 \$	44,843 \$	44,843 \$	44,843 \$	40,317 \$	36,372 \$	36,372 \$	36,372 \$	25,892 \$	- \$	- \$	- \$	-	1,081,
L OPERATING COSTS (\$	000s)		\$ - \$	- \$	301,953 \$	433,075 \$	433,075 \$	433,075 \$	509,468 \$	509,468 \$	509,468 \$	509,468 \$	509,468 \$	509,468 \$	509,468 \$	490,768 \$	483,921 \$	483,921 \$	483,921 \$	441,656 \$	403,009 \$	403,009 \$	403,009 \$	226,425 \$	- \$	- \$	s - s	-	8,987,
OPERATING REVENUE (\$	000s)		\$-\$	- \$	311,374 \$	620,010 \$	620,010 \$	620,010 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	366,094 \$	277,935 \$	277,935 \$	277,935 \$	260,512 \$	247,332 \$	247,332 \$	247,332 \$	148,898 \$	- \$	- \$	5 - \$	-	8,828,
AL COST SUMMARY (\$0	000s)																												
Su	xcess and Site Prep urface Plant and Facilities		\$ 3,863 \$ \$ 32,013 \$	4,744 \$ 20,000 \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$	- \$; - \$	2	8 52
Si	nderground Construction te Infrastructure		\$ - \$ \$ 24,910 \$	- \$ - \$	- \$ - \$	- \$ - \$	23,359 \$ - \$	29,245 \$ - \$	18,301 \$ - \$	7,452 \$ - \$	1,273 \$ - \$	1,473 \$ - \$	3,375 \$ - \$	353 \$ - \$	598 \$ - \$	928 \$ - \$	4,219 \$ - \$	2,560 \$ - \$	1,173 \$ - \$	100 \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- 9	s - s s - s		94 24
G	eneral Surface Mobile Equipment oncentrator and Tailings Disposal		\$ 8,516 \$ \$ 504,557 \$	- \$ 506,057 \$	- \$ - \$	- S - S	300 \$ - \$	- S - S	- \$ - \$	8,216 \$ - \$	300 \$ 37,714 \$	- \$ - \$	- S - S	- \$ 20,952 \$	300 \$ - \$	- \$ - \$	8,216 \$ - \$	- \$ 29,333 \$	300 \$ - \$	- \$ 25,142 \$	- \$ - \$	- S - S	300 \$ 29,333 \$	- S - S	- \$ - \$	- 9	5 - S 5 - S	-	26, 1,153,
U	nderground Mining Equipment		\$ - \$ \$ 68,353 \$	- \$ 132.679 \$	- \$	- \$	- \$	20,844 \$	32,983 \$	150 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$			53, 201,
O	pen Pit Mine Equipment orking Capital at 25% Yr 1 Op Cost		\$ 69,100 \$	58,392 \$	29,472 \$ 75,488	29,472 \$	263 \$	- \$	25,740 \$	23,815 \$	45,785 \$	36,351 \$	29,432 \$	13,711 \$	28,267 \$	16,498 \$	7,309 \$	23,762 \$	32,915 \$	41,188 \$	43,087 \$	19,333 \$	7,511 \$	- \$ - \$ (75.488)	- \$	- \$	- \$	-	581,
	&A, OH, Contingency	TOTAL	\$ 194,783 \$ 1.00 \$ 906,094 \$	193,012 \$ 914.884 \$	7,094 \$	7,094 \$ 36,566 \$	5,984 \$ 29.906 \$	10,618 \$ 60.707 \$	16,005 \$ 93.029 \$	8,526 \$ 48,159 \$	17,614 \$ 102.686 \$	8,165 \$ 45,989 \$	7,161 \$ 39.968 \$	7,603 \$ 42.619 \$	6,433 \$ 35.598 \$	4,085 \$ 21.511 \$	4,549 \$ 24,293 \$	11,731 \$ 67.386 \$	7,478 \$ 41.866 \$	13,646 \$ 80.076 \$	8,977 \$ 52.064 \$	4,227 \$ 23.560 \$	7,789 \$ 44,933 \$	(75,488) 360 \$ (75,128) \$	- \$	- \$	- \$	-	552,9
RETAX CASH FLOW (\$0		ISTAL	(\$006.004)	914,884 \$	\$199.319	\$583.444		559 304	93,029 \$	48,159 \$	102,686 \$	45,989 \$	39,968 \$	42,619 \$ \$572,426	35,598 \$ \$579.447	\$344 583	24,293 \$	\$210.550	41,866 \$	\$180,436	\$195,268	23,560 \$ \$223,773	44,933 \$ \$202,400	(75,128) \$ \$224.026	- >	- 3	÷0	÷0.	6,079,2
FREIAN GASH FLOW (\$0	005)	Cumula		(\$914,884) (\$1,820,978)		\$583,444 (\$1,038,215)		\$111,193					\$575,077 \$2,856,587									\$223,773 \$5,652,783	\$202,400 \$5,855,182	\$224,026 \$6,079,209	\$0 \$6,079,209	\$0 \$6,079,209	\$6,079,209 \$6	\$0 6,079,209	6,079,20
		Paybao	CK LEST NO	no	no	no	no	4.80	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
ject Metrics	4.80 years - for price scenario					CENCIT	IVITY ANALY	VEEC UA			ЕСТ																		

Project Payback Time	4.80 years - for price scenario					SENS	ITIVITY AN	ALYSES - H	AQUIRA C	OPPER PR	OJECT		
Initial Capital (\$000s)	1,933,033 through yr 1 (includes Working Capital)	Net Pres	sent Value C	Calculations	(\$000s)		Net Pres	ent Value Ca	alculations (\$000s)		Net Pres	ent Value Calo
Working Capital (\$000s)	75,488		Cop	oper Price (\$/I	b)		Operat	ting Cost Sens	itivity, Cu@\$	2.25		Capit	al Cost Sensitivi
Sustaining Capital (\$000s)	891,275	Discount %	\$1.80	\$2.25	\$2.70		Discount %	+20%	Base	-20%		Discount %	+20%
Project Life (Ore Production)	20 years	0%	\$2,603,477	\$6,079,209	\$9,554,941		0%	\$4,281,790	\$6,079,209	\$7,876,628		0%	\$4,869,728
Stripping Ratio	2.06	4%	\$1,303,634	\$3,560,940	\$5,818,246		4%	\$2,418,278	\$3,560,940	\$4,703,602		4%	\$2,535,407
		6%	\$869,312	\$2,726,674	\$4,584,035		6%	\$1,795,269	\$2,726,674	\$3,658,078		6%	\$1,768,237
		8%	\$530,634	\$2,077,938	\$3,625,243		8%	\$1,308,540	\$2,077,938	\$2,847,336		8%	\$1,175,487
		10%	\$264,205	\$1,567,867	\$2,871,528		10%	\$924,431	\$1,567,867	\$2,211,303		10%	\$712,938
		12%	\$53,028	\$1,162,782	\$2,272,536		12%	\$618,577	\$1,162,782	\$1,706,986		12%	\$348,823
		16%	(\$250,479)	\$575,900	\$1,402,279		16%	\$174,735	\$575,900	\$977,065		16%	(\$170,544)
		20%	(\$446,963)	\$187,759	\$822,481		20%	(\$118,281)	\$187,759	\$493,799		20%	(\$504,709)
		IRR	12.6%	22.7%	30.8%		IRR	18.2%	22.7%	26.7%		IRR	14.5%

Capital Cost Sensitivity, Cu @ \$2.25											
Discount %	+20%	Base	-20%								
0%	\$4,869,728	\$6,079,209	\$7,068,784								
4%	\$2,535,407	\$3,560,940	\$4,401,295								
6%	\$1,768,237	\$2,726,674	\$3,512,392								
8%	\$1,175,487	\$2,077,938	\$2,817,981								
10%	\$712,938	\$1,567,867	\$2,269,079								
12%	\$348,823	\$1,162,782	\$1,830,475								
16%	(\$170,544)	\$575,900	\$1,188,281								
20%	(\$504,709)	\$187,759	\$755,863								

	ES MINERALS INC. –	Tax Sensitivity Ana HAQUIRA COPPER I Iber 2010	•
	Net Present Value	Calculations (\$000s)	
	Capital	Sensitivity	
Discount %	Base	CAPEX-20%	CAPEX+20%
0	\$6,079,209	\$7,068,784	\$4,869,728
4	\$3,560,940	\$4,401,295	\$2,535,407
6	\$2,726,674	\$3,512,392	\$1,768,237
8	\$2,077,938	\$2,817,981	\$1,175,487
10	\$1,567,867	\$2,269,079	\$712,938
12	\$1,162,782	\$1,830,475	\$348,823
16	\$575,900	\$1,188,281	(\$170,544)
20	\$187,759	\$755,863	(\$504,709)
	Net Present Value	Calculations (\$000s)	
	Cu Price Sen	sitivity, US\$/Ib	
Discount %	1.80	2.25	2.70
0	\$2,603,477	\$6,079,209	\$9,554,941
4	\$1,303,634	\$3,560,940	\$5,818,246
6	\$869,312	\$2,726,674	\$4,584,035
8	\$530,634	\$2,077,938	\$3,625,243
10	\$264,205	\$1,567,867	\$2,871,528
12	\$53,028	\$1,162,782	\$2,272,536
16	(\$250,479)	\$575,900	\$1,402,279
20	(\$446,963)	\$187,759	\$822,481
	Net Present Value	Calculations (\$000s)	
	Operating C	ost Sensitivity	
Discount %	Base	Op Cost-20%	Op Cost+20%
0	\$6,079,209	\$7,876,628	\$4,281,790
4	\$3,560,940	\$4,703,602	\$2,418,278
6	\$2,726,674	\$3,658,078	\$1,795,269
8	\$2,077,938	\$2,847,336	\$1,308,540
10	\$1,567,867	\$2,211,303	\$924,431
12	\$1,162,782	\$1,706,986	\$618,577
16	\$575,900	\$977,065	\$174,735
20	\$187,759	\$493,799	(\$118,281)

1.11 Future Plans

Antares is commencing the definition and execution of trade-off and field studies which are the first stages of the work in the development of a PreFeasibility Study (PFS) for the Haquira project. This PFS will further define the mining and processing schedule to optimize the SX-EW and Flotation copper operation. The PFS is projected to be completed in January, 2012 and is expected to include a recommendation for completion of a Definitive Feasibility Study (DFS) for the project. The PFS will involve the tasks described below. An estimated budget for the completion of the PFS is outlined in TABLE 21.1 and includes associated costs for property payments, community relations, surface acquisition planning, overhead, and general operating costs. The PFS is currently planned to be broken into three stages, an initial stage from August-Dec of 2010 that focuses on data collection/field studies along with trade-off studies, a second stage from January-June of 2011 that focuses on completing an updated geologic model, resource estimate and optimization of the mine plan, and the third stage from August – Dec 2011 involving optimizing the equipment selection, cost estimation, cash flow analysis, and preparing the final PFS documents.

A budget of approximately US\$ 30.0 million is foreseen for the recommended completion of the PFS in the period of August, 2010 to Jan, 2012 and is detailed in TABLE 21-1 in this report.

1.12 Potential Limitations

Tt is not aware of any potential limitations to the project that would materially change any of the data, resource estimates, environmental considerations, socio-economic factors, or conclusions presented within this report that are outside of the normal factors that may impact mining projects, such as price variability, exchange rates, permitting time, etc. With respect to the Haquira Copper Project, there are no existing environmental liabilities as the property is a new discovery that has no historic production, potential new environmental issues are part of this and future studies and are not anticipated to materially impact the path forward. Exploration and development drilling, as well as metallurgical testing and analyses are expected to continue in 2011.

2.0 INTRODUCTION

2.1 General

Antares Minerals Inc. ("Antares"), a TSX listed company, commissioned Tetra Tech, Inc. ("Tt") to prepare an updated Canadian National Instrument 43-101 ("NI 43-101") compliant Technical Report for the Haquira Copper Project, which is comprised of the Haquira East (including nearby Potato Patch zone) and Haquira West deposits ("Project") located in southern Peru. This report has been prepared in accordance with the guidelines provided in NI 43-101, Standards of Disclosure for Mineral Projects, dated December 23, 2005. The Qualified Persons responsible for this report are Mr. John W. Rozelle, P.G., Principal Geologist of Tt and Mr. Edwin C. Lips, P.E., Sr. Open Pit Mining Engineer of Tt.

2.2 Purpose of Report

The purpose of this report was to prepare an update to the mineral resource estimate for the Haquira Copper Project which is comprised of the Haquira East (including the Potato Patch zone) and Haquira West deposits based on the latest drillhole data from 2008 and 2009. This update provides not only an update of the leachable portion of the deposits, but the primary sulfide portion of the deposits as well.

2.1 Scope of Work

The scope of work undertaken by Tt involved compiling or creating the three-dimensional computerized geologic model and updated resource estimate, metallurgical review, and mine planning, scheduling, and capital and operating cost estimation studies on the Haquira Copper Project as contracted by Antares. Based on this information Tt has developed this Preliminary Economic Assessment (PEA) and prepared recommendations on further work needed to advance the project to pre- and/or full-feasibility stage.

2.2 Effective Date

The effective date of the mineral resource statements in this report is April 16, 2010. This report utilizes the April 16, 2010 mineral resources in developing this PEA. The effective date of this PEA report is September 02, 2010.

2.3 Sources of Information

This report is based on data supplied by Antares, as well as previous technical reports by third parties. Tt has prepared this report exclusively for Antares. The information presented, opinions and conclusions stated, and estimates made are based on the following information:

- Source documents used for this report are summarized in the Reference Section of this report;
- Assumptions, conditions, and qualifications as set forth in the report;
- Data, reports, and opinions from prior owners and third-party entities; and
- Personal inspection and review.

Tt has not independently conducted any title or other searches, but has relied upon Antares and their legal firm for information on the status of the claims, property title, agreements, permit status and other pertinent conditions. In addition, Tt has not independently conducted any sampling, mining, processing, economic studies, permitting or environmental studies on the property.

2.4 Qualifications of Consultant

This report has been prepared based on technical work performed by consultants sourced from Tt's Golden, Colorado office. These consultants are specialists in the fields of geology, mineral resource estimation, mineral reserve estimation and classification, mining, mineral processing and mineral economics.

John Rozelle, Mike Kolin, Don Tschabrun, Ken Rippere and Charles Khoury (all representing Tt) visited the property from April 10 through 14, 2008. During the visit they examined the exploration drilling sites, core storage facility in Arequipa, drill core at site and in Arequipa, potential process and facility location sites, and surface water storage locations.

Neither Tt nor any of its employees and associates employed in the preparation of this report has any beneficial interest in Antares or in the assets of any affiliated company. Tt will be paid a fee for this work in accordance with normal professional consulting practice.

The individuals who have provided input to this Technical Report are listed in TABLE 2-1.

Company	Name	Title
Antares Minerals Inc.	John Black	President and CEO
	Kevin B. Heather, Ph.D.	Vice President Geology
	Joe Fernandez	Vice President Development
	Hubert Gamarra	General Manager - Peru
Tetra Tech, Inc.	John Rozelle, PG	Principal Geologist
	Steve Krajewski, Ph.D.	Sr. Geologist
	Rex Bryan, Ph.D.	Sr. Geostatistician
	Ed Lips, PE	Sr. Open Pit Mining Engineer
	Lee Aga	Sr. Mine Planner

TABLE 2-1: Key Project Personnel

2.5 Basis of Report

This report draws heavily on information contained in the prior Technical Report on Haquira dated April 16, 2010. Information from internal Antares reports is generally credited by this reference and may or may not be specifically referenced.

Information provided by Antares includes:

Assumptions, conditions, and qualifications as set forth in the report;

Land status - an opinion on current validity of the Haquira mineral claims held by Antares as described in Section 4.2 was expressed by the Peruvian law firm Estudio Grau, as discussed in Section 4.0. Tt has not conducted a legal review of the land ownership or property boundaries and is relying on the legal opinion of the Estudio Grau law firm.

Drill hole records;

Property history details;

Sampling protocol details;

Geological and mineralization setting;

Copper and other assays from original assay records and reports.

2.6 Units and Abbreviations

Unless explicitly stated otherwise, all units presented in this report are in metric units (i.e. metric tonnes (tonnes), kilometers (km), centimeters (cm), percent (%), grams per metric tonne, and parts per million (ppm)). All references to economic data are in U.S. dollars.

TABLE 2-2 sets forth certain standard conversions from Standard Imperial units to the International System of Units (or metric units).

To Convert from Imperial Units	To Metric	Multiply by:
Acres	Hectares	0.404687
Feet	Meters	0.30480
Miles	Kilometers	1.609344
Tons	Tonnes	0.907185
Troy Ounces	Grams	31.1035
Troy Ounces/ton	Grams/tonne	34.2857

 TABLE 2-2:
 Standard Conversion Factors

Abbreviations of technical terms used in this report:

AA Ag	atomic absorption silver
Ay	gold
As	arsenic
AsCu	acid soluble copper grade
cm	centimeter
CnCu	cyanide soluble copper grade
Cu	copper
CV	coefficient of variation
g	gram(s)
g/t	grams per tonne
GIS	geographic information system
GPS	global positioning system
ha	hectare(s)
Hg	mercury
ICP	inductively coupled plasma
IP	induced polarization (geophysical survey)
kg	kilogram(s)
km	kilometer(s)
lb	pound
m	meter(s)
mm	millimeter
Mo masl	molybdenum meters above sea level
NSR	Net Smelter Return
OZ	ounce (troy)
Pb	lead
ppb	parts per billion
ppm	parts per million
QA/QC	quality assurance / quality control
RQD	rock quality designation
RVC	reverse circulation drilling
Sb	antimony
SX/EW	solvent extraction / electro winning
TCu	total copper grade
tonne	metric tonne (2,204.6 pounds)
tpd	tonnes per day
VLF-EM	very low frequency electromagnetic (survey)
Zn	zinc

3.0 RELIANCE ON OTHER EXPERTS

Tt received written or verbal data from the persons listed below in the preparation of this report.

- Mr. John Black, President and CEO, Antares Minerals (a Qualified Person);
- Mr. Kevin Heather, Ph.D., Vice President Geology, Antares Minerals;
- Mr. Joe Fernandez, Vice President Development; and
- Mr. Hubert Gamarra, Director of Exploration, Minera Antares Peru.

Metallurgical reports from METCON, an independent testing lab in Tucson, Arizona, and RDi, an independent testing lab Denver, Colorado, were used in preparation of Section 16.0.

Tt verified the information received through the property inspection referred to in Section 2.4 and by reviewing and validating, to the extent possible, data from independent sources. John Rozelle has personally reviewed input from other experts in order to ensure that it meets all of the necessary reporting criteria as set out in Canadian Instrument NI 43-101 guidelines.

4.0 **PROPERTY DESCRIPTION AND LOCATION**

4.1 Location

The Haquira project is located approximately 270 km northwest of Arequipa and 80 km southwest of Cuzco, Peru in Apurimac Department of Peru (FIGURE 4-1). The Project is located at approximately latitude 14° 09' south and longitude 72° 20' west.

4.2 **Property Description**

Minera Phelps Dodge del Peru S.A.C. Joint Venture

Based on the legal opinion from Antares' Lima law firm, Estudio Grau, Minera Antares Peru S.A.C. is beneficially 100% owned by Antares Minerals Inc. (an Alberta corporation), is legally registered in Peru, and is not currently subject to any legal action by the Peruvian authorities.

The core of the Haquira property was acquired by Minera Antares Peru S.A.C., under the terms of a 100% option to purchase agreement, from Minera Phelps Dodge Peru S.A.C. ("PD Peru"), on March 4, 2005. Antares has earned a 100% interest in the property by completing option payments totaling US\$15 million over a five-year period. The final payment of US\$5 million was completed on February 23, 2010 and title transfer is currently in process and scheduled to be completed in September, 2010 In addition, upon completion of a feasibility study, if the in situ copper mineral resource, at a 0.3% total copper cut off grade, exceeds 2.2 billion pounds (lbs) of copper amenable to SX/EW processing (greater than 50% recovery by standard sequential leach analysis), Antares must make an additional payment to PD Peru equal to US\$0.01 for each pound of copper in excess of the 2.2 billion-lb threshold.

Mineral Properties

The Haquira project mineral property consists of 24 concessions, as shown in TABLE 4-1. Location of the concessions is shown in FIGURE 4-2. Antares has a 100% interest in 17 of these mining concessions and the option to acquire up to a 60% interest in the remaining 7 mining concessions (Cristo de los Andes property) by means of an option agreement with Minera del Sureste S.A.C. (MISOSA).Total area of the concessions is 20,900 ha, although as noted below, the effective area may be slightly less: 20,635 ha.

Seven of the concessions (Haquira 1, Haquira 2, Haquira 3, Haquira 4, and Gato 5, Claudita 17, and Claudita 18) total 5,400 ha and are registered to PD Peru. They form the original property subject to the option to purchase agreement between Antares and PD Peru, and are generally referred to as the "MPDP properties". The titles of these seven concessions are currently being transferred to Antares. Ten concessions (Haquira 5 through 14) total 9,100 ha and were located in 2005 through 2007 by Antares Peru. These ten concessions are subject to inclusion in the option to purchase agreement between Antares and PD Peru. The remaining 7 concessions were acquired in 2008 and are based on an Option Agreement with Minera del Suroeste S.A.C. (MISOSA) which grants Antares the option to acquire up to a 60% interest in the Cristo de los Andes Property consisting of these seven concessions. Antares' interest in the Cristo de los Andes concessions is also subject to inclusion in the option to purchase agreement between Antares and PD Peru.

The concessions have not been legally surveyed, as there is no requirement to do so by Peruvian law. The concessions are valid for an indefinite period-of-time, as long as annual license fees and minimum production levels (or penalties if these are not met) are kept in good standing.



Based on the legal opinion from Antares' Lima law firm, Estudio Grau, regarding the 17 concession held by MPDP and Antares, all were filed in good order as indicated in TABLE 4-1.

The Haquira project is contiguous with, and immediately to the south of, the Las Bambas Special District (legal name: *Area de Influencia de la UEA Ferrobamba y Chalcobamba),* which was established by the Peruvian government in 1992 to guide investment and development of the long-known Ferrobamba, Chalcobamba, Sulfobamba, and Charcas deposits (see FIGURES 4-1 and 5-1).

Xstrata Copper has announced that its Board has commited the funds required to develop the Las Bambas project. Antares indicated that the Estudio Grau legal opinion points out that the Claudita 17 and 18 concessions filed in 2004 partly overlap into the Las Bambas Special district. (There were no previous concessions within the overlap area). The areas of overlap are 141.43 ha for Claudita 17 and 123.41 ha for Claudita 18. Antares indicated that it is not clear from the Estudio Grau report whether the overlap area is effectively controlled by Antares or not. For purposes of this report, the question is moot, as there are no drillholes on or near Claudita 17 and 18 (see FIGURE 4-2), and no defined mineral resource on these concessions.

Based on the legal opinion from Antares' Lima law firm, Estudio Grau, and subsequent payment receipts provided by Antares, the mineral rights listed in TABLE 4-1 are in good standing with respect to all required License payments and filings, as of August 30 2010. The annual License payments (see Section 4.3.2) have been made for the year 2010 for all concessions. The next annual payments for concession fees are due by June 30, 2011 and have been considered in the budget presented for the 2011 work program in SECTION 21.1 of this document.

The Haquira 1, Haquira 2, Haquira 3, Haquira 4, Gato 5, and Cristo de los Andes 1 concessions are subject to the minimum production Penalty (see Section 4.3.2). According to Estudio Grau, the Penalty may be paid each corresponding year, or Antares may become exempt from the Penalty with respect to any concession, if it had invested no less than 10 times the amount of the Penalty during the previous year.

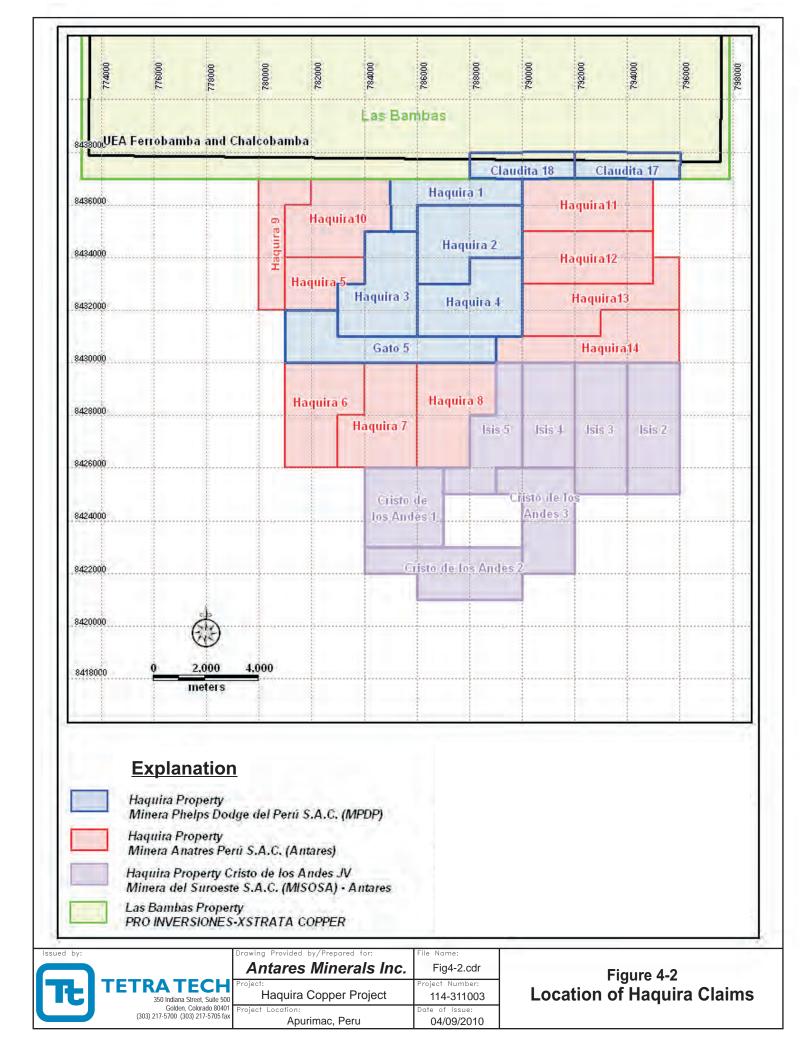
Concession	Code	Titlebelden	Location (Apurim	Area	
Concession Number Titleholder		District	Province	(ha)	
HAQUIRA 1	01-00004-01	MDPD ⁽³⁾	Progreso Challhuahuacho	Grau Cotabambas	600
HAQUIRA 2	01-00005-01	MDPD ⁽³⁾	Progreso Challhuahuacho	Grau Cotabambas	1000
HAQUIRA 3	01-00006-01	MDPD ⁽³⁾	Progreso Challhuahuacho	Grau Cotabambas	1000
HAQUIRA 4	01-00007-01	MDPD (3)	Challhuahuacho	Cotabambas	1000
GATO 5	01-00008-01	MDPD ⁽³⁾	Progreso Challhuahuacho	Grau Cotabambas	1000
CLAUDITA 17 ⁽¹⁾	01-03340-94	MDPD ⁽³⁾	Challhuahuacho	Cotabambas	400 (258.57)
CLAUDITA 18 ⁽¹⁾	01-03341-94	MDPD ⁽³⁾	Challhuahuacho	Cotabambas	400 (276.59)
HAQUIRA 5	01-01287-05	Antares	Challhuahuacho	Cotabambas	500
HAQUIRA 6	01-01288-05	Antares	Challhuahuacho	Cotabambas	1000
HAQUIRA 7	01-01289-05	Antares	Challhuahuacho	Cotabambas	1000
HAQUIRA 8	01-01290-05	Antares	Challhuahuacho	Cotabambas	1000
HAQUIRA 9	01-03318-07	Antares	Progreso	Grau	600
HAQUIRA 10	01-03319-07	Antares	Progreso Challchuahuacho	Cotabambas / Grau	1000
HAQUIRA 11	01-03320-07	Antares	Challhuahuacho	Cotabambas	1000
HAQUIRA 12	01-03321-07	Antares	Challhuahuacho	Cotabambas	1000
HAQUIRA 13	01-03323-07	Antares	Challhuahuacho	Cotabambas	1000
HAQUIRA 14	01-03325-07	Antares	Challhuahuacho	Cotabambas	1000
Cristo de los Andes 1 ⁽²⁾	01-01454-00	MISOSA	Challhuahuacho	Cotabambas	900
Cristo de los Andes 2 ⁽²⁾	01-01098-06	MISOSA	Challhuahuacho	Cotabambas	1000
Cristo de los Andes 3 ⁽²⁾	01-01099-06	MISOSA	Challhuahuacho	Cotabambas	900
Isis 2 ⁽²⁾	01-03432-03	MISOSA	Challhuahuacho	Cotabambas	1000
Isis 3 ⁽²⁾	01-03433-03	MISOSA	Challhuahuacho	Cotabambas	1000
Isis 4 ⁽²⁾	01-01096-06	MISOSA	Challhuahuacho	Cotabambas	800
Isis 5 ⁽²⁾	01-01097-06	MISOSA	Challhuahuacho	Cotabambas	800

TABLE 4-1: Haquira Mineral Concessions

⁽¹⁾ The Claudita 17 and Claudita 18 concessions partially overlap with the Las Bambas Special District. The values in parentheses indicate the portions of each concession which do not overlap with the Las Bambas Special District.

⁽²⁾ Antares has an Option Agreement with Minera del Suroeste S.A.C. (MISOSA) which grants Antares the option to acquire up to a 60% interest in the Cristo de los Andes Property consisting of the seven concessions listed in the TABLE above. The Cristo de los Andes Property falls within the Area of Interest of the Option Agreement between MPDP and Antares which grants Antares the right to acquire the Haquira Project. Antares' interest or potential future interest in the Cristo de los Andes Property therefore is included in the Haquira Property as defined by the Haquira Option Agreement.

⁽³⁾ The Haquira 1, Haquira 2, Haquira 3, Haquira 4, Gato, Claudita 17, and Claudita 18 concessions are currently registered to PD Peru (MPDP or Minera Phelps Dodge del Peru) but the titles are in the process of being transferred to Antares.



4.3 Mineral Title in Peru

Concession Title

The concession system is the mechanism devised under Peruvian law to grant rights to conduct mineral exploration and exploitation activities. Mineral rights are separate and distinct from the surface rights. Under *Decreto Supremo* 014 of 1992, which incorporates the *Ley de Promoción Minera, Decreto-Ley* 708 of 1991, mineral rights are granted by the Peruvian government as a concession for an indefinite term. Applications are received on a first-come, first-served basis, in a non-discretionary administrative procedure conducted nationwide by the National Institute of Mining Concessions and Cadastre (Instituto Nacional de Concesiones y Catastro Minero - INACC), an agency of the Ministry of Energy and Mines.

A mineral right in Peru is a property right, distinct and independent from the ownership of the surface of the land on which it is located, even when the same owner holds both the surface and the subsurface rights. Mineral rights are freely transferable, in whole or in part, and can be transferred, optioned, leased, or given as collateral or mortgage, with no need for approval from any governmental entity. Holders of mining concessions are entitled to all protections available to private property owners under the Peruvian Constitution and other applicable laws.

The mining law has provisions which:

- guarantee land tenure for mineral rights distinct from surface rights where a minimum rental must be paid to hold title on mineral rights;
- enumerates only specific and limited circumstances, arising mostly due to negligence of the title holder, under which mineral rights may be lost with no discretionary power by the mining authority;
- grants equal rights to explore for and exploit minerals by way of concession to both Peruvian nationals and foreigners;
- establishes tax, administrative and exchange stability for mining investors; there are no additional government royalties or production monetary obligations imposed on mineral rights; and
- establishes the right to sell mineral production freely on world markets.

The Peruvian government currently has in place measures to attract foreign investment, including measures that grant new property rights and guarantees to foreign investors and financial incentives for investment in the mining sector.

Acquisition and Maintenance of Mineral Rights

Mineral rights are single concessions for exploration and exploitation. They can be granted for metallic or non-metallic minerals, and may not overlap. Exploration and exploitation works can be carried out once title to concession has been granted, except in those areas of overlap with pre-existing claims or concessions applied for before December 15, 1991.

Mineral rights in rural areas are granted in units of 100 ha with a maximum of 10 units (1,000 ha) in a rectangular shape defined by north-south east-west orientated UTM coordinates. All transactions pertaining to mineral rights must be entered into a public deed and registered with the Public Mining Registry.

There are three key obligations that all mineral right holders must comply with to keep a mineral right in good standing, according to source: Article 40 of the Mineral Law as amended by Laws

No. 27341 and 27651 published in the Official Gazette on August 18, 2000 and January 24, 2002). These are:

- payment of an annual License Fee ("Derecho de Vigencia") is US\$3.00 per hectare by June 30th of each year;
- attainment of a minimum required annual production of US\$100 per hectare in gross sales within six years following the grant of the concession; or
- payment of a Penalty ("Penalidad") of US\$6.00 per hectare for the 7th through 11th year following the granting of the concession, and of US\$20.00 per hectare thereafter, if the minimum required production is not attained.

Small scale and artisanal miners are subject to the same obligations at reduced rates.

4.4 Environmental Baseline Data Collection

Environmental baseline data collection was initiated by Antares in 2007, using Golder Associates from Lima, Peru. Study areas to date include surface water hydrology and water quality, seep and spring surveys, air quality, climatology and noise. Additional studies have been initiated for incorporation into the ESIA including geochemical characterizations of waste rock, tailings and heap leach residues and hydrogeologic investigations including baseline ground water quality characterization. A \$3.2 million allowance for permitting and to complete the baseline studies has been included in the cash flow projections (TABLE 1-7).

4.5 Permits

As in other countries, a number of permits are required in Peru to perform exploration or production work. The required permits are described in TABLE 4-2.

When the mining concessions that comprise the Haquira project mineral property were originally located they were subject to an environmental permitting process that consisted of three categories of Environmental Assessment (EA) permits – Categories A, B, and C. The previous work by PD Peru and the work conducted by Antares from 2005-2009 was under the auspices of this environmental permitting process. To summarize the three levels of Environmental Assessment (EA) permits, Categories A, B, and C:

- Category A allowed for non-invasive surface exploration: mapping, geophysical studies and geochemical sampling;
- Category B allowed for up to 20 drilling platforms and drifts of up to 50 m (the development of exploration drifts, however, also required a mine closure plan, complete with ARD studies and plans that effectively push this into the category of an ESIA); and
- Category C allowed for more extensive drilling and was approved upon submission of a proposal. It included the possibility of drifts but with the same caveat described in Category B.

The permitting process has recently been revised resulting in a new classification system for future environmental permits. The original three-tier permit system has been redefined with a new two-tier system consisting of a Category 1 Declaration of Environmental Impact (Declaracion del Impacto Ambiental - DIA) permit (essentially replacing the former Category A and Category B permits) and a Category 2 Semi-detailed Environmental Impact Assessment (EIA-SD) that replaces the former Category C permit. Antares explored the Haquira project with

a valid Category C Environmental Assessment Permit or an extension thereof through to December, 2009. Antares has a currently approved Category 2 EIA-SD permit for activities planned in 2010 – 2011.

Both the former and revised EA permitting process require a company to consult and advise the communities during the exploration process. Beyond Category C, an ESIA was and will be required prior to any major development or mining activity. The ESIA cannot be submitted until a Feasibility Study is completed.

To the best knowledge of Antares and Tt, there are no obvious environmental issues on the Haquira property, except those associated with surface-rights ownership, as discussed in Section 5.5.

Current Required Permits	Issuing Agency	Begin	End	Comments	
Municipal Operations	Municipality,	01/08/2007	Indefinite	Allows Antares to maintain an	
Permit Domestic Water	Yanahuara, Arequipa (ANA/ALA) Cusco Water District-RA- 134-2010-ANA/ALA- CUSCO	07/07/2010	Dec. 2010	office in Yanahuara, Arequipa	
Industrial Water	(ANA/ALA) Cusco Water District-RA- 134-2010-ANA/ALA- CUSCO	07/07/2010	Dec. 2010		
Category C - Environmental Assessment (EA)	Ministry of Energy and Mines-RD-484-2005- MEM/AAM	11/14/2005	14/02/2007	Initial drilling by Antares Minerals at Haquira	
Category C – EA	Ministry of Energy and Mines Resolution RS. 182-2007-MEM/AAM	05/04/2007	10/4/2009	Modification of previous EA for extended/definition drilling;	
Category C – Three months EA extension	Ministry of Energy and Mines and Osinergmin	09/10/2009	12/10/2009	Three month extention to Category C – EA to allow drilling to December 2009	
Semi-detailed Environmental Impact Study (EIA-SD)	Ministry of Energy and Mines - RD-160-2010- MEM/AAM	05/11/2009	11/11/2011		
Radio Use Permit	Ministry of Transportation and communication – LIC200700000092	03/02/2007	03/09/2012		
Diesel	Ministry of Energy and Mines - Register 88029-704-2010	08/04/2010	08/04/2011		
Sanitary authorization for treatment and disposal systems for domestic water and wastes	DIGESA – Ministerio de Salud RD- 0098/2009/DIGESA/S A	09/01/2009		Permission will be active unless the place and process change	
Sanitary authorization for a new treatment and disposal systems for domestic water and wastes	DIGESA -	09/03/2010			
Sanitary authorization for recirculation of water for industrial use (drilling)	DIGESA – Ministerio de Salud – R.S. 2331/2008/Digesa/SA	01/07/2010		Permission will be active unless the place and process change	
Sanitary authorization for potable water treatment system	DIGESA – Ministerio de Salud – RD 0592- 2009/DIESA/SA	11/02/2010		Permission will be active unless the place and process change	
Future Permits Required					
Environmental and Social	Ministry of Energy and			Not yet applied for – must	

TABLE 4-2	Permits Re	equired for Haquira
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Current Required Permits	Issuing Agency	Begin	End	Comments
Impact Study (Estudio de Impacto Ambiental - ESIA)	Mines			complete Feasibility Study first
Road Permit	Ministry of Transportation and communication			Not yet applied for – must complete Feasibility Study first
Production Water Permit	(ADTR) Cusco Water District			Not yet applied for – must complete Feasibility Study first
Explosives Permit				Not yet applied for – not required until operations commence
Water Drilling Permit	(ADTR) Cusco Water District			Application prepared and ready to be submitted

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Access

There are two principal access routes to the Haquira project, one from Arequipa and the other from Cuzco, both of which have scheduled air service from Lima. From Arequipa, the total distance by road is about 490 km with the first half paved and the second half gravel. From Cuzco the total distance by road is 180 km via an improved gravel road that is partially paved near Cuzco. Maintenance of the gravel roads between Yauri (Arequipa route) and the project site is minimal during the rainy season (January to March). Antares maintains an office and core storage facility in Arequipa.

5.2 Climate

The region is high-altitude with temperate climate. Rainfall is abundant between December and March (summer), while nighttime freezing temperatures are reached during the winter months of June to August. Snow on the ground is rare. The information in TABLE 5-1 is based on data for the Cuzco area, which is approximately 70 km from the Haquira Project. Rainfall near the site has been recorded up to 290 mm in one month. Although the property receives significant rainfall, it is reasonable to expect that operations could be conducted year-round.

Parameter	Minimum	Month	Maximum	Month
Total Monthly Precipitation	2.5mm	June	160mm	January
Average Monthly Temperature	2 °C	June	21 ⁰C	December

 TABLE 5-1:
 Average Monthly Precipitation and Temperature for the Haquira Area

5.3 Local Resources and Infrastructure

The Haquira project is located in a remote part of southern Peru. Should the project be brought into development/production then improvements to the access roads will be necessary for transport of major equipment to develop the project. The nearest town with services is Chalhuahuacho, located about 10 km east of the Project. All supplies and fuel for the region are trucked in from either Arequipa or Cuzco. Although surface and ground water is in abundant supply, reservoirs will need to be constructed to maintain continuous water supply for the project. Electric power will have to be brought in to the property via a new transmission line of approximately 100 km.

Xstrata Copper has announced corporate approval to develop the Las Bambas copper project locatd immediately north and adjacent to the Haquira project (FIGURE 5.1) Antares could possibly benefit from the infrastructure improvements (primarily access road, power line, and concentrate slurry pipeline) that will be required for the Las Bambas Project.

In June 2006, Antares Minerals contracted Nexos Comerciales S.A.C. of Lima to complete the construction of a 60-person field camp located adjacent to the community of Huanacopampa, which is immediately north of the Haquira Project (FIGURE 5-2). The camp consists of a kitchen

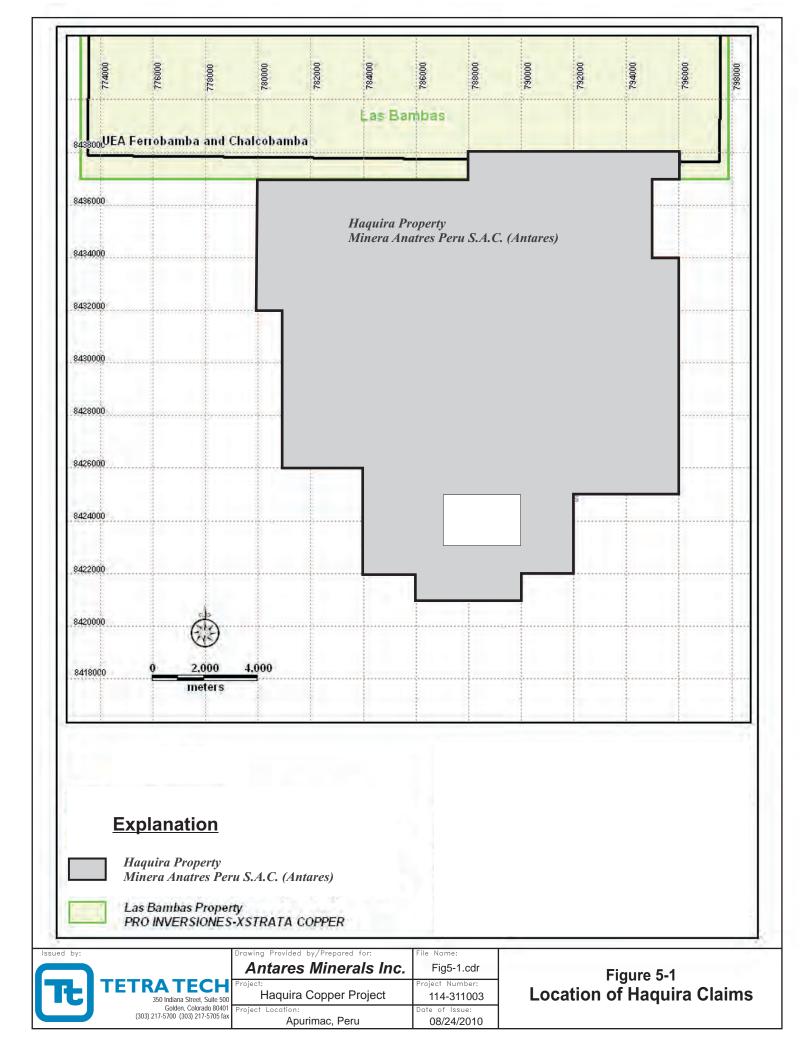




FIGURE 5-2: View looking south of the Haquira Camp (right) and Huanancopampa village site (left)

building, dormitory buildings for Antares staff, guests and drilling contractors, and various weatherhaven-style buildings for offices and warehouses. The camp has been expanded to accommodate 100 persons.

The Company recognizes the need to train and develop local personnel as a future labor source. Local residents are currently employed in the Haquira exploration activities. Employment is coordinated with community councils and local government. The region is not far from the town of Espinar and the Tintaya operation, which has established excellent local training programs for residents in the area. Antares has good contacts with Tintaya and its operator, Xstrata Copper, and will benefit from the established training programs and employment techniques in use at Tintaya.

5.4 Physiography

The region encompasses parts of the intermountain depressions between the Eastern and Western Cordilleras and the northern extremity of the Altiplano. The western part of the belt is characterized by rugged, mountainous topography where ranges and snow-capped peaks above 4,500 m are incised by deep (>2,000 m), steep-sided canyons. These canyons constitute the main drainage systems of the region, which drain to the Amazon basin. The eastern and southern parts of the region are characterized by the gently undulating topography of the 4,000-m high plateaus that extend into the Altiplano of Bolivia.

The geomorphology of the property consists of gently rolling hills with grassy vegetation interspersed with steep rocky ridges rising 150 to 200 m. Base levels of the valleys are approximately 3,000 m above sea level, with peaks rising to over 5,000 m. Elevations on the Haquira property range from approximately 3,500 to 4,600 m.

The terrain has been subject to Alpine glaciations, with moderately well-developed cirques formed on resistant ridges. Erosion was more advanced in lower-elevation areas, resulting in the rolling topography with shallow valleys.

Rock outcrops are somewhat limited, although the quartzite units form prominent hills and cliffs on the property. Locally, there are well-developed "peaty" soil profiles, which effectively mask much of the property geology. The known mineralized zones at Haquira are located in areas primarily used for animal grazing and potato cultivation.

5.5 Surface Rights

Sufficient land surface area exists on the company concession areas to locate surface leach sites, the plant processing area, tailings storage facilities and waste rock facilities. Antares and PD Peru hold the mineral rights to the property, but they do not currently hold the surface rights (the PD Peru mineral rights are currently being transferred to Antares). The communities of Huanacopampa, Pararani, Lahuani, and Ccahuanhuire hold historical communal rights to the surface areas that will most likely be impacted by the Antares operation. Cconchacota, Choccoyo, Huaroccoyo, Tambulla, Anta Anta, Huancuire, Quena, Ccasa, Chuycuni, Chicnahui, Ccahuapirhua, and Cconccacca are local communities that may be impacted by the Antares operation depending upon which options are selected for surface leach sites, the plant processing area and tailings storage facilities. Antares is engaged in discussions with the appropriate community leaders to pursue acquisition of surface rights necessary to develop the project. Antares has good relations with the local communities, and employs the majority of its workers from the surrounding communities. Thus, Antares believes that surface rights will be obtainable.

Acquisition of surface rights by Antares will result in the potential relocation of 600-1000 local residents to allow for development of the project. Resettlement action plans are being formulated and will detail the required process at the appropriate time. Any necessary resettlement will be accomplished by agreements with land owners, local communities, local and federal government officials, and be in accordance with Equator and World Bank resettlement guidelines.

6.0 HISTORY

There has been no mineral production from the Haquira property described herein.

High-grade copper-bearing skarn mineralization has been known for many years at the Las Bambas area, just north of Haquira (FIGURE 5-1). Exploration at Haquira started with work by PD Peru in 2000. The following description of the exploration history on the property is summarized from Phelps Dodge (2004).

PD Peru embarked on a regional stream-sediment sampling program in the area in 2000. Anomalies were traced to the source areas and copper oxides were recognized at surface in the project area. In 2001, 5 claims covering 4,600 ha were applied for and granted. Mapping, sampling, and 2-pole-dipole-induced polarization (IP) lines were completed during the third quarter of 2001. During the fourth quarter of 2001, 7 reverse circulation (RVC) holes were drilled totaling 743 m; the last hole, HAC-07, was lost due to operational problems at 32 m. The last 10 m of this hole contained 1.20% total copper (TCu) contained in fine-grained black copper oxides hosted by a redbed sequence.

Further sampling and refinement of the geologic map/model continued during 2002; in addition, gradient IP and single-pole-dipole IP line were acquired. Later in the year, eight RVC holes were drilled totaling 1,369 m. Although focus was on the southern sector of the prospect, a road cut in the northern sector exposed 114 m of 0.65% TCu as copper oxide and chalcocite. Drillhole HAC-08 in this area encountered 21 m of 0.54% TCu as black oxides and 174 m of 0.39% TCu and 0.012% Mo in an intrusive in the primary (chalcopyrite) zone. This drillhole was the first true expression of porphyry-copper-deposit-style mineralization even though all previous drillholes encountered sulfides, mainly disseminated pyrite.

A soil-sampling grid was completed after the 2002 drill program. This sampling was the basis for the third drill program during the second quarter of 2003, which consisted of 10 RVC drillholes totaling 1,883 m. Seven of these drillholes encountered secondary mineralization grading between 0.35% and 0.88% TCu over intervals between 12 and 43 m near the surface; an eighth hole intercepted 219 m of 0.62% TCu, which included 93 m of 0.88% TCu.

The soil grid was immediately expanded and infilled. Then during the fourth quarter of 2003, an approximate 200-m grid was drilled, with 24 core holes for 3,460 m and 36 RVC holes for 3,926 m, around the best intercepts and surface anomalies.

An in-house resource estimate was completed by PD in February 2004. Antares does not have any PD documents regarding this estimate. It is unknown to Antares or Tt if the PD estimate complies with NI 43-101 requirements.

Minera Antares acquired the property from PD Peru under a Joint Venture agreement, dated March 4, 2005, as described in Section 4.2. A mineral resource calculation was developed by Chlumsky, Armbrust & Meyer ("CAM") in a NI 43-101-compliant Technical Report in 2005. CAM prepared updated mineral resource estimates through NI 43-101-compliant Technical Reports in 2006 and 2007 based on additional drilling through 2006. In May 2008 CAM prepared an NI 43-101-compliant Preliminary Assessment Technical Report based on the mineral resource estimate from December 2007 (all drilling through 2006).

CAM's December 2007 Indicated and Inferred mineral resource estimates are presented in TABLES 6-1 and 6-2, respectively. These estimates were based on TCu grade in the oxide, secondary sulfide (chalcocite) and primary sulfide mineral zones. Mineral resources were estimated using the inverse distance squared method.

Mineralization Type	Cutoff (TCu %)	KTonnes	Grade (TCu %)
	0.30	1,506	0.512
Colluvium and Leached Cap	0.25	1,753	0.477
	0.20	3,048	0.369
	0.30	133,672	0.526
Enriched (Oxide and Secondary Sulfide)	0.25	170,429	0.471
	0.20	212,274	0.423
	0.30	135,178	0.525
Total Leachable	0.25	172,182	0.471
	0.20	215,322	0.422

TABLE 6-1: Indicated Mineral Resources – East and West (CAM, 2007)

TABLE 6-2: Inferred Mineral Resources – East and West (CAM, 2007)

Mineralization Type	Cutoff (TCu %)	KTonnes	Grade (TCu %)		
	0.30	278	0.366		
Colluvium and Leached Cap	0.25	417	0.334		
	0.20	805	0.279		
	0.30	43,642	0.442		
Enriched (Oxide and Secondary Sulfide)	0.25	59,076	0.399		
	0.20	77,191	0.358		
	0.30	43,920	0.442		
Total Leachable	0.25	59,493	0.398		
	0.20	77,996	0.357		
	0.30	95,832	0.451		
Primary Sulfide	0.25	136,455	0.398		
	0.20	190,788	0.348		

7.0 GEOLOGY

The following description of the regional geology is summarized from PD Peru (2004) and Perello et al (2003).

In 2008, consultant geologist Phillip Gans was contracted to produce a map of the geology for the Haquira project, with an emphasis on providing a more integrated evaluation of the structural geology and stratigraphy of the property. The discussion below of the local geology is summarized after Gans (2008) and Pratt (2006).

7.1 Regional Geology

The Andean cordillera in Peru consists of parallel belts of Palaeozoic and younger rocks, resulting from subduction of the Nazca Plate beneath the South American Craton. Tertiary intrusive and volcanic rocks are widely distributed.

The Haquira project is located in the Oligocene Andahuaylas-Yauri Belt of southern Peru (FIGURE 7-1). The northern part of this belt is characterized by east west striking, north-verging Cretaceous thrust faults, which is a trend transverse to the north-northwest-trending magmatic arcs in most of Peru.

Oligocene intrusive bodies lie in an east-west trend, and intrude the faulted and folded Jurassic-Cretaceous sedimentary sequence. These intrusive rocks have given rise to skarn and porphyry-style mineralization of copper, molybdenum, and gold in several districts.

7.2 Local Property-scale Geology

The local geology of the Haquira deposit area has been the subject of three distinct mapping programs; PD Peru (2004), Pratt (2006). and most recently by Gans (FIGURES 7-2, 7-3, and 7-4). The geology summarized herein is that of Pratt (2006) and Gans (2008). Due to the somewhat limited outcroppings in the area (especially the Haquira East area), there are not drastic differences between the three aforementioned geological maps; however there has been continuing refinement of the stratigraphy, structural geology, and the distribution of igneous intrusive rock phases.

Rock Units

The stratigraphy of the Jurassic-Cretaceous sedimentary rocks and Oligocene intrusive rocks are shown on FIGURE 7-5.

Sedimentary Rocks

The Upper Jurassic to Middle Cretaceous sequence consists of, from oldest to youngest: 1) Chuquibambilla Formation - intercalated, gray-black, thin-bedded shales, siltstones, and sandstones, 2) Soraya Formation – light gray, thin- to thick-bedded arenites with three intercalated siltstone units near the top of the sequence, and 3) Mara Formation – red shales, siltstones, and sandstones. The Oligocene intrusions silicified the arenites and converted the redbeds into epidote-bearing hornfels.

Quartzite (QZTE)

The Quartzite (QTZE) unit, part of the Soraya Formation, is the most abundant sedimentary rock type on the Haquira property and hosts a significant portion of the known secondary copper mineralization, especially at Haquira West. Individual beds can be massive (Photos 1, 2, and 3), several ten's of meters in thickness, but it is very common to find the quartzites with minor

intercalations of fine- to medium-grained clastic sedimentary rocks (Photos 6, 7, and 8). The quartzites are fairly homogeneous and well sorted; however grain size variations ranging from siltstone (Photo 10 to pebble conglomerate do occur (Photos 12, 13, 14,, and 15). They are typically light-grey colored, although a white-colored version occurs where the degree of silicification is stronger.



Photo 1: Massive quartzites (QTZE); Soraya Fm.



Photo 2: Massive quartzites (QTZE); Soraya Fm.



Photo 3: Massive quartzite (QTZE).



Photo 4: Pebble conglomerate sized quartzite (QTZE).

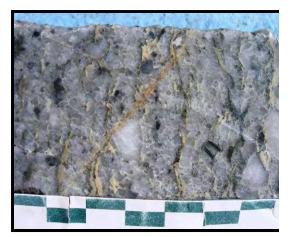


Photo 5: Close-up of Photo 4



Photo 6: Medium-grained, bedded silt-sized quartzite (QTZE).



Photo 7: Overall view of quartzites with minor interbeds of mudstone which have been replaced by pyrite.



Photo 8: Close-up of Photo 7.



Photo 9: Close-up of Photo 8.



Photo 11: Close-up of Photo 10.

Undifferentiated Fine-grained Clastic Sedimentary Rocks (FCSU)

These undifferentiated fine-grained clastic sedimentary rocks (FCSU) occur throughout the Haquira property. The FCSU unit consists of a mixed sequence of siltstones and mudstones; which is commonly gently dipping to the west, very thinly bedded and fairly well-sorted (Photos 12 and 13). When fresh or very weakly altered, these fine-grained clastic sedimentary rocks may vary its color from dark grey to brown or dark green (Photos 14 and 15). Alteration imparts a bleached coloration in these rocks (Photo 15). They commonly occur intercalated with quartzites of the Soraya Formation in the central part of the property and also used to identify rocks from the Chuquibambilla and Mara Formations. Syngenetic pyrite is also a common occurrence within the black, fine-grained sedimentary rocks, especially the Chuquibambilla Formation (Photos 18, and 19).

Hypogene mineralization appears to be preferentially hosted by certain rocks of the FCSU unit when located close to a mineralized intrusion. The reason why certain rocks reacted more favorably to mineralizing fluids than others still remains to be fully clarified, however the presence of very fine grained carbonates, that can led to a pseudo-skarn process, might be possible.



Photo 12: Overall view of fine-grained black sedimentary rocks.



Photo 14: Close-up of a relatively unaltered, fine-grained black sedimentary rock.



Photo 13: Overall view of fine-grained black sedimentary rocks; note the bleached white coloration due to alteration.



Photo 15: Close-up of an altered, finegrained sedimentary rock.



Photo 16: Finely bedded sedimentary rock.



Photo 17: Close-up of Photo 16.

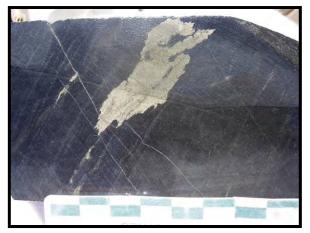


Photo 18: Close-up view of syngenetic pyrite in a fine-grained black sedimentary rock of the Chuquibambilla Formation.

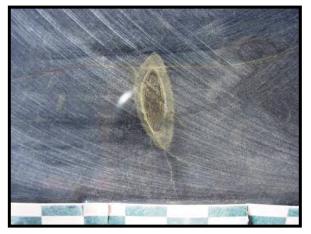


Photo 19: Close-up view of syn-sedimentary pyrite concretion in a fine-grained black sedimentary rock.

Intercalated Quartzites and Fine-grained Clastic Rocks (IQFC)

The IQFC unit is used in those areas where it was impossible or not practical to discriminate between quartzites (QTZE) and fine-grained clastic rocks (FGCU) units during the logging program. Areas logged as IQFC usually consist of finely intercalated beds of quartzite and fine-grained sedimentary rocks (Photos 20 and 21); with bedding widths typically ranging from a few millimeters to several centimeters (Photos 22 and 23).



Photo 20: Intercalated quartzites and fine-grained clastic sedimentary rocks (IQFC).



Photo 21: Intercalated quartzites and fine-grained clastic sedimentary rocks (IQFC).



Photo 22: Quartzite with narrow interbeds of fine-grained sedimentary rock.



Photo 23: Close-up of Photo 22.

Undifferentiated Medium-grained Clastic Sedimentary Rocks (MCSU)

The undifferentiated medium-grained clastic sedimentary rocks (MCSU) unit is not very common, and consist of a sequence of sandstones that may vary from fine- to medium-grained and rarely coarse-grained (Photos 24 to 28). These rocks are typically massive to thinly bedded, fairly well-sorted, and commonly occur intercalated within the FCSU unit.



Photo 24: Medium-grained sedimentary rocks.



Photo 25: Contact between a quartzite (white, left) and a conglomerate unit containing rip-upclasts of fine-grained sedimentary rocks (right).

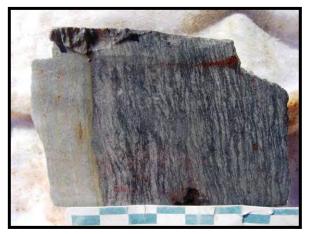


Photo 27: Medium-grained sedimentary rock exhibiting "flasered" discontinuous bedding.



Photo 28: Intercalated sandstone (white) and siltstone (black).

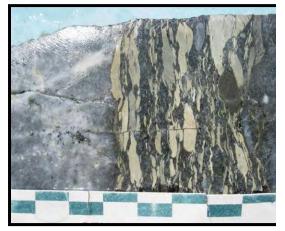


Photo 26: Close-up of Photo 25.



Photo 29: Close-up of Photo 28.

Intercalated Quartzite and Medium-grained Clastic Rocks (IQMC)

The intercalated quartzite and medium-grained clastic rocks (IQMC) unit was used in order to identify areas where it was impossible or not practical to discriminate between quartzites (QTZE) and medium-grained clastic rocks (MCSU) during the logging program. Areas logged as IQMC usually consist of intercalated beds of quartzite and medium-grained clastic rocks with bed widths ranging from a few millimeters to several centimeters.

Undifferentiated Carbonate Bearing Clastic Sedimentary Rocks (CCSR)

The undifferentiated carbonate bearing clastic sedimentary rocks (CCSR) unit encompasses clastic sedimentary rocks that have fine-grained carbonate in the matrix. This unit is not very common on the property, however fine- to medium-grained, massive, well-sorted, sandstones with carbonate-bearing matrix. These units are typically altered to calc-silicate skarn minerals in the vicinity of any of the intrusive phases mentioned earlier.

Limestone (LMST)

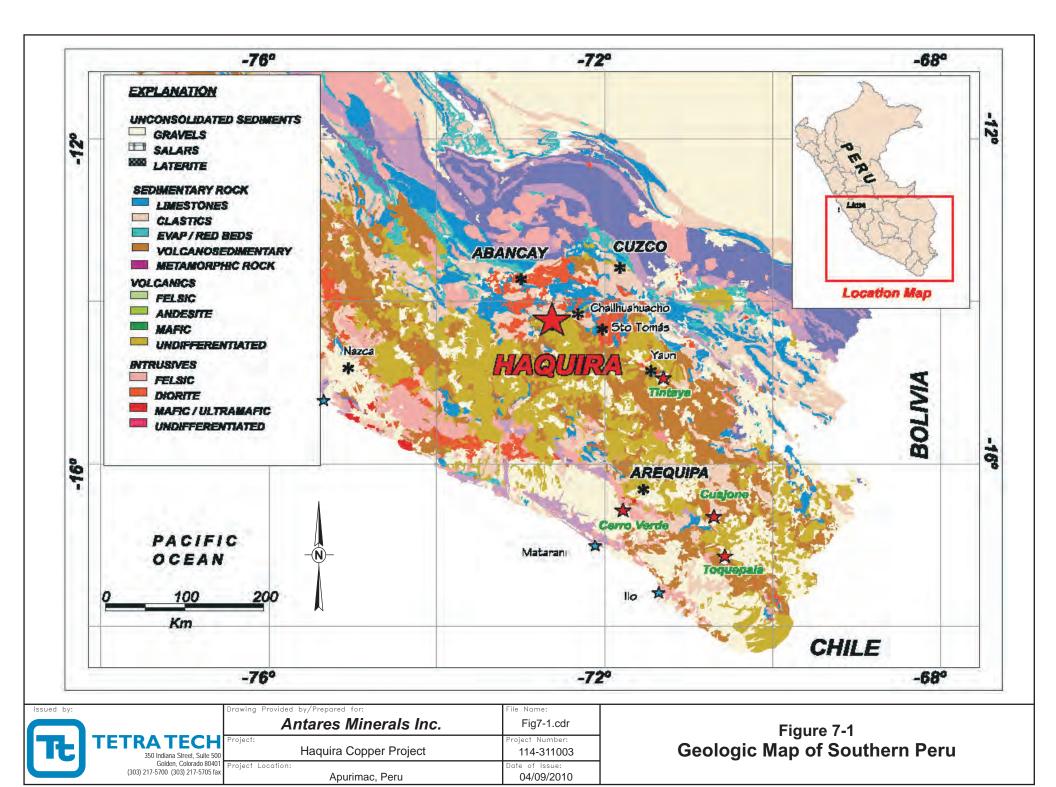
The only primary limestone identified to-date, occurs in drillhole HAD-021, where it occurs as a narrow interval of dark grey, fine-grained, massive rock which locally reacts strongly to HCl. However, most of the interval is strongly skarnified with abundant brown garnet and magnetite (Photos 30 and 31). This was an intecaltion within the Soraya Formation and not part of the Ferrobamba Formation. The interval also contains abundant calcite veinlets.

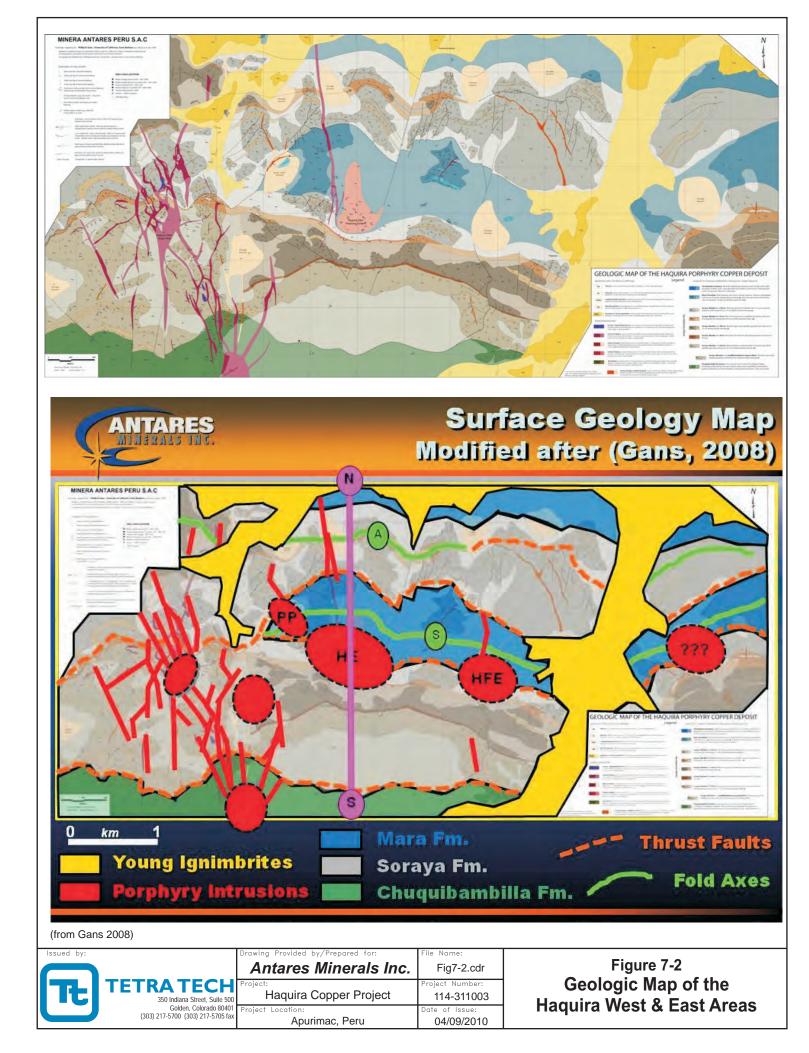


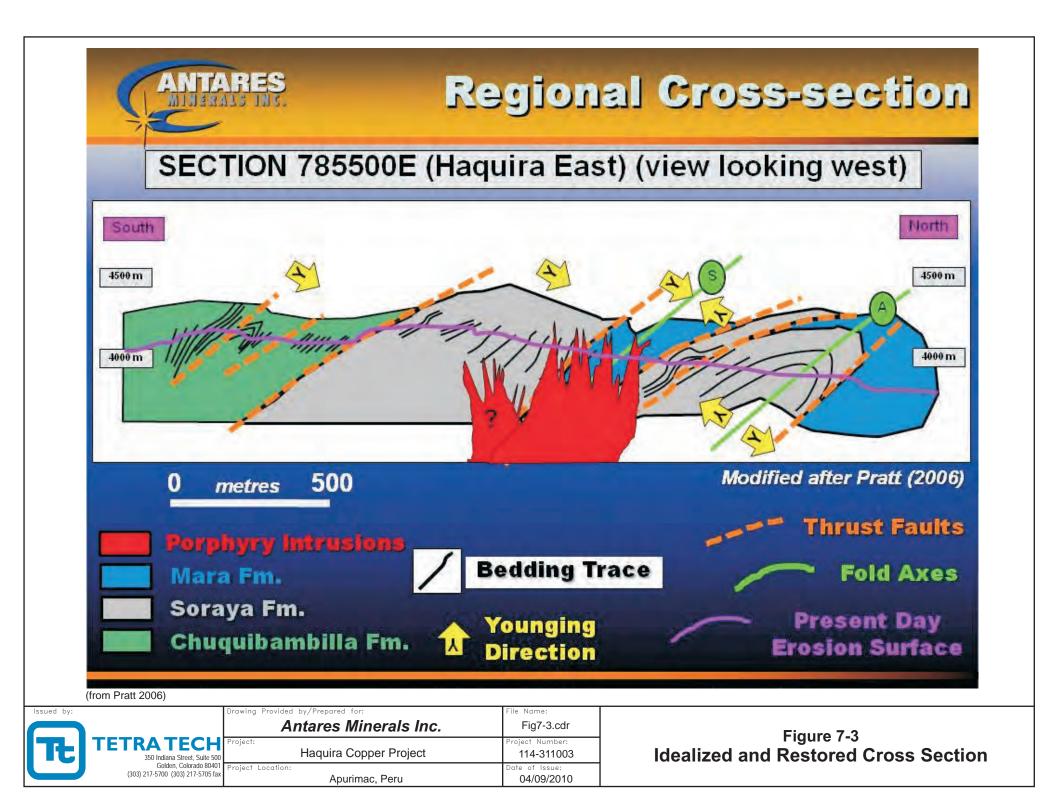
Photo 30: Partially skarnified calcareous sedimentary sequence.

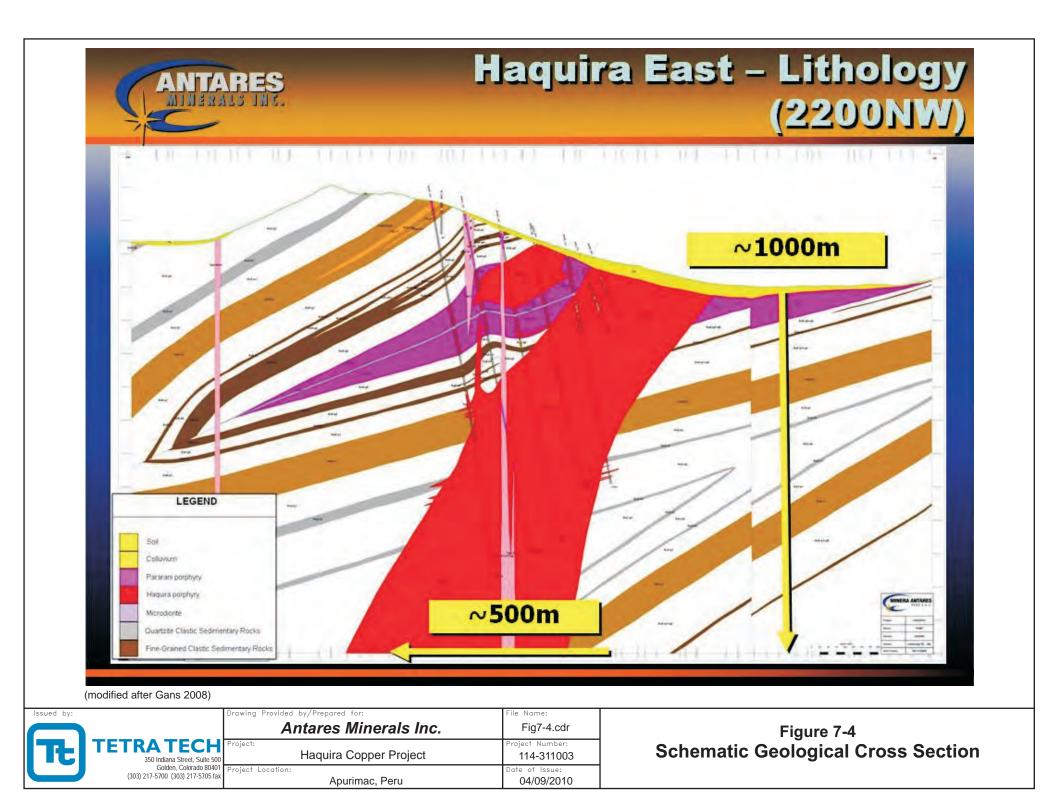


Photo 31: Partially skarnified calcareous sedimentary sequence.









Stratigraphy



Ferrobamba Formation (not present)

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- Limestone sequence; Las Bambas à Tintaya skarns
- Mara Formation (youngest)
 - Red-bed sequence
- Soraya Formation (middle)
 - Quartzites and intercalated fine- to medium-grained, locally calcareous sedimentary rocks
- Chiquibambilla Formation (oldest)
 - Fine-grained black shales and siltstones with local syngenetic pyrite

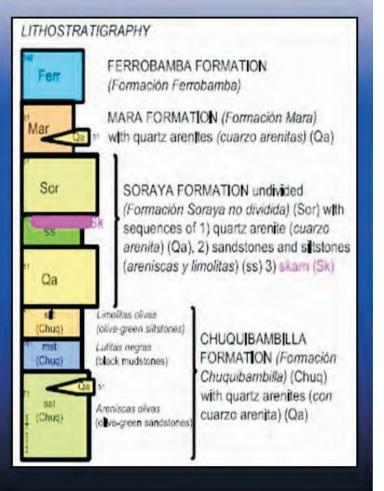




Figure 7-5 Stratigraphic Units and Column for the Haquira Project Area

Intrusive Rocks

Oligocene intrusions occur as stocks and sinuous dikes, the latter spatially related to faults and/or fractures that strike north-northwest. Most of the intrusions are medium-grained to porphyritic diorites and quartz diorites. The Haquira Porphyry and its chilled-margin equivalent are volumetrically the most important intrusive rocks identified to date on the Haquira property. The Haquira Porphyry is the oldest intrusive unit recognized to-date on the property. It is typically equigranular to porphyritic, leucocratic, medium- to coarse-grained monzonite, with locally developed, narrow aplite dikes; which appear to be a late-stage of the main intrusive phase, based on irregular, intergrown boundaries between the two phases. The unit contains 30 to 40% tabular-shaped, subhedral plagioclase phenocrysts, 5 to 8% biotite phenocrysts, occasional amphibole phenocrysts, and rare quartz phenocrysts. The chilled margin is variably porphyritic, with plagioclase and biotite phenocrysts set in an aphanitic groundmass.

The Haquira Porphyry contains abundant disseminated chalcopyrite, pyrite, and molybdenite in the groundmass and associated with classic "A" and "B" type quartz-sulfide veins and veinlets; both as stockworks and sheeted vein systems. The majority of the better hypogene copper grades are associated with this intrusive unit (Photos 32 to 36).

The Lahuani Porphyry is limited to small, sill-like bodies. It is a porphyritic, leucocratic, mediumgrained quartz monzodiorite with 10 to 15% subhedral plagioclase phenocrysts, 2 to 3% amphibole and biotite (locally up to 10%), and 5% quartz phenocrysts in an abundant aphanitic groundmass. The Lahuani Porphyry contains disseminated chalcopyrite, pyrite, and molybdenite in the groundmass and mineralized quartz veins; although less abundant then the Haquira Porphyry phase described above. It may be a phase of the Haquira Porphyry (Photos 38 to 40).

The Pararani Porphyry and its chilled-margin equivalent are volumetrically the second most important intrusive units on the Haquira property after the Haquira Porphyry. It is a quartz monzonite with 40 to 45% subhedral plagioclase phenocrysts, 1 to 3% biotite (and locally amphibole) phenocrysts, 2 to 3% quartz phenocrysts, and traces of disseminated magnetite, all set in a fine-grained groundmass. Large (i.e., 1 to 3 cm sized), potassium-feldspar megacrysts and oval-shaped mafic cognate fragments ranging up to 3 cm, may occur The Pararani Porphyry typically contain abundant disseminated pyrite (and very rare chalcopyrite) in the groundmass (Photos 42 to 48).

The Ccahuanhuire Porphyry forms a large outcrop of deeply weathered rock in the Tocone Syncline. This quartz diorite is the coarsest and most mafic-rich igneous rock on the Haquira property. The texture is moderately porphyritic, with a fine-grained plutonic groundmass. There are abundant small euhedral amphibole (hornblende) phenocrysts, with scattered large poikolitic euhedral biotites. The Ccahuanhuire Porphyry is more plutonic, higher temperature characteristics such as: aplitic dykes, locally pegmatitic with k-feldspar megacrysts up to > 20 millimeters (mm) long; extensive biotite hornfelsed country rocks with actinolite and epidote stockworks; and vein-dykes.

Deep drilling at Haquira West has encountered several new intrusive rock phases, which at the time of this writing were still being classified and interpreted.

A significant body of breccia occurs in the vicinity south-central portion of the Haquira deposit. The breccia comprises mainly clast-supported quartz arenite blocks, but is locally more polymictic, with scattered quartz and muscovite-altered porphyry clasts, finer grained sedimentary rocks, and wispy green fine-grained rock. Clasts vary in sorting, rounding, and diameter, but rounding is generally good. Sill-like bodies of breccia penetrate the country rock in many places, giving the impression of laccolith-like bodies. Overall, the geometry of the main

body of breccia seems to be intermediate between a sill and a dyke. It appears to cut across the bedding at a low angle, but sends off minor sills into the country rock in several places. Thin N-S-striking sub vertical pebble dykes, rarely more than 0.5 m thick and narrow sills occur in many places.

The breccia matrix, commonly less than 10% by volume, comprises sugary granular quartz. It seems to be derived by milling of the quartz arenites. The matrix is generally strongly cemented. The matrix may include voids with limonite after sulphides, drusy quartz, and coarse-grained muscovite.



Photo 32: Haquira Porphyry (HP).



Photo 34: Aplite dyke (beige) cutting the Haquira Porphyry (HP). Note the mineralized quartz veinlets cut both the porphyry and the aplite dyke.

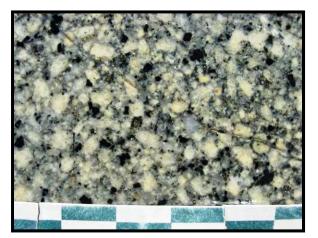


Photo 33: Close-up of Photo 32 and the Haquira Porphyry (HP).



Photo 35: Close-up of Photo 34.



Photo 36: Haquira Porphyry chilled margin (HPc).

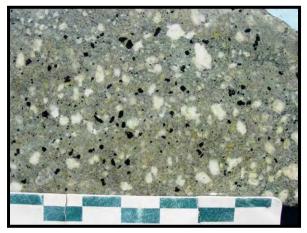


Photo 37: Close-up of Photo 36.

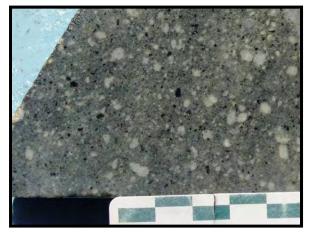


Photo 38: Lahuani Porphyry (LP).

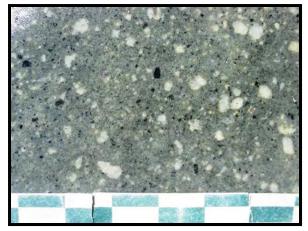


Photo 39: Lahuani Porphyry (LP).



Photo 40: Mineralized quartz veinlet with chalcopyrite cutting the Lahuani Porphyry (LP).

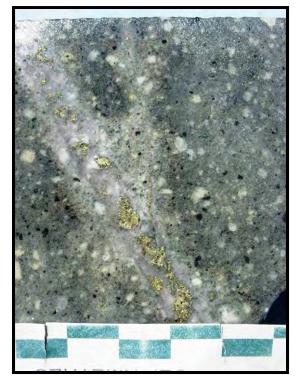


Photo 41: Close-up of Photo 40.



Photo 42: Pararani Porphyry (PP); note the large K-feldspar megacryst.

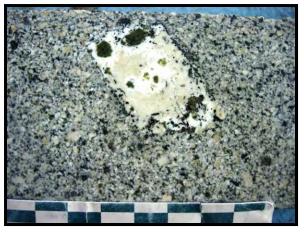


Photo 43: Close-up of Photo 42.



Photo 44: Pararani Porphyry (PP).



Photo 45: Close-up of Photo 44.

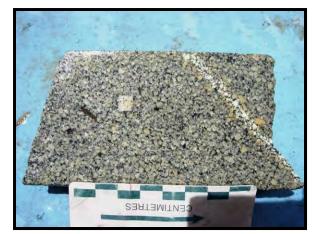


Photo 46: Pararani Porphyry (PP).



Photo 47: Pararani Porphyry (PP); note the mafic cognate fragment.



Photo 48: Pararani Porphyry chilled contact (PP and PPc).



Photo 49: Close-up of chilled margin (PPc) shown in Photo 48.



Photo 50: Pararani Porphyry (PP) grading to progressively more finer-grained, chilled (PPc) phases.

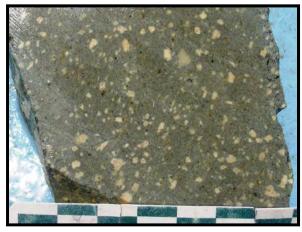


Photo 51: Pararani Porphyry chilled margin phase (PPc).

Pyroclastic Flow Lithic Tuff (Ignimbrites)

The Jurassic-Cretaceous sedimentary sequence is blanketed by very young (1 to 5 Ma), columnar jointed dacitic ash flow tuffs and ignimbrites, correlated with the Sencca Tuff. At Haquira property this unit not been widely recognized in the drillholes and is typically found in topographic lows and infilling valleys. The Sencca volcanic rocks consist of pyroclastic flows with fine ash tuffs, and heterolithic breccias containing abundant sub-rounded to sub-angular heterolithic clasts of both intrusive and sedimentary rocks described above. Clasts range in size from a few millimeters to several centimeters (Photos 52 to 55). The majority these rocks are massive, poorly sorted, and poorly bedded. These rocks are earthy to greyish-yellow colored. Sometimes they can be easily misidentified with colluvium, especially in RC drillholes, as they are commonly clay-altered due to supergene weathering.



Photo 52: Lapilli-sized fragments from the pyroclastic flow lithic tuff unit (PFLT).



Photo 54: Pyroclastic flow lithic tuff unit (PFLT).



Photo 53: Pyroclastic flow lithic tuff unit (PFLT)..



Photo 55: Pyroclastic flow lithic tuff unit (PFLT).

Structure

Mapping by Pratt (2006) and Gans (2008) shows that the Cretaceous sedimentary rocks are folded into a series of major folds with wavelengths of 1 to 3 km; the folds are periclinal (doubly plunging) and the tightness varies greatly along strike (FIGURES 7-3 and 7-4). The Cintapata Anticline, for example, is relatively open in the east, but becomes isoclinal within the project area, with hinge failure and thrusting (Cintapata Thrust). The Río Record/Río Chalhuahuacho valley represents a major synclinal closure; folds on the north-side are south-verging, whereas folds on the south-side are north-verging. The more recessive Mara Formation red-bed rocks occupy the valley, whereas the resistive Soraya Formation quartzites are thrust over the Mara, from both the north and south sides

The Haquira suite of Oligocene porphyries was intruded under broadly E-W extension. The dominant controlling faults are sub-vertical and strike N-S. There appear to be several N- to NNW-striking, sub-vertical belts, which focus porphyry dyke swarms. Several of these structural corridors have a monoclinal appearance, with downthrows to the west.

The Haquira deposit occurs in the overturned limb of an east-west-trending syncline, which lies in the hanging wall of an EW-striking, N-verging thrust fault.

Swarms of *en echelon* quartz tension gashes occur in the sandstones of the Chuquibambilla Formation, less commonly so in the Soraya Formation. These veins and show classic synorogenic features, and cannot be confused with hydrothermal veins. They contain very little sulfide and are cut by weak porphyry-related sulfide (now limonite) stockworks in many exposures. Quartz tension gashes and saddle reefs are particularly widespread in the hinge zones of tightly folded sandstones.

Pratt (2006) documented three main orientations of igneous intrusives:

dikes which are N-S (to about 020°) and sub-vertical;

dikes which are NNW and sub-vertical; and

gently S-dipping sills.

The dikes form a ladder-like array in map view. The sills are emplaced along bedding planes or along bedding-parallel thrusts.

FIGURE 7-3 illustrates the general geometry of the folds and faults as described by Pratt (2006). Figure 7-4 illustrates the detailed fold geometry described by Gans (2008) for the Haquira East area.

7.2.3 Alteration

Alteration developed at the Haquira deposit is strongly influenced by host rock type and composition. Porphyry intrusive rocks are variably altered, while given the chemically inert nature of the arenites and quartzites, silicification is the most apparent alteration encountered therein. Fine-grained siltstones and mudstones are variably hornfelsed to biotite, amphibole, pyroxene, and locally garnet-bearing rocks, while the Mara redbeds are variably hornfelsed to epidote and locally biotite-bearing rocks. Due to the host wallrocks being predominantly quartzite, the classical porphyry-copper alteration zoning is not well developed.

Ongoing studies at the Haquira deposit have identified the following alteration types:

- (1) Potassic feldspar;
- (2) Secondary biotite;
- (3) EDM (early dark micaceous);
- (4) Calc-silicates (diopside, actinolite, garnet, tremolite);
- (5) Chlorite (± epidote); and
- (6) Locally developed quartz-sercite-pyrite.

Cu-Mo-Au mineralization is spatially associated with potassic feldspar and secondary biotite alteration within the Haquira East porphyry intrusive rocks. Higher-grade Cu-Au zones are associated with the development of EDM (early dark micaceous) veins (see Section 9.0).

7.2.4 Vein Chronology

A preliminary chronology of veins and veinlets has been established at the Haquira East deposit (Table 6). Photos 57 to 63 show various examples of each of these vein types along with cross-cutting relationships.

TABLE 7-1:Haquira East Vein Chronology.

- 1) (a) Aplite Dykes & (b) Quartz-K-feldspar veins (nonmineralizing)
- Calc-silicate (px-amp) veins and patches (nonmineralizing)
- 3) EDM (early dark micaceous) veins (~600°C) (mineralizing)
- 4) (a) A-veins (hotter) & (b) B-veins (cooler) (mineralizing)
- Sulphide-only veins (no quartz, no alteration haloes) (mineralizing)
- 6) Banded Quartz-Mo veins (mineralizing)
- 7) Enargite overprint of bn-cpy (mineralizing: AHAD-159 deep)
- 8) D-veins (quartz-pyrite ± chalcopyrite) (late mineral)



Photo 56: Early Quartz-K-feldspar veins and aplite dykes.

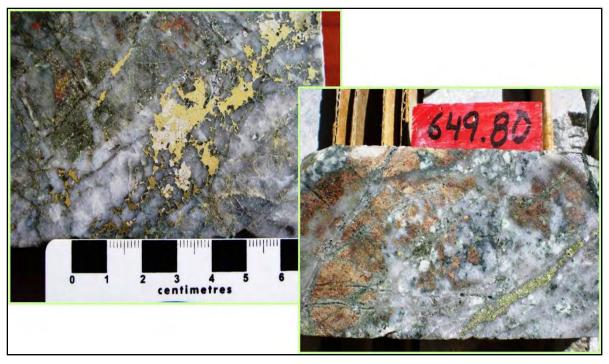


Photo 57: Calc-silicate veins and patches developed within the Haquira Porphyry. Note that the reddishbrown mineral is garnet, the light green mineral is diopside, and the dark green mineral is amphibole.

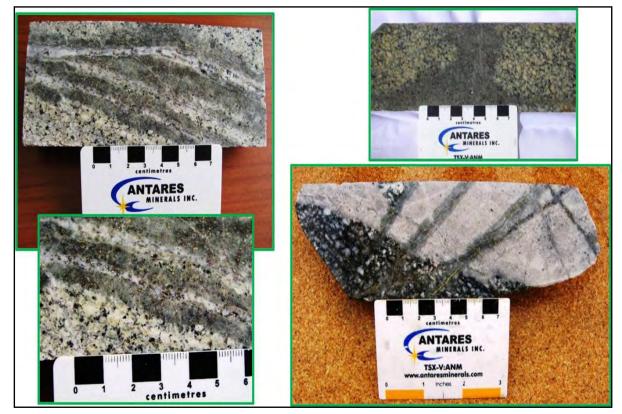


Photo 58: Early dark micaceous (EDM) veins and irregular patches developed within both the Haquira Porphyry and cross-cutting an aplitic dyke (lower right photo).

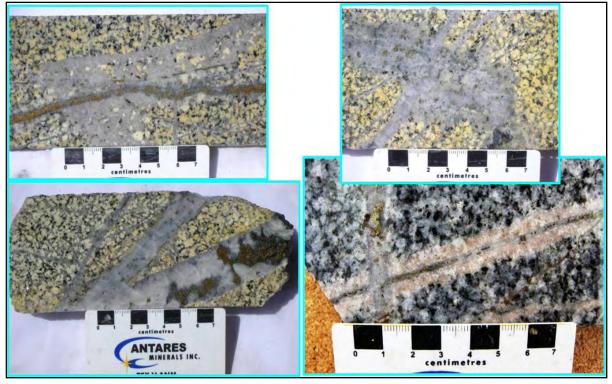


Photo 59: Irregular margined A-veins and straight margined B-veins developed within the Haquira Porphyry.



Photo 60: Cu-sulphide only veinlets cutting earlier aplite dykes and B-veins. Note the well developed amphibole-biotite alteration halos developed along the sulphide only veinlets cutting diopside hornfelsed sedimentary rocks (lower left and upper right photos).



Photo 61: Late banded quartz-molybdenite veins. Note the coarse-grained character of the molybdenite (and bornite in the right-hand photo).

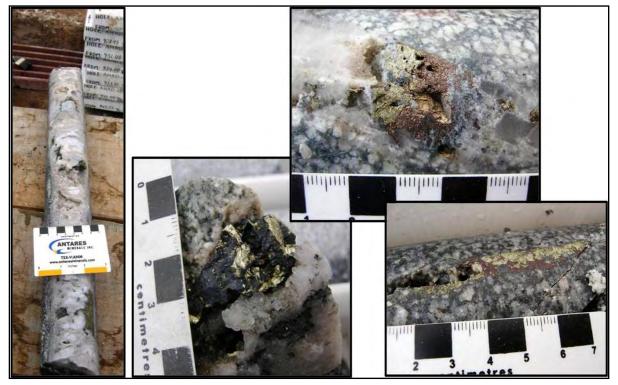


Photo 62: Late enargite (black) overgrowing bornite-chalcopyrite. This has only been seen to-date deep in drillhole AHAD-159.



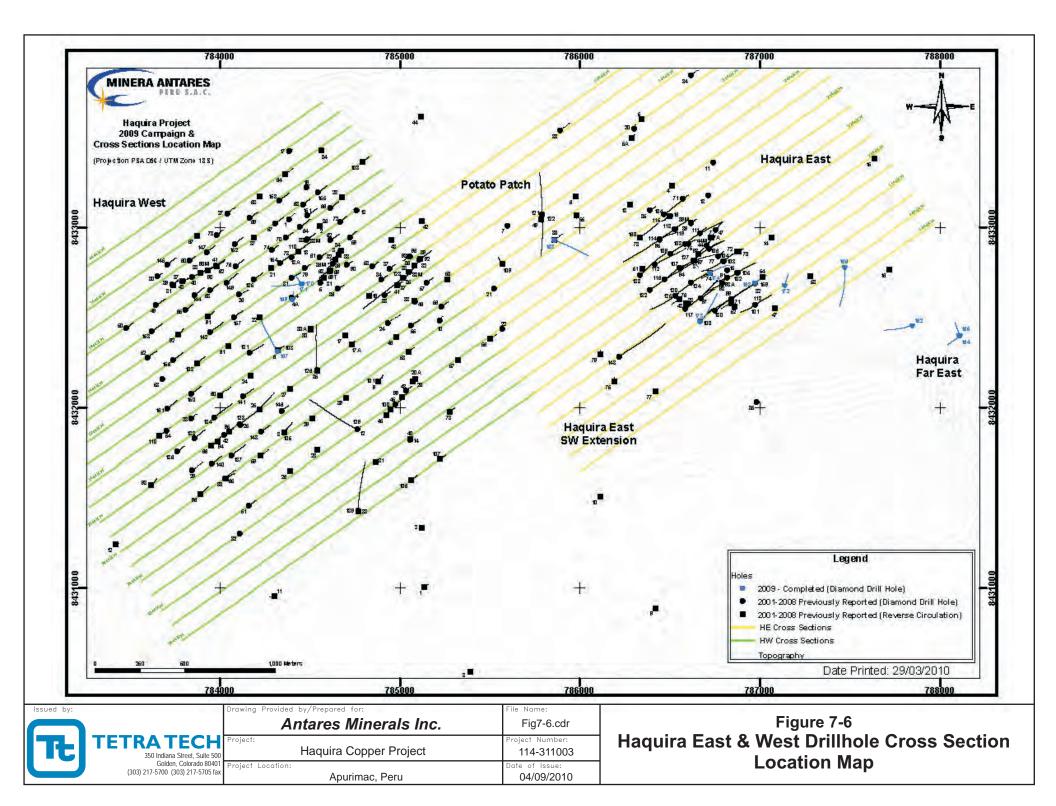
Photo 63: Late quartz-sericite-pyrite veins and breccia infillings.

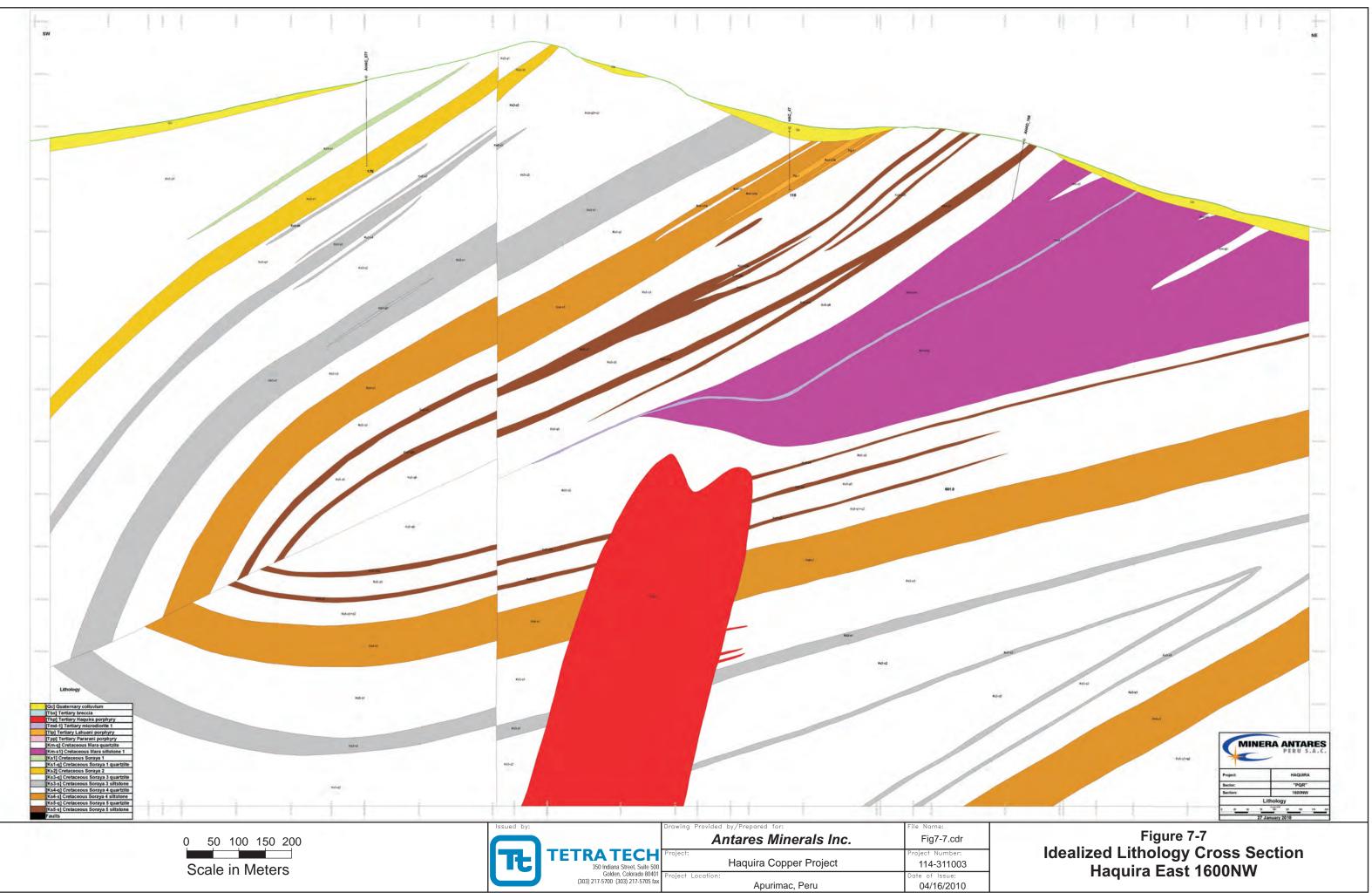
7.3 Haquira East Deposit-scale Geology

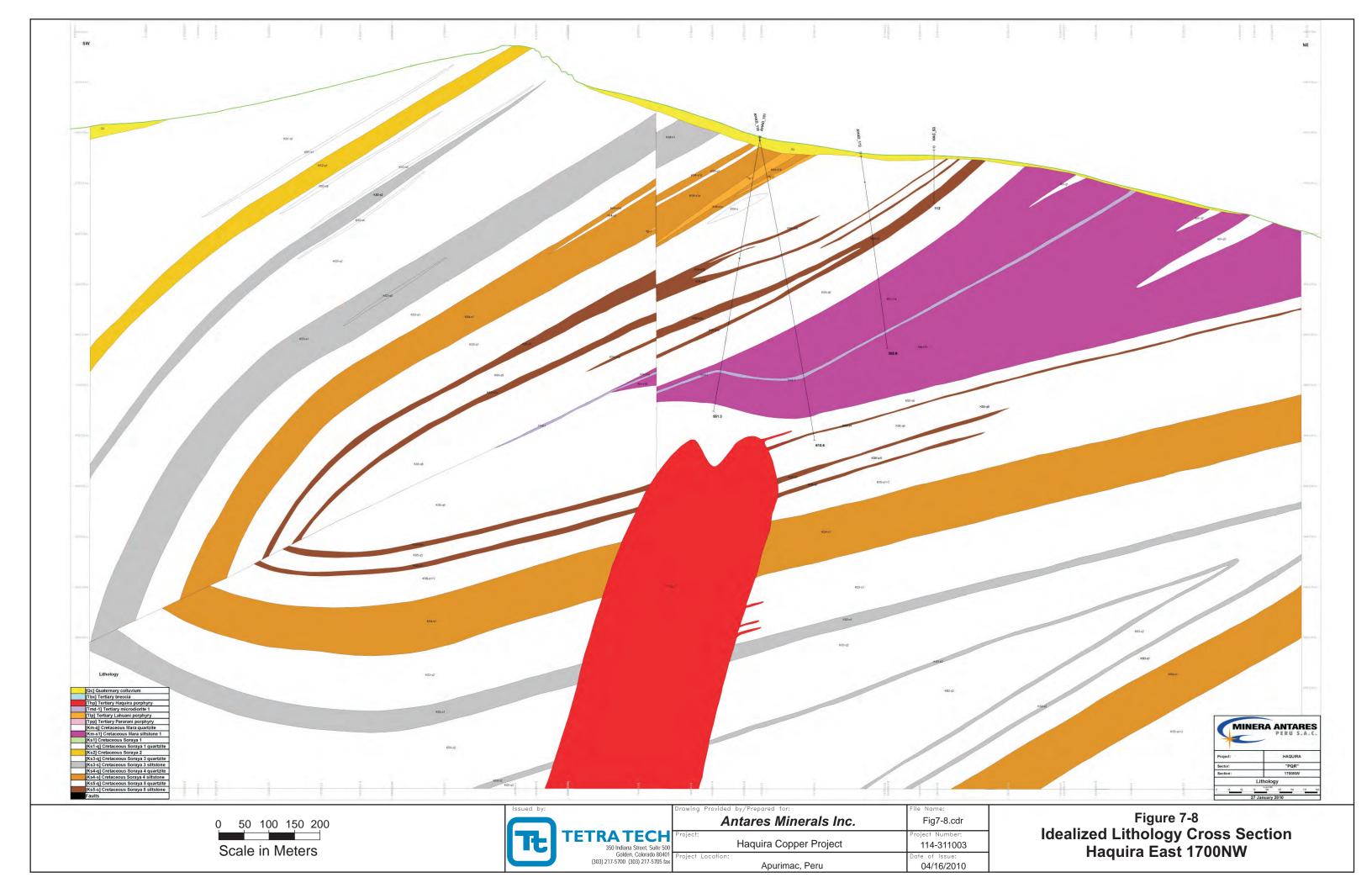
The deposit-scale geology of the Haquira East deposit area is depicted in a series of 8 geological cross-sections (FIGURE 7-6) spaced 100 m apart (FIGURES 7-7 to 7-15), which were used to construct the 3-D wireframe solids used for the Haquira East resource model. Six main lithological units are shown on these geological sections; from oldest to youngest these are: (1) quartzites (grey), (2) fine-grained sedimentary rocks (brown), (3) Microdiorite Intrusive (pink), (4) Haquira Porphyry (red), (5) Pararani Porphyry dykes (magenta), and (6) Colluvium (yellow). Interpreted thrust faults are shown serrated black lines, 2001-2009 drillholes as black lines.

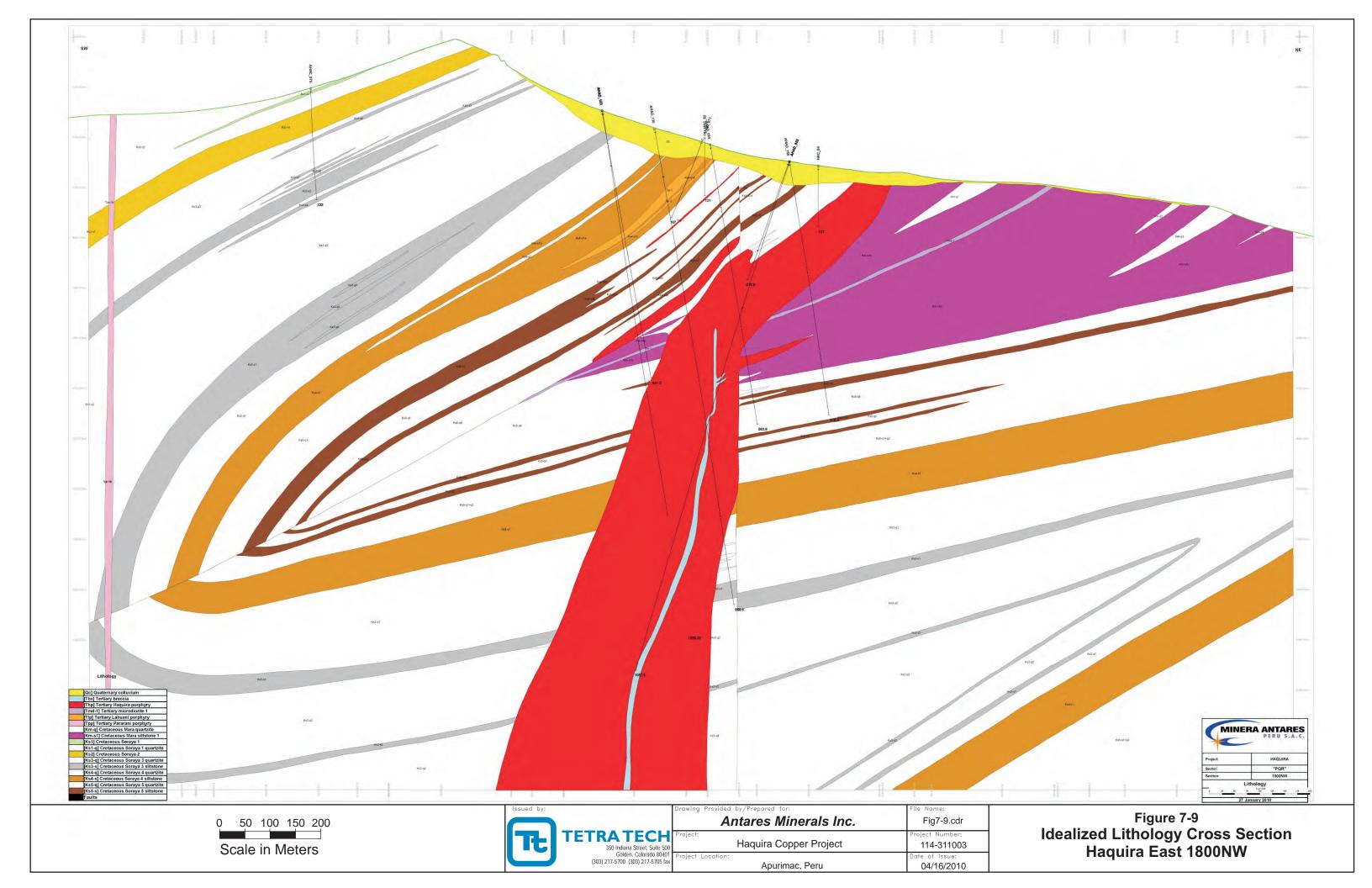
The full dimensions and extent of the Haquira East porphyry intrusive body remains to be determined, as the body is open several directions. A series of 4 schematic level-plan maps (FIGURES 7-16 to 7-19) spaced 100 to 200 m vertically apart shows the transition of the body from a dyke-swarm-like geometry near the surface (Figure 7-16) thru to a stock-like body at depth (FIGURES 7-18 and 7-19). The north-northeast margin of the porphyry body appears to reasonably well defined by several drillhole intercepts, however the western and eastern ends of the body remain open, although more dyke-like in geometry (FIGURES 7-7 to 7-19). The southern contact has been intersected a limited number of drillholes, which collectively suggest the contact is steeply dipping to the south at ~ 75 to 85 degrees, similar to the northern contact (FIGURES 7-7 to 7-15).

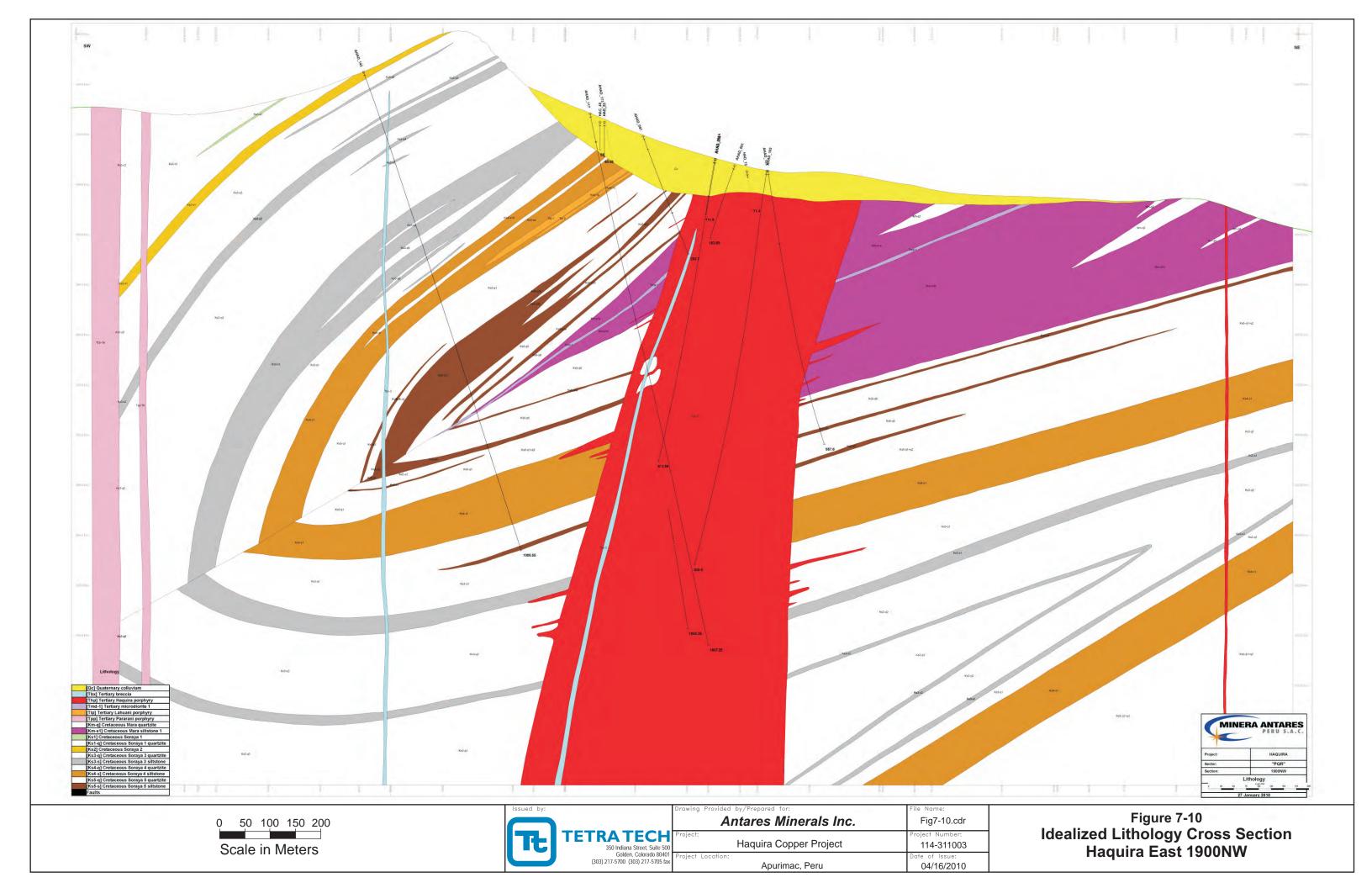
Sedimentary rocks in the Haquira East deposit area strike roughly E-W to slightly WNW-ESE and dipping 20 to 50 degrees to the south. The Haquira porphyry intrusion is emplaced into both quartzites and intercalated fine-grained sedimentary rocks of the Soraya Formation and finegrained redbed sedimentary rocks of the Mara Formation. As described in the local geology section earlier, rocks of the Soraya Formation are overturned in this area and form part of a large recumbent synclinal structure with rocks of the Mara formation coring that synclinal structure. Mapping by Gans (2008) and geological interpretation of sections for Haquira East (Figures 7-20 to 7-28) show details of this geometry.

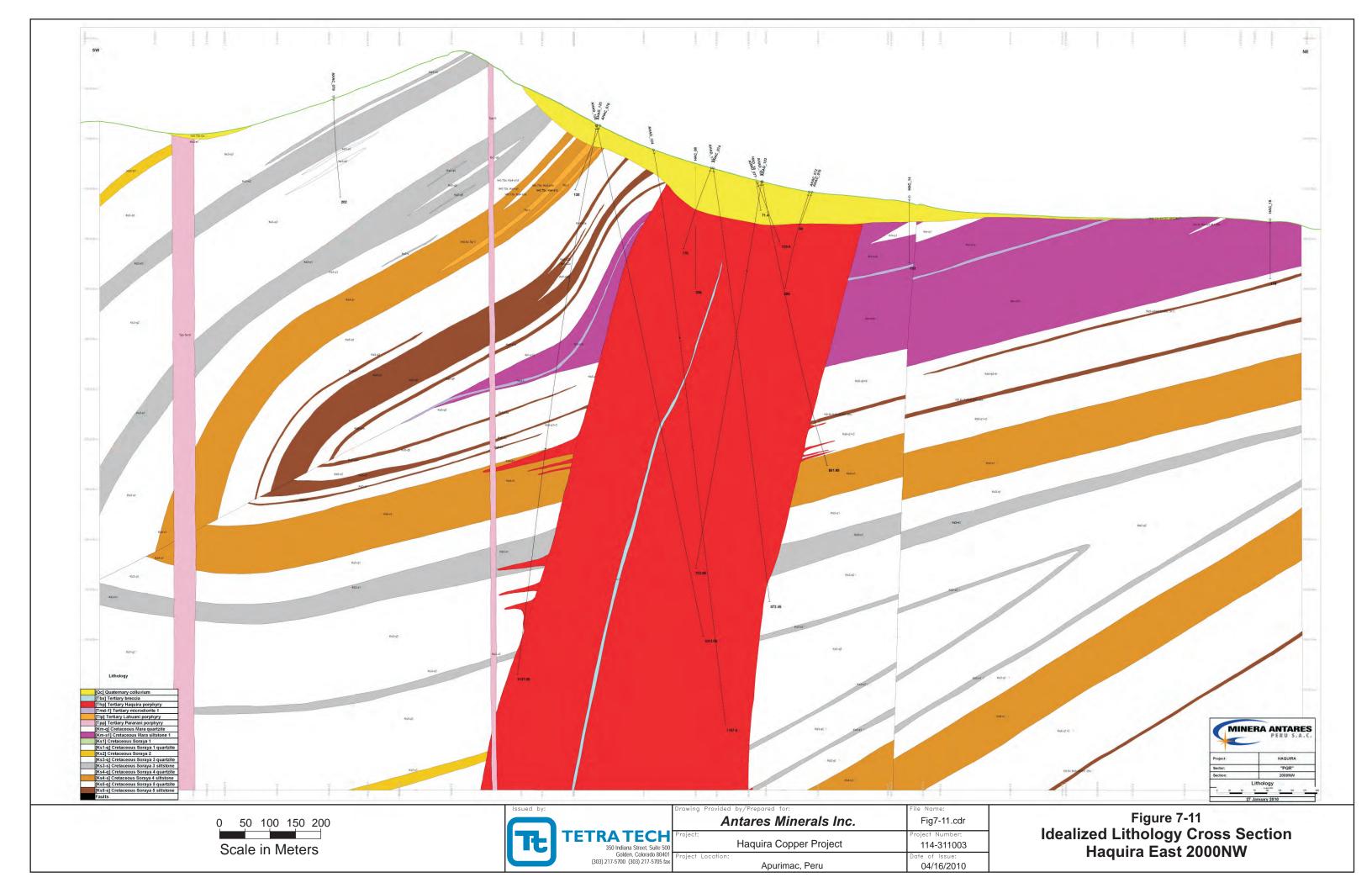


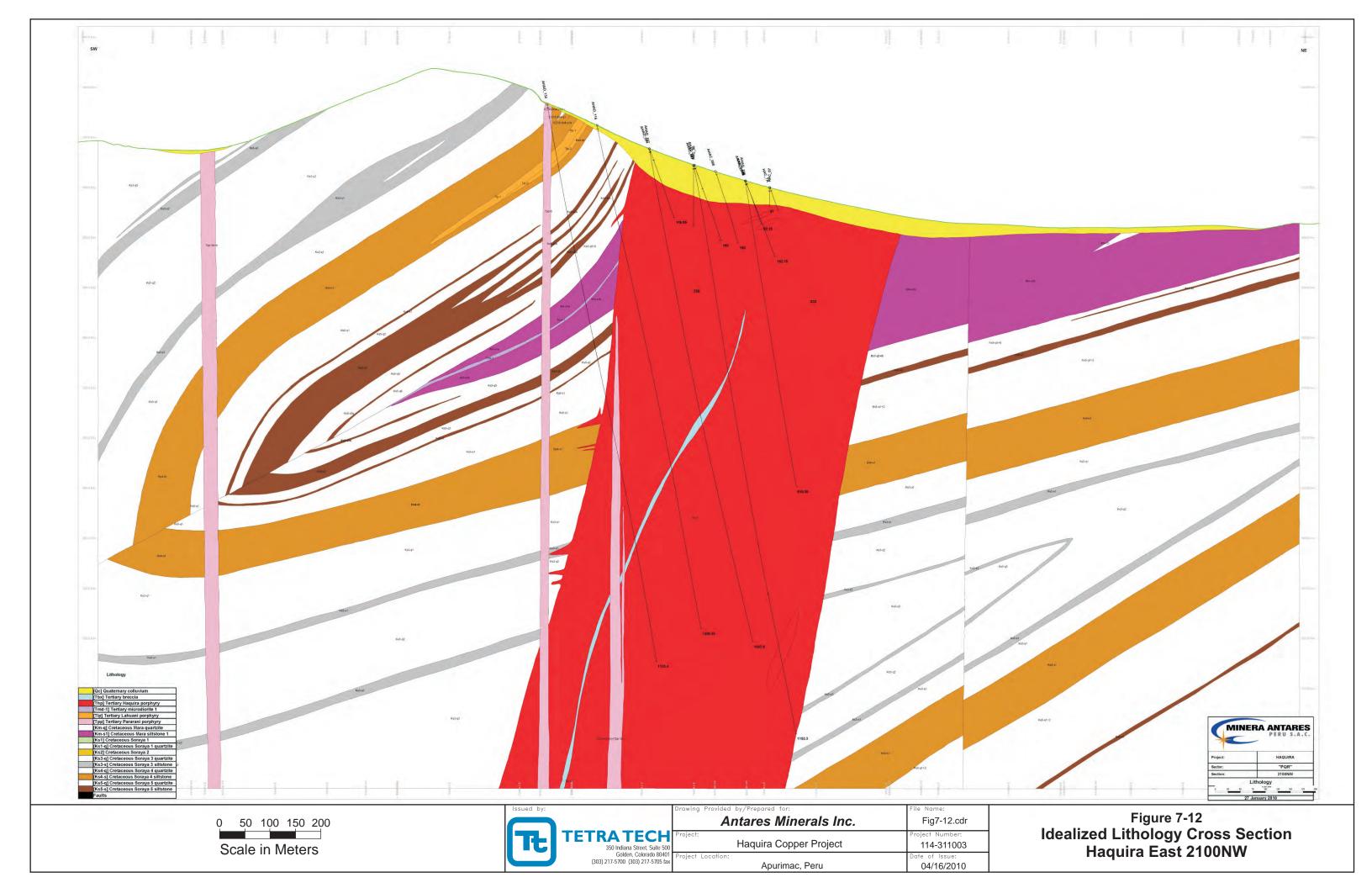


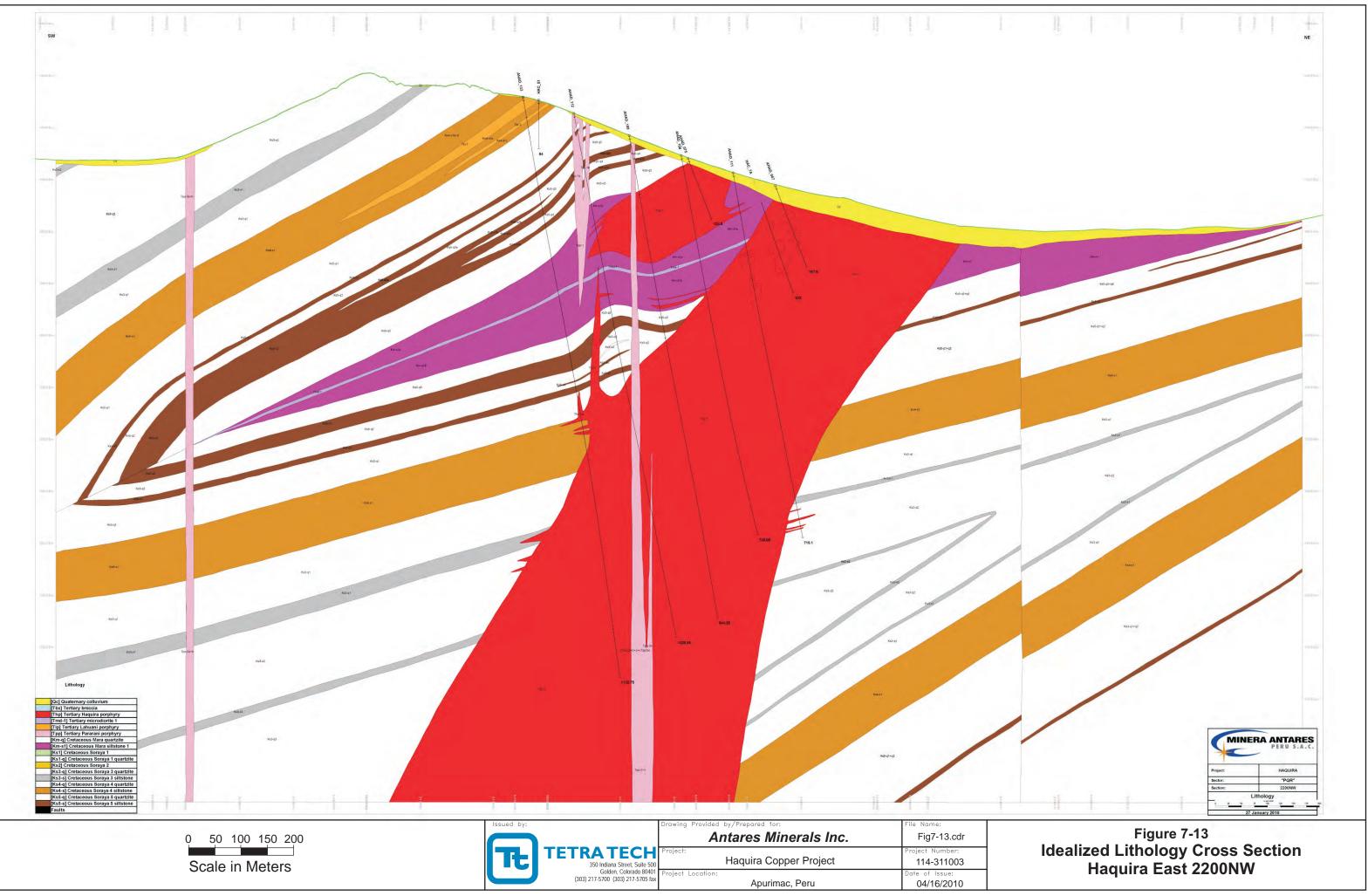


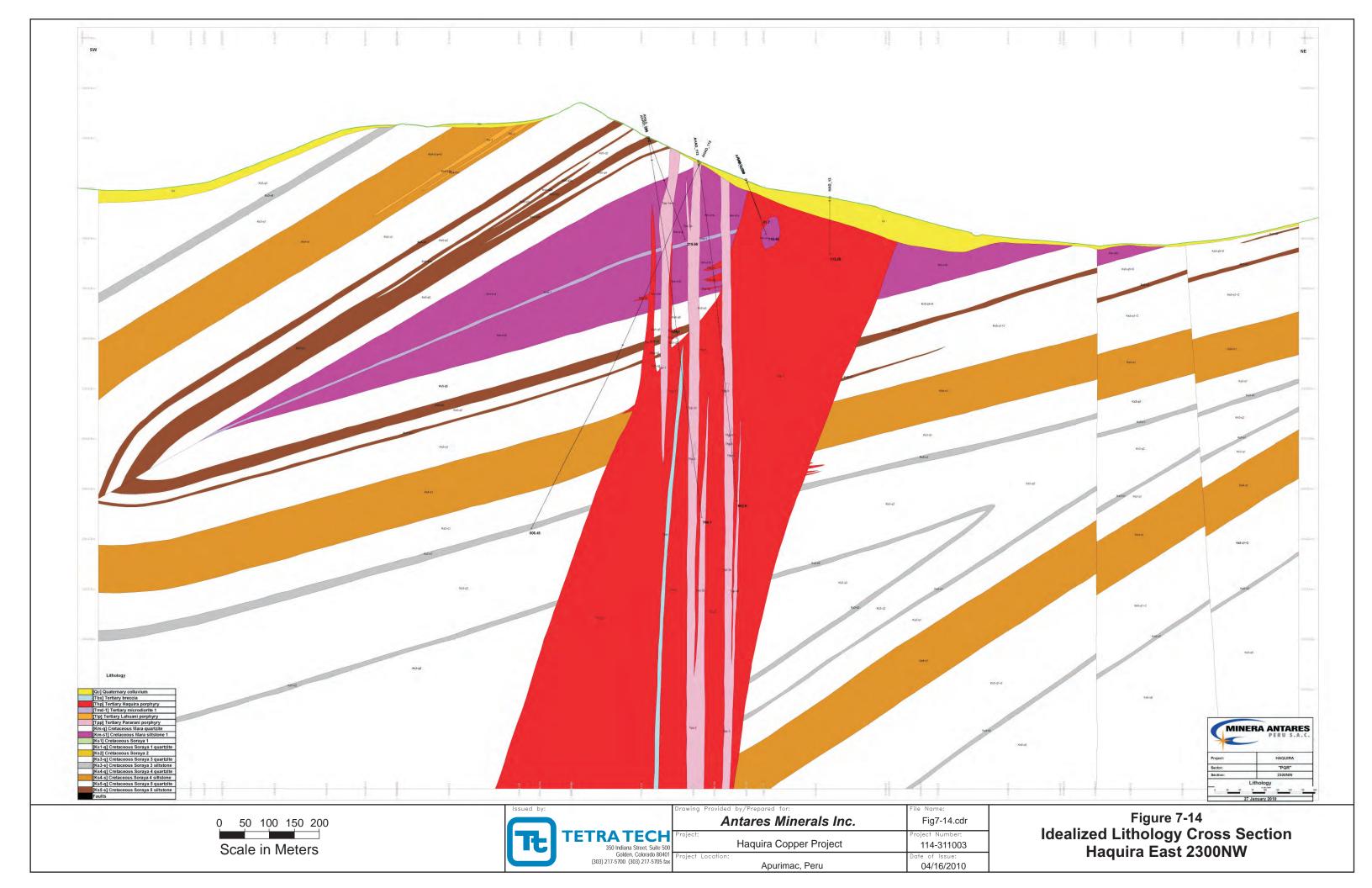


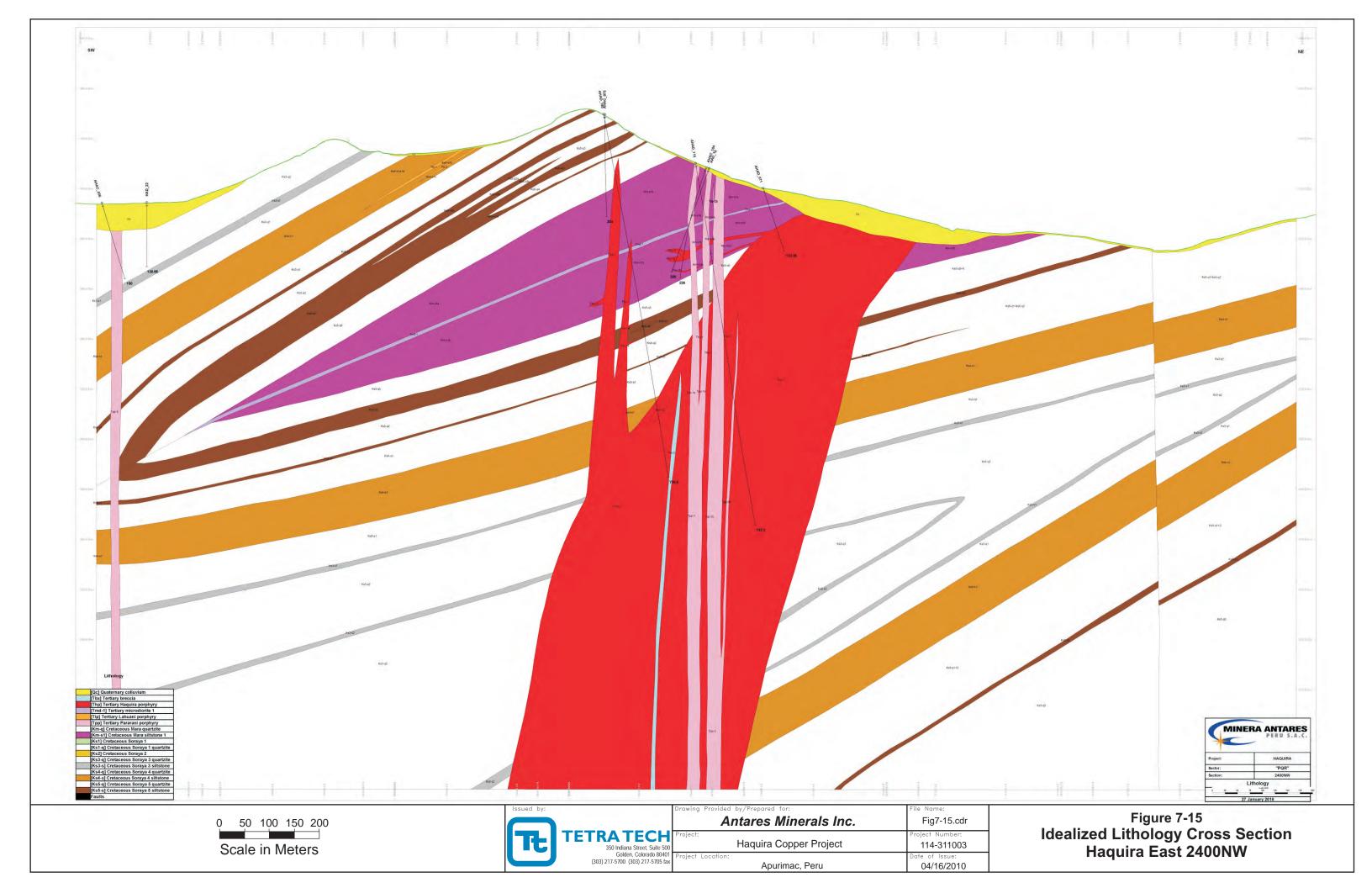


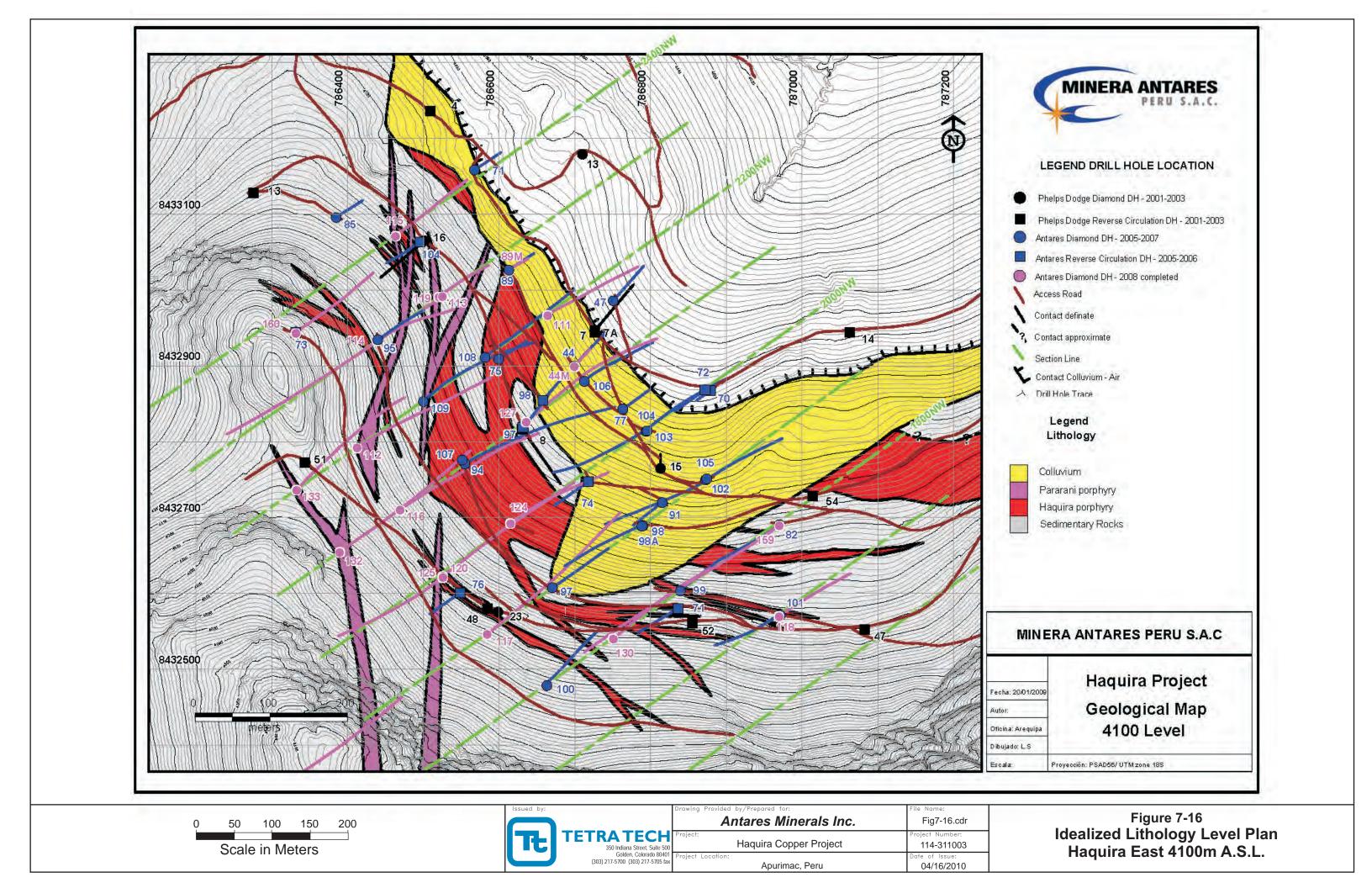


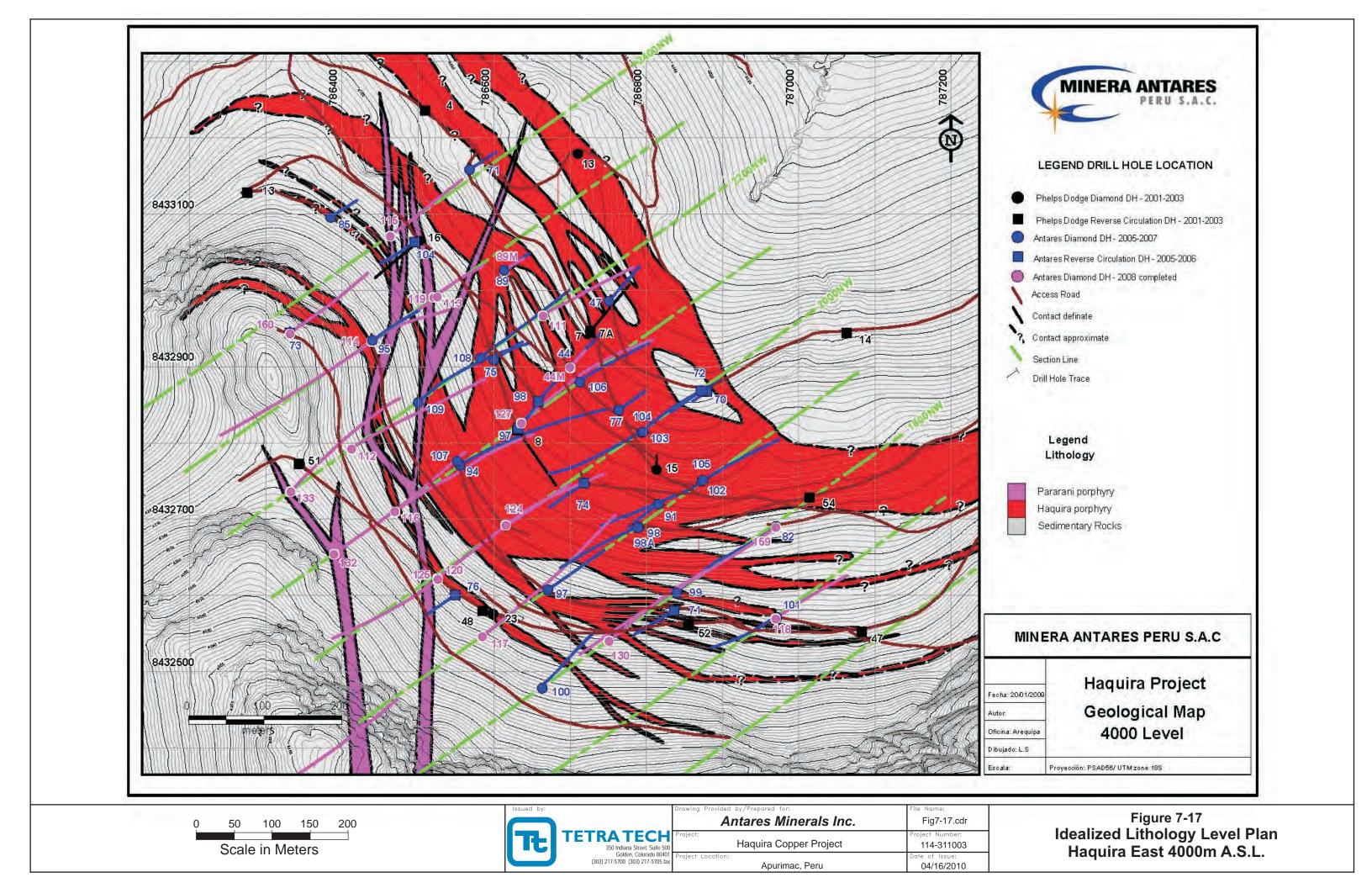


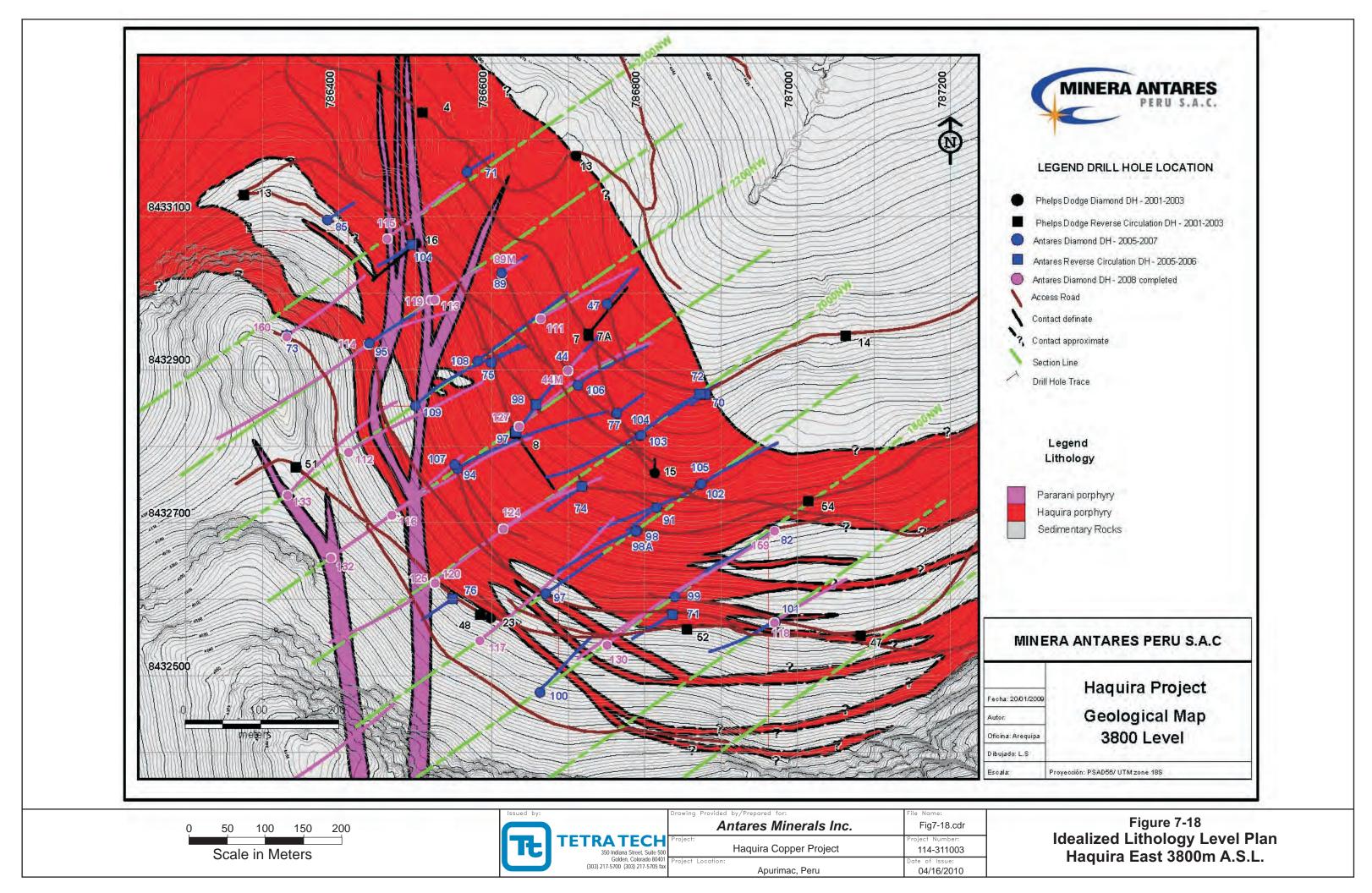


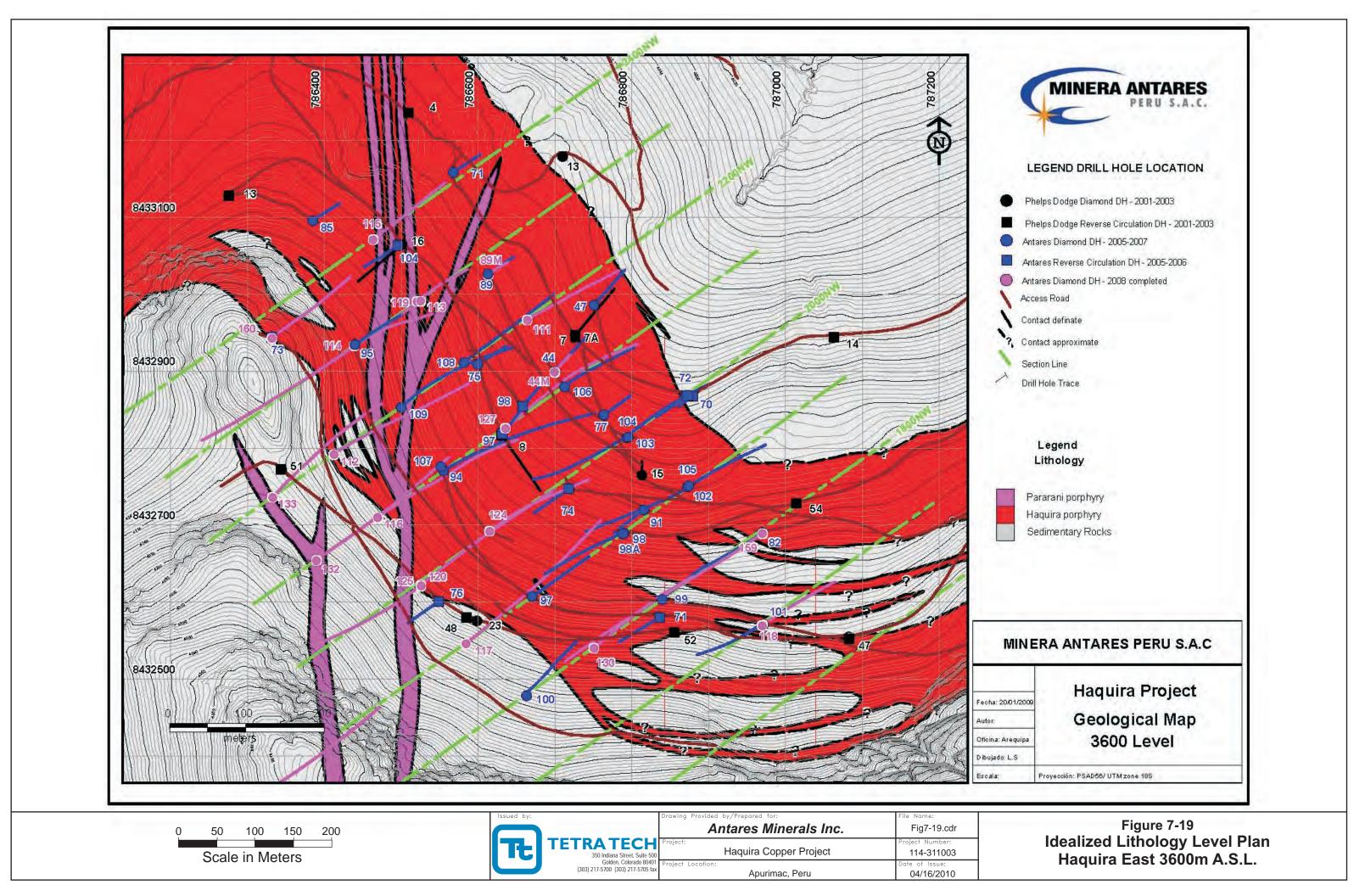


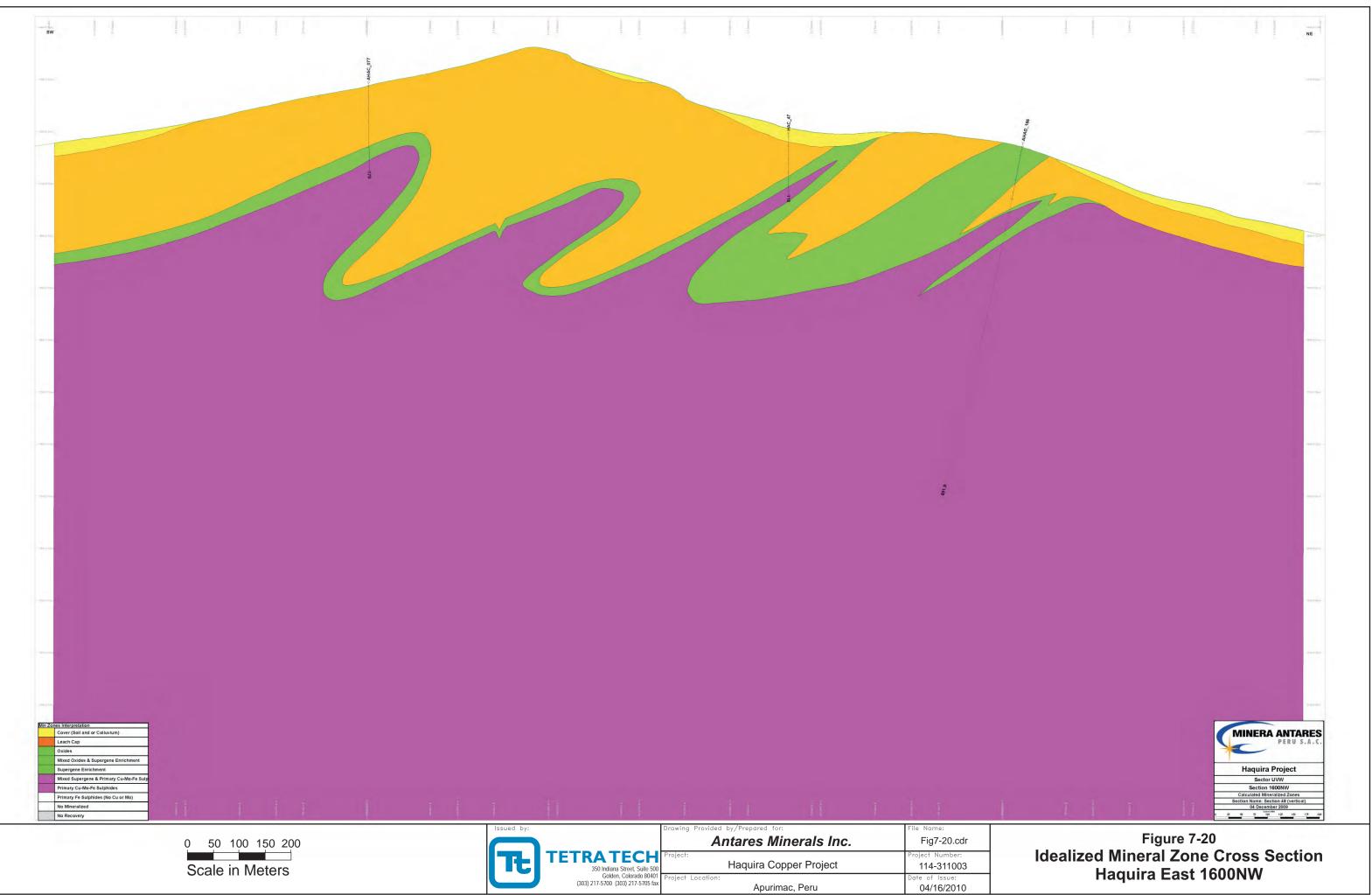


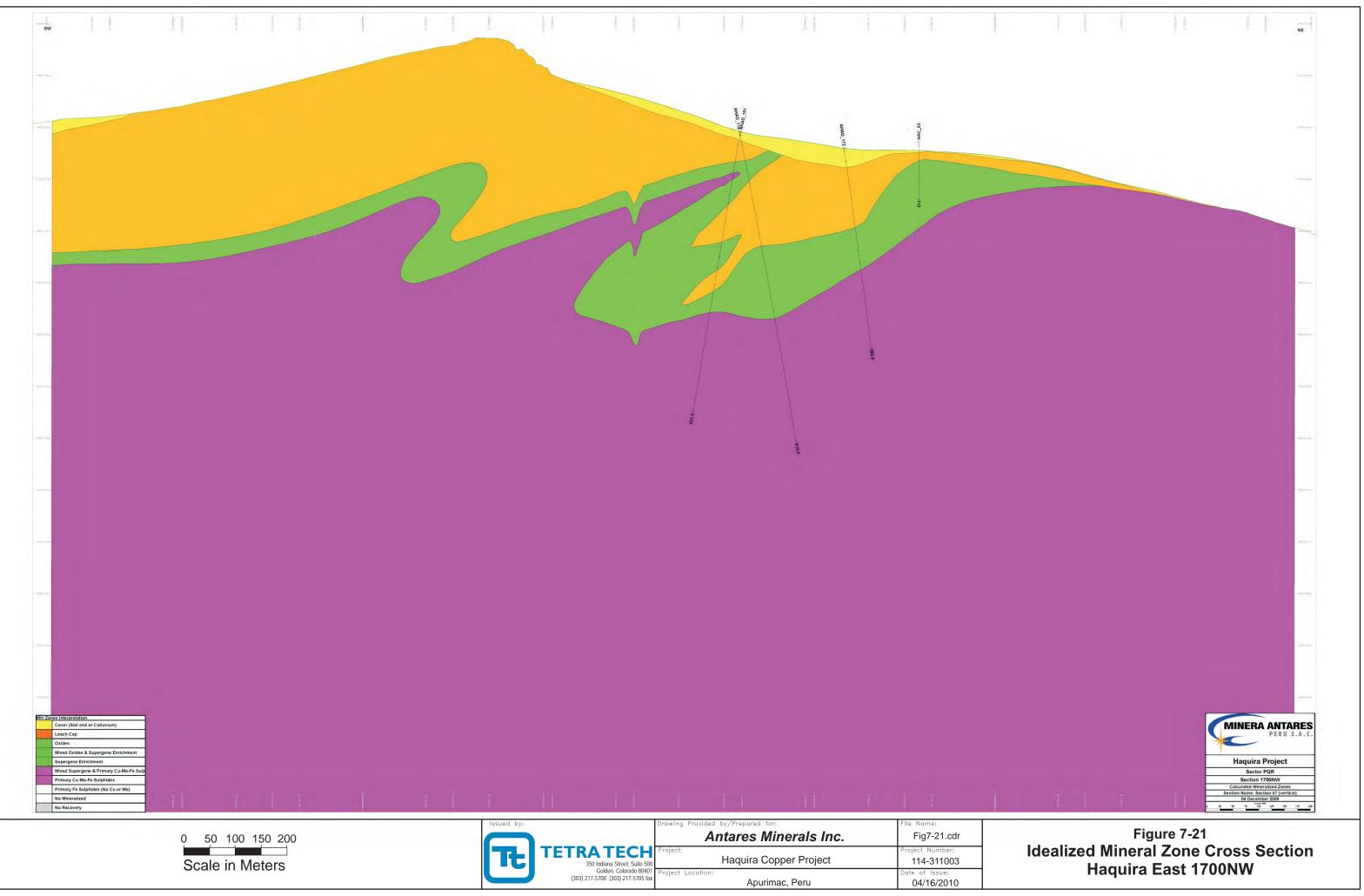


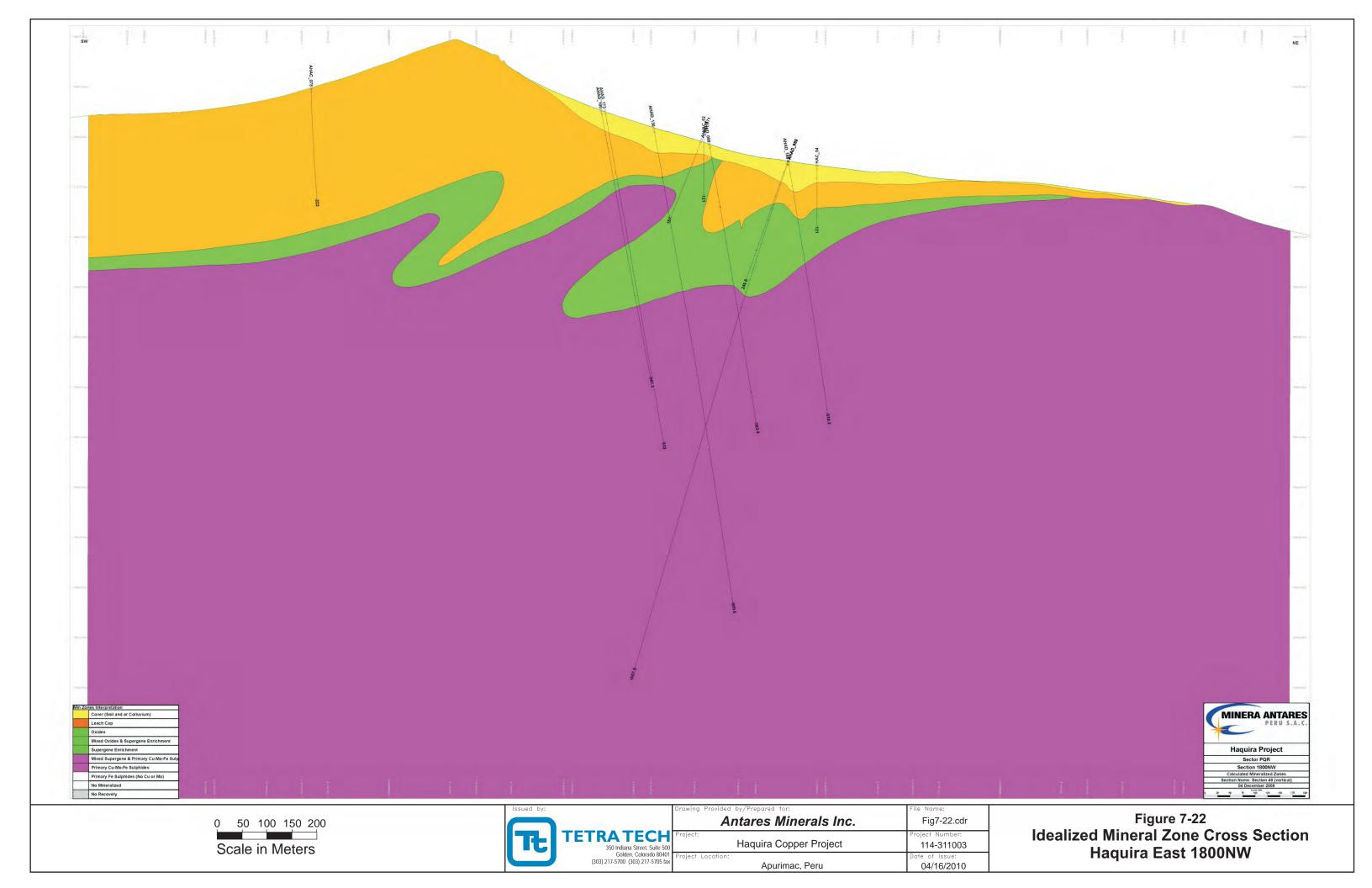


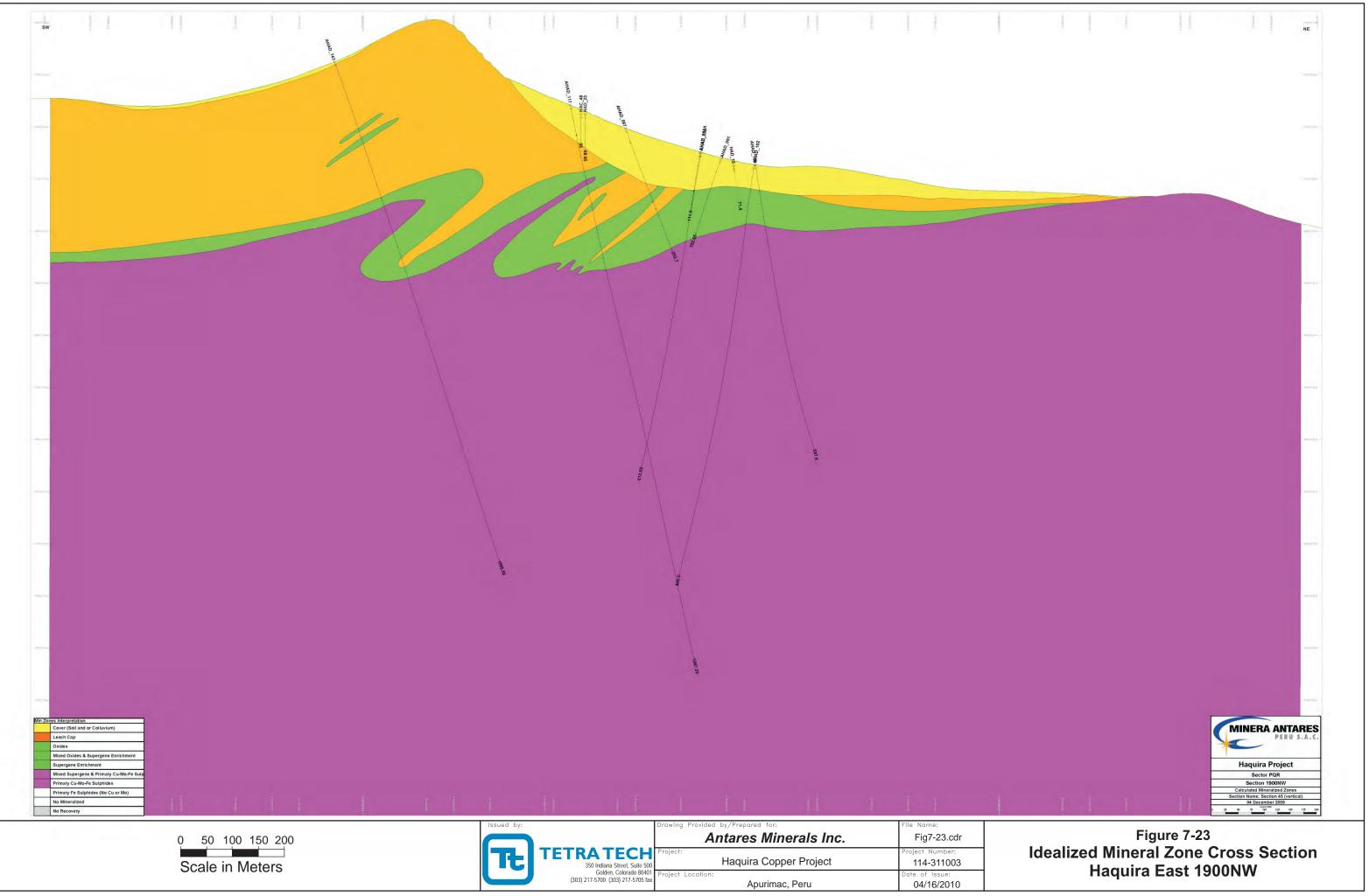


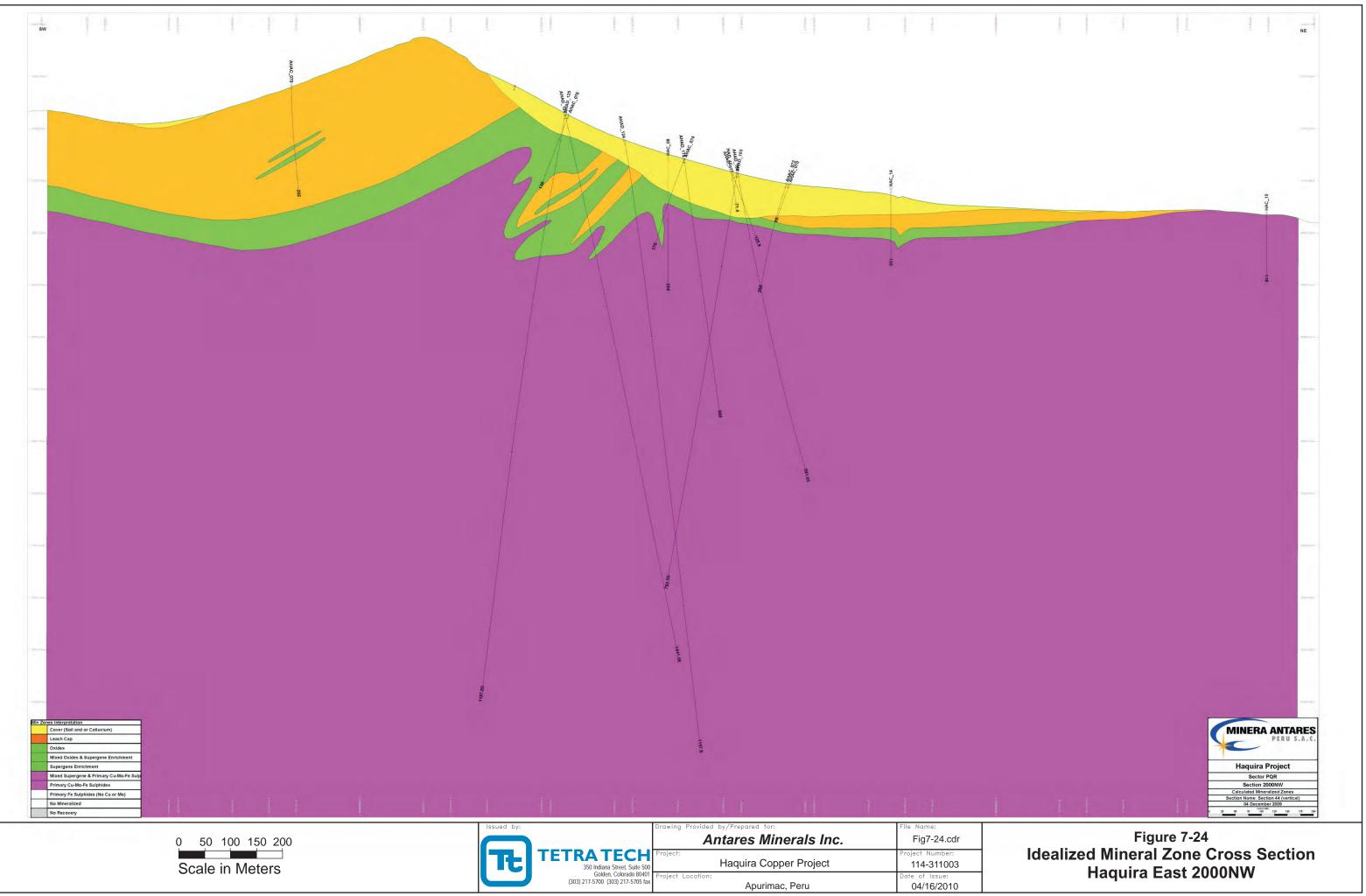


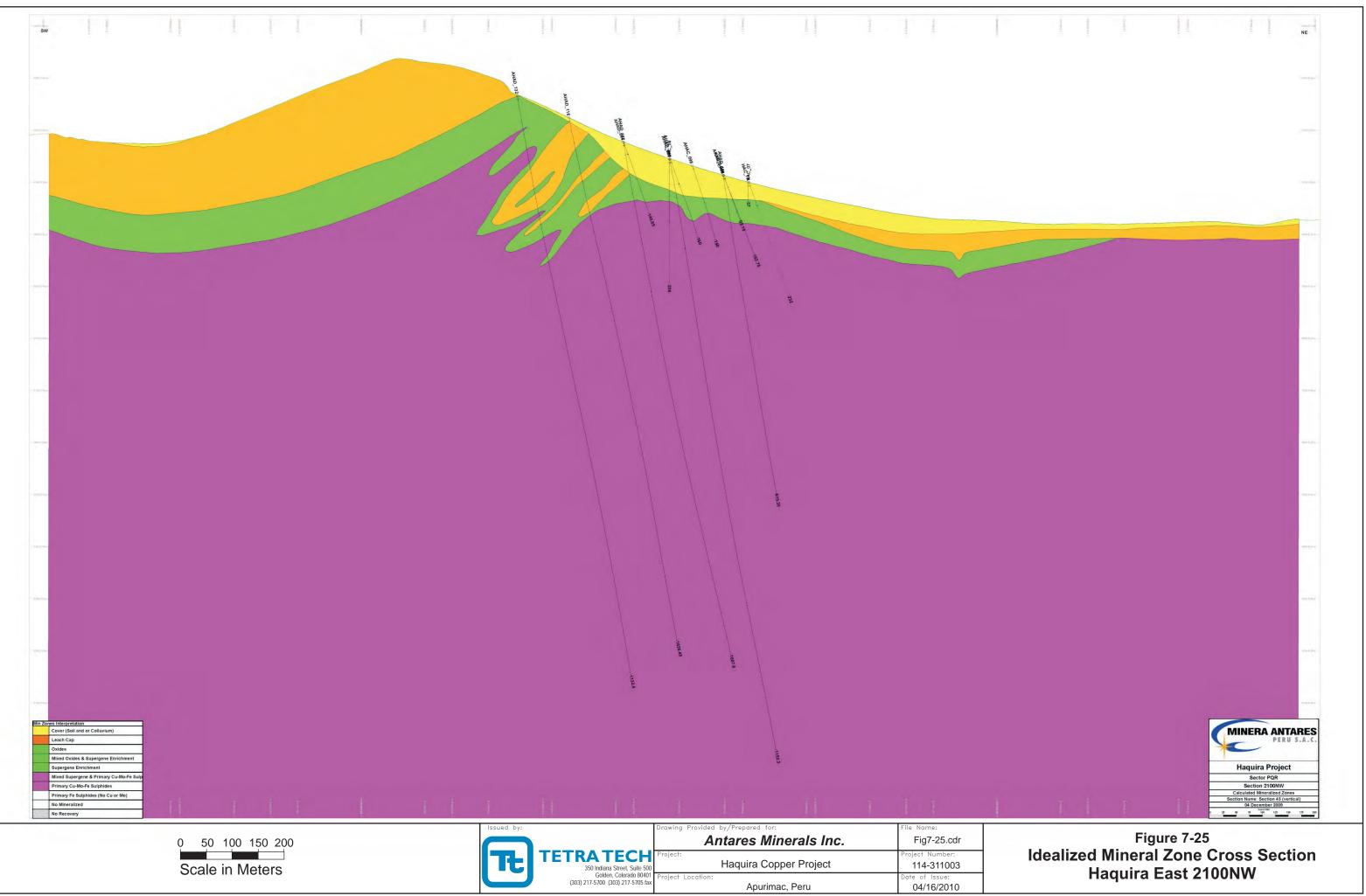


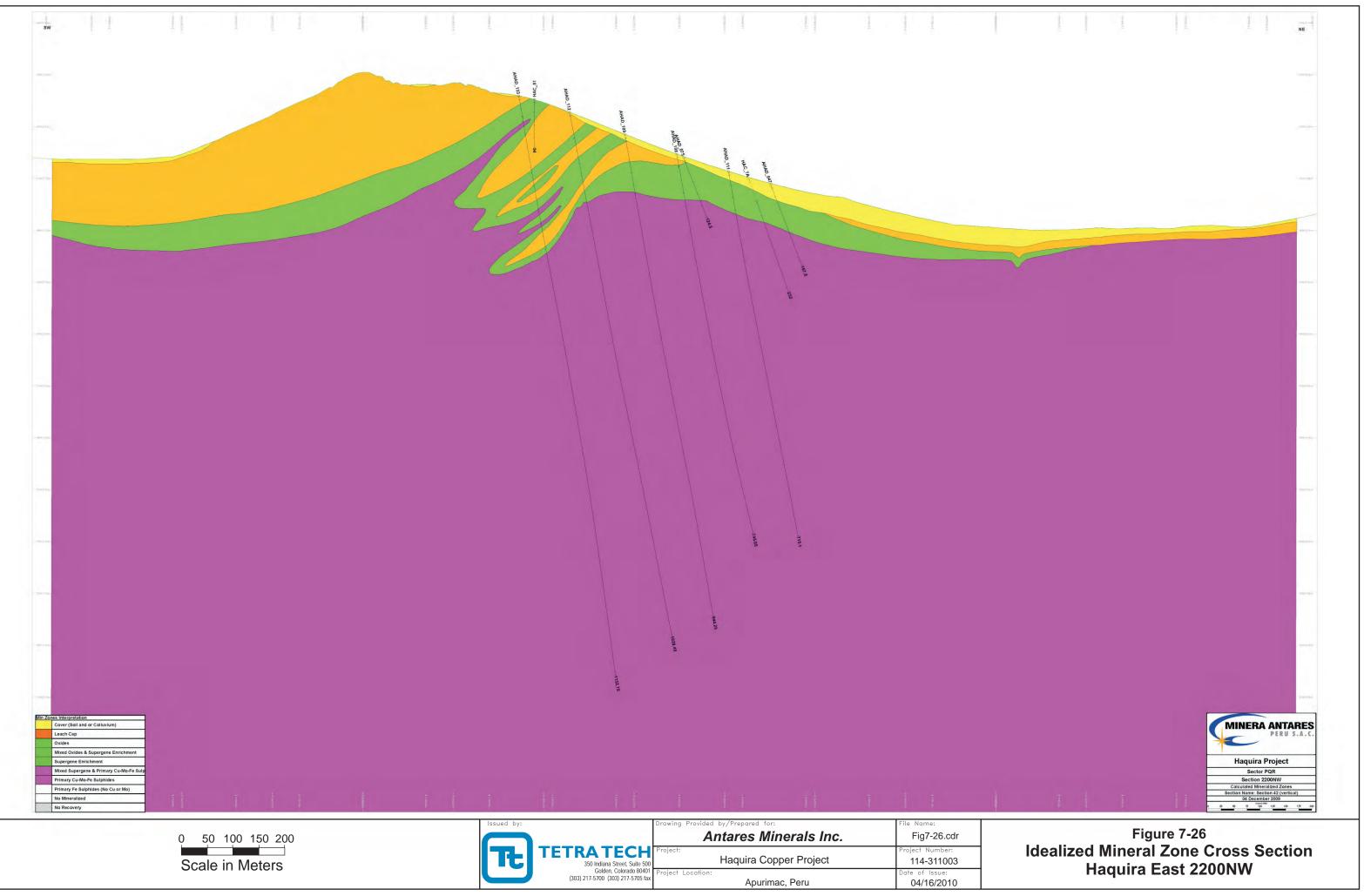


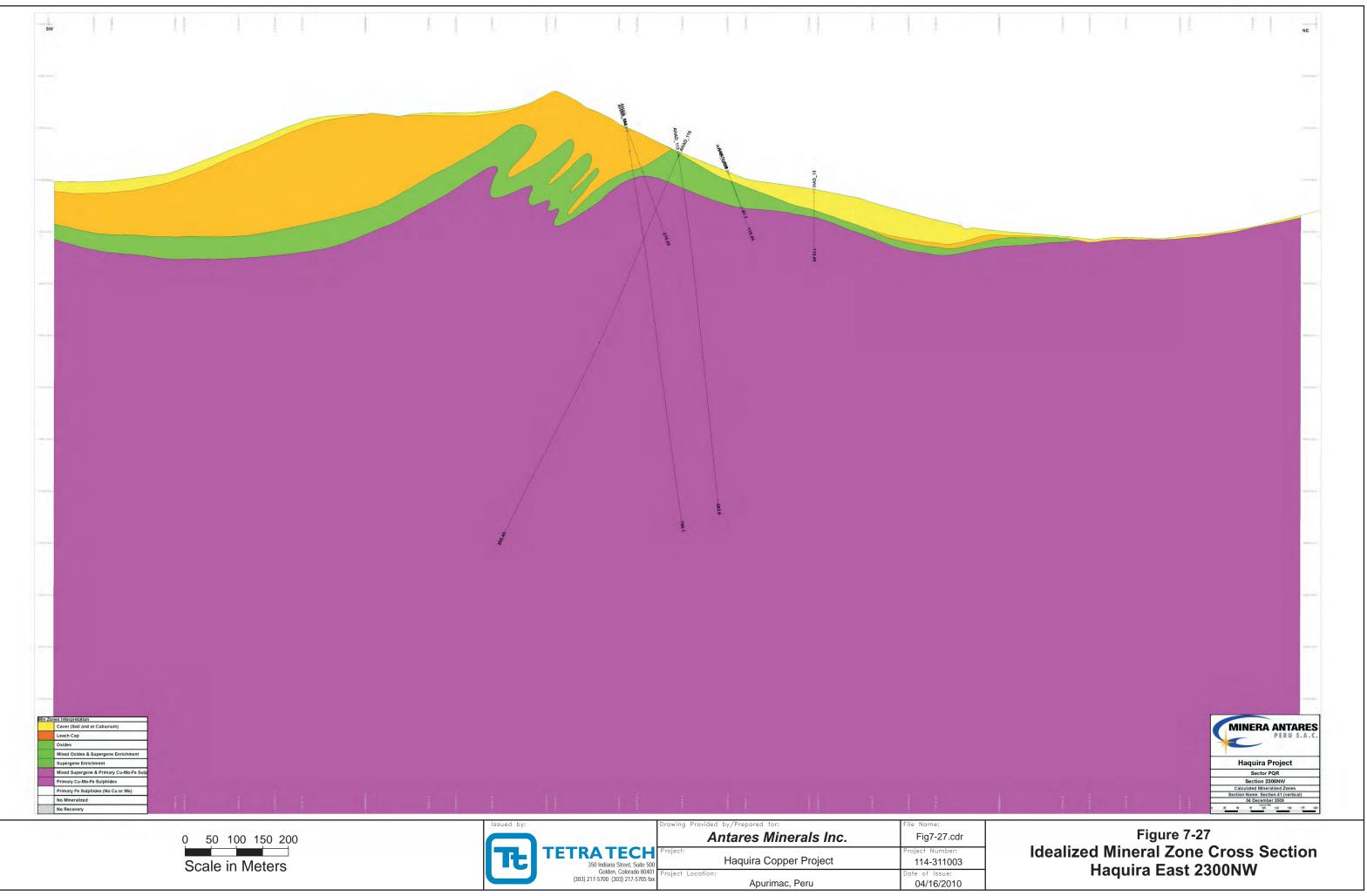


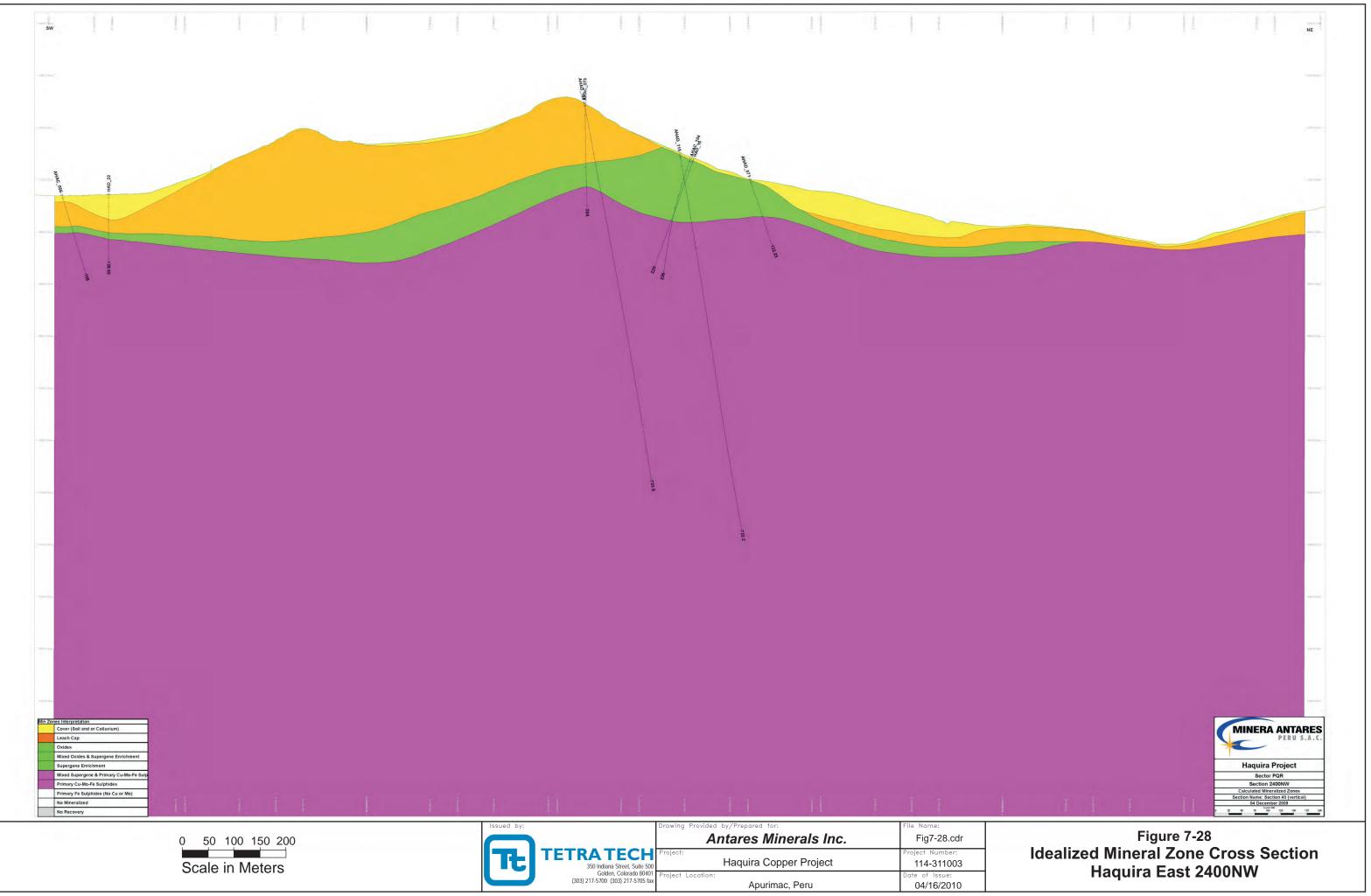






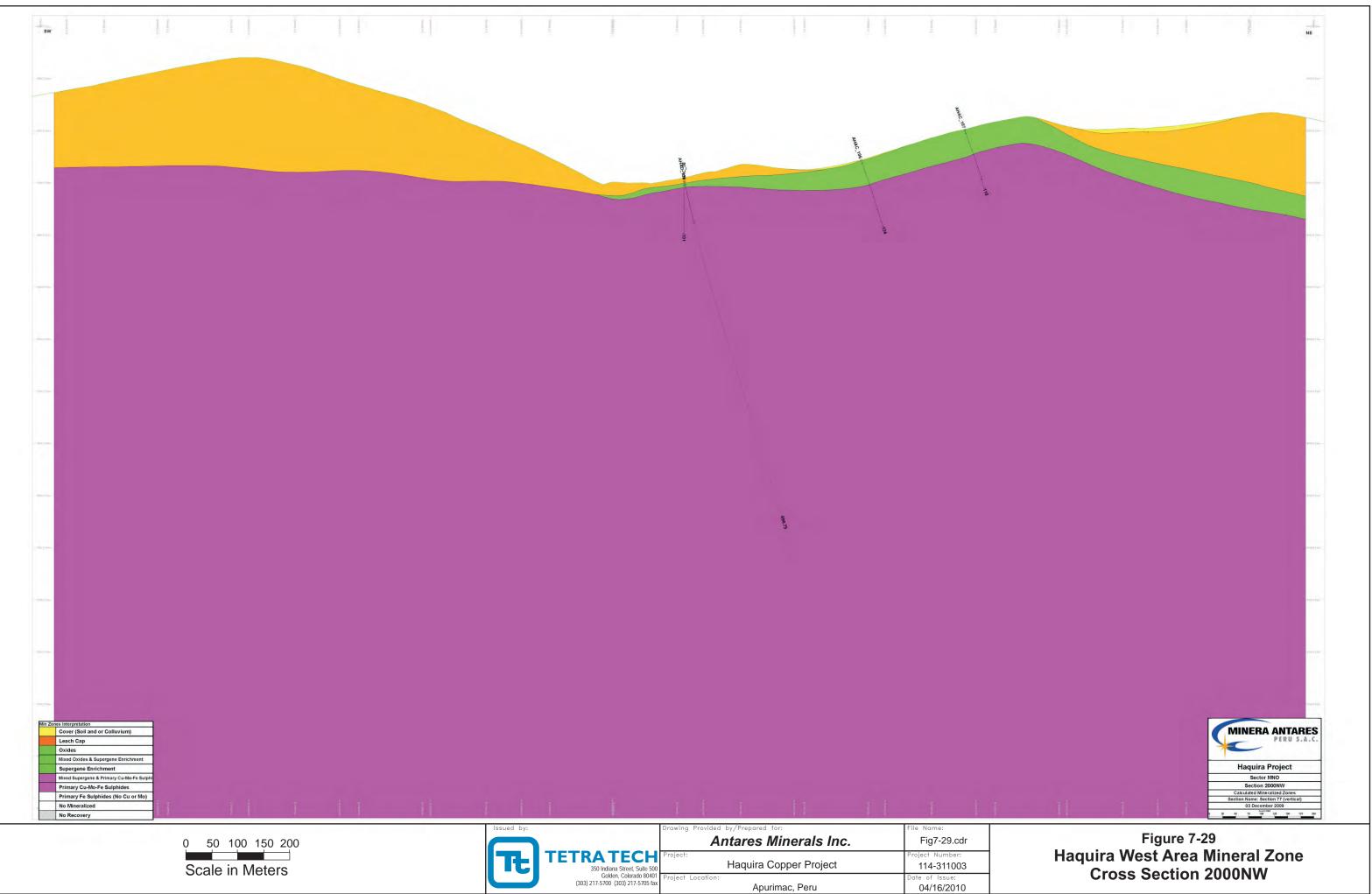


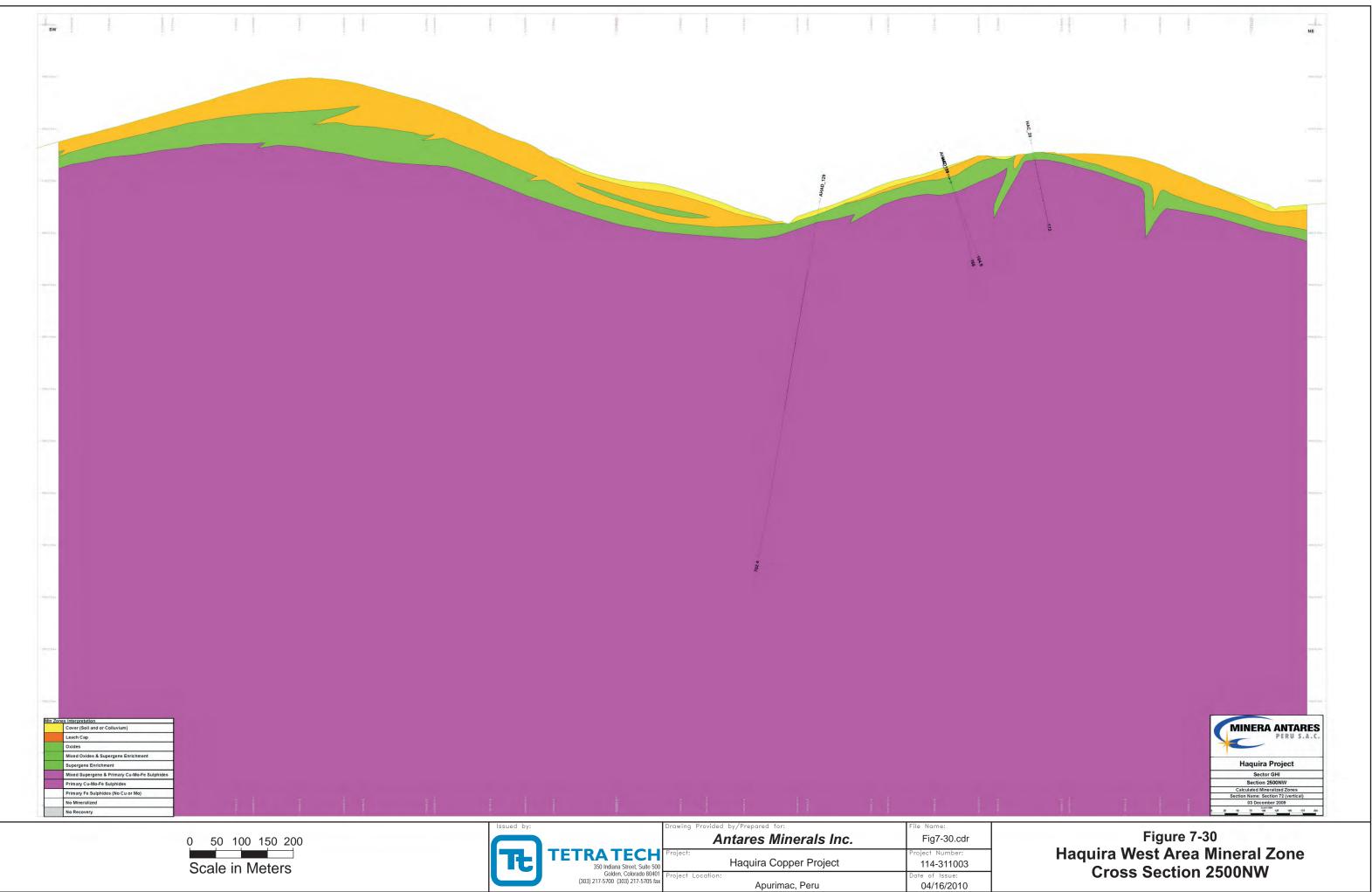


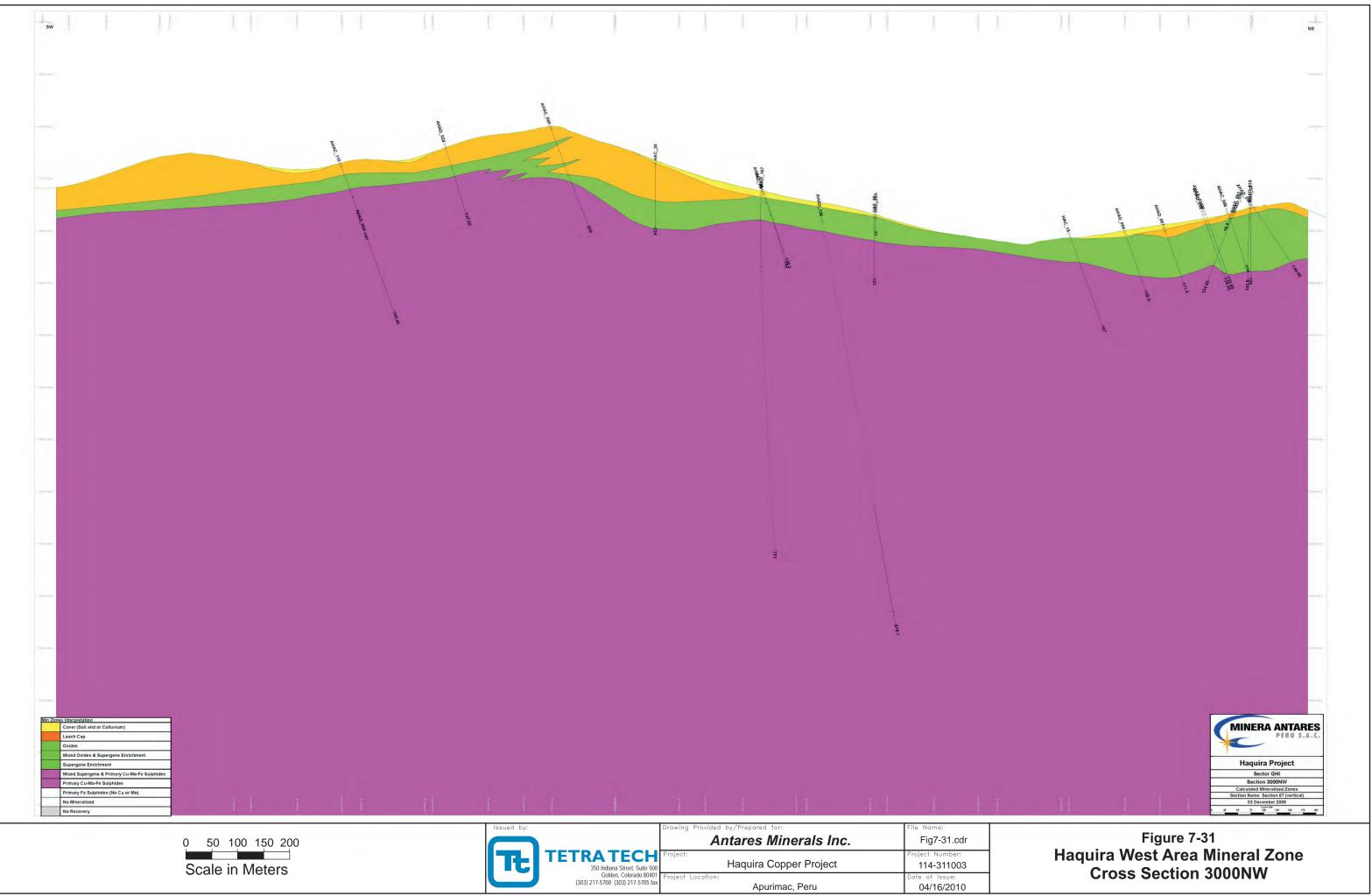


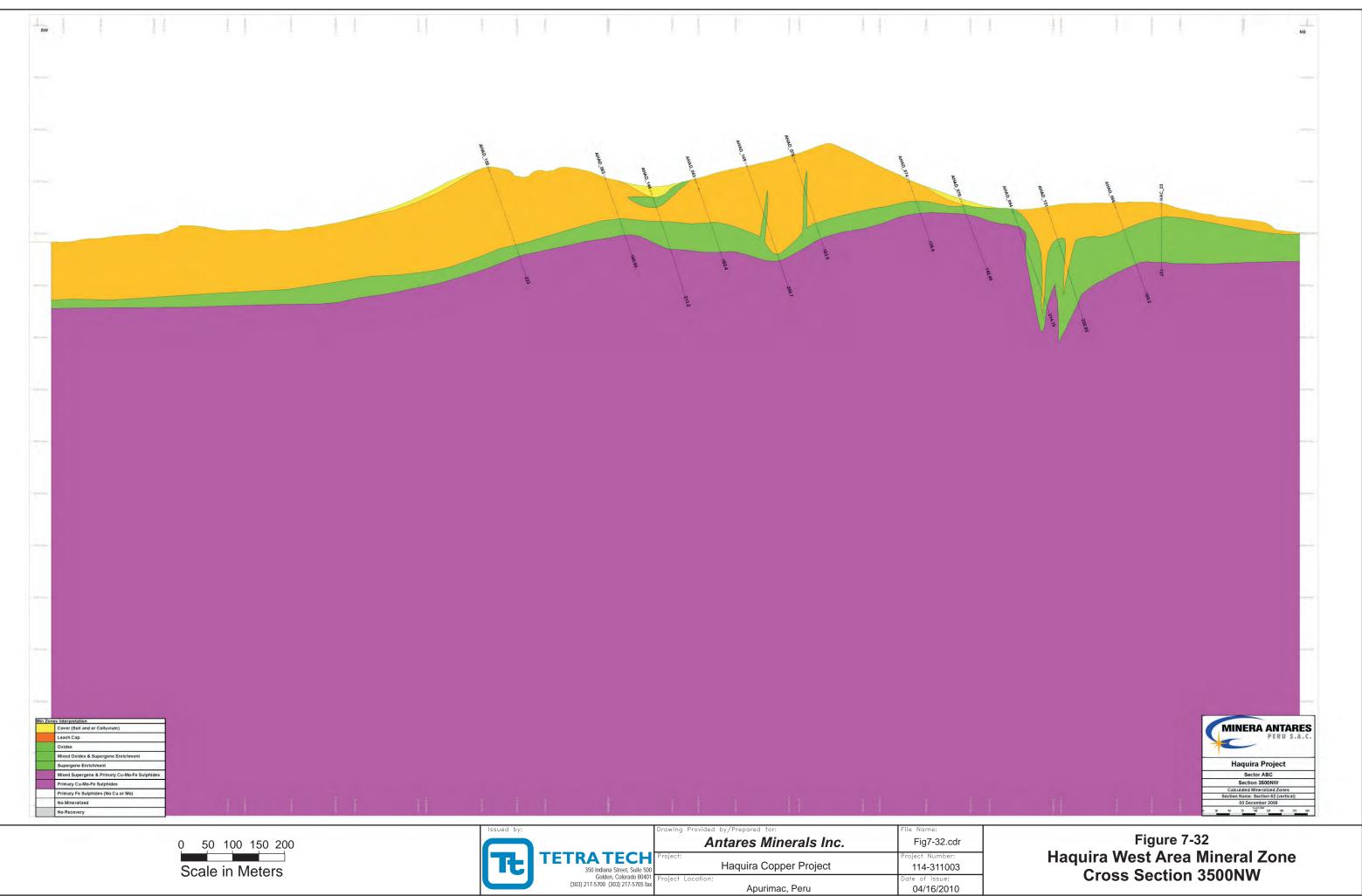
7.4 Haquira West Deposit-scale Geology

The geology of the Haquira West area shares many similarities to that described above for the Haquira West area; with main difference being the more dyke-like geometry and the presence of additional, as yet to be classified intrusive rocks. A revised set of systematically interpreted cross-sections of the lithology are currently in progress; hence no lithology was used in the resource estimate for the Haquira West area. However, an updated set of sections showing the mineral zones was completed and used in the mineral resource. Sections were completed from 2000NW to 400NW, every 100m throughout the deposit. Figures 7-29 to 7-33 show 5 representative examples of these sections.









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Supergene Enrichment Mixed Supergene & Primary Cu-Mo-Fe Sulphides Primary Cu-Mo-Fe Sulphides							
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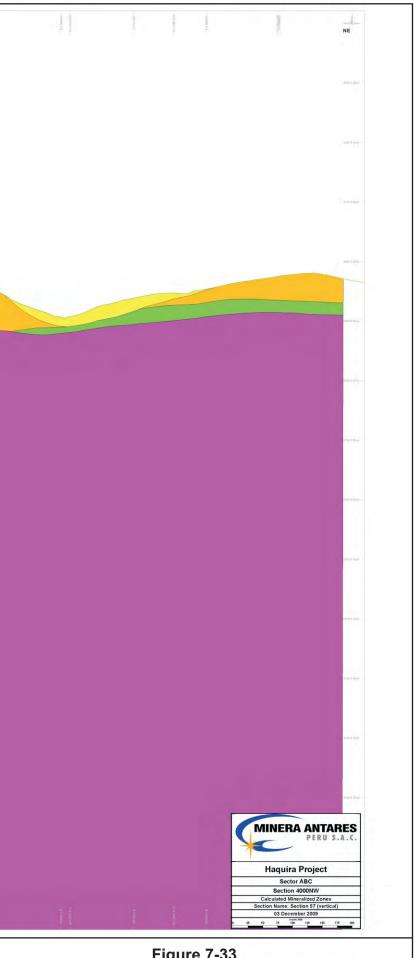


Figure 7-33 Haquira West Area Mineral Zone Cross Section 4000NW

8.0 DEPOSIT TYPE

Mineralization at Haquira is clearly related to porphyry-copper systems generated by the Oligocene intrusive rocks, including the Haquira Porphyry. Mineralization occurs not only in the form of sulphide-bearing stockworks and sheeted-vein systems of interesting grades in primary (hypogene) porphyry-copper style, but also as secondary (supergene) chalcocite and copper-oxide bodies. In addition, there is good potential for skarns developed in carbonate rocks adjacent to the porphyry intrusive rocks.

The Andahuaylas-Yauri belt of southern Peru is host to significant skarn and porphyry-style copper +/- gold +/ molybdenum mineralization, including the skarn (Tintaya, Coroccohauyco) and porphyry copper deposits (Quechua, Antapaccay) of the Tintaya district, the skarns in the Bambas district, and the Los Chankas porphyry copper deposit.

The occurrence at Haquira of shallow to intermediate-level porphyry intrusive rocks, and alteration of calc-silicate (skarn), sericitic, and propylitic (chlorite-epidote) types, point to a porphyry-copper environment.

Drilling by Antares in late 2006 encountered high-grade intercepts of primary (hypogene) Cu-Mo \pm Au porphyry type mineralization below the secondary-enriched Cu mineralization at Haquira East; the discovery of the high-grade primary sulphide Haquira East porphyry deposit which is the subject of this current report.

Potential also exists for similar high-grade primary mineralization below the secondary Cu mineralization at Haquira West, as evidenced by a number of drillholes that bottom in primary Cu-Mo mineralization at Haquira West. Other targets with potential economic significance are copper-skarn deposits similar to those that occur in the Las Bambas area immediately to the north and contiguous to the Haquira property.

9.0 MINERALIZATION

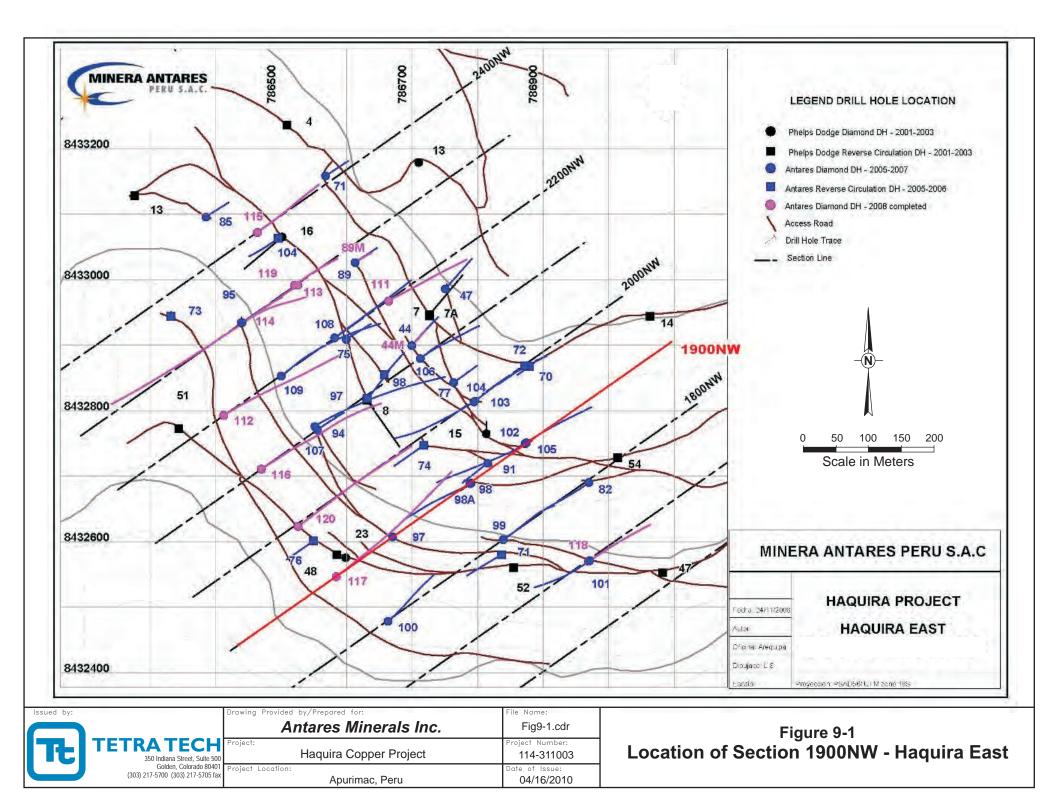
Exploration on the Haquira property (both Haquira West and East mineralized zones) has located both secondary and primary copper mineralization, as well as associated primary molybdenite and gold mineralization. The Haquira East primary and secondary mineralized zones are the principal focus of the current report.

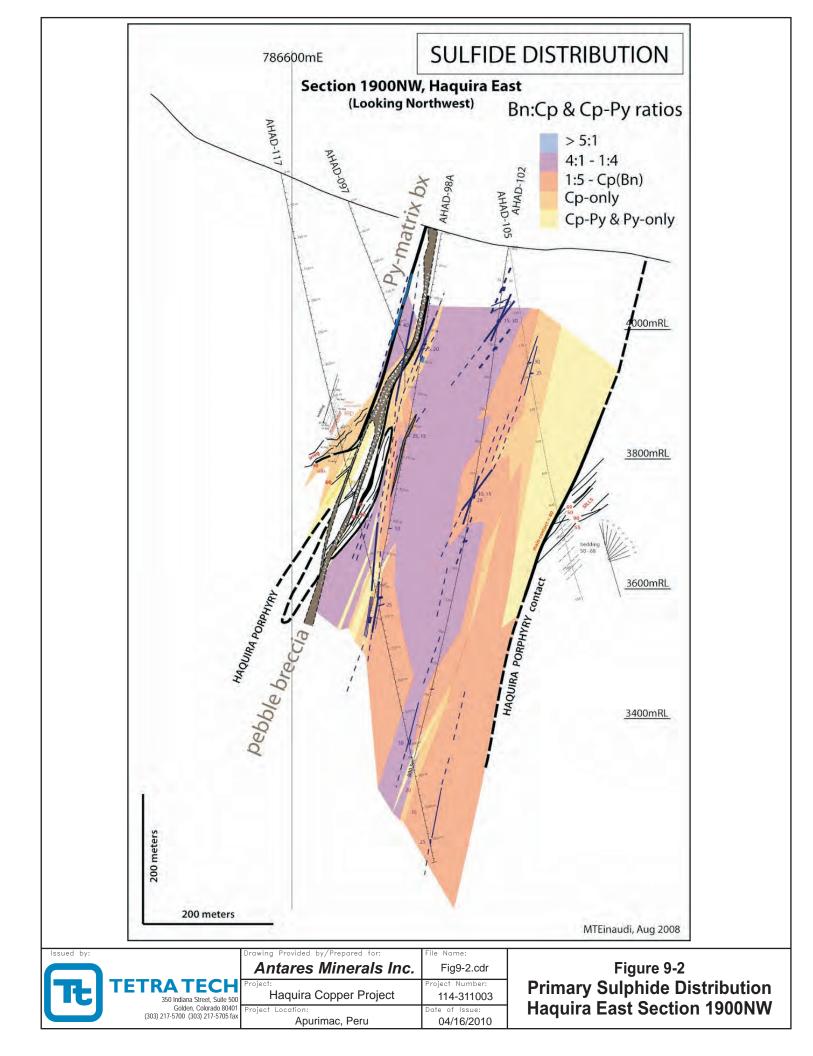
9.1 **Primary Mineralization**

The primary (hypogene) mineralization at Haquira East and Haquira West is of porphyry-copper type, spatially associated with a stock-like intrusive bodies and associated dyke swarms (FIGURES 7-6 to 7-16).

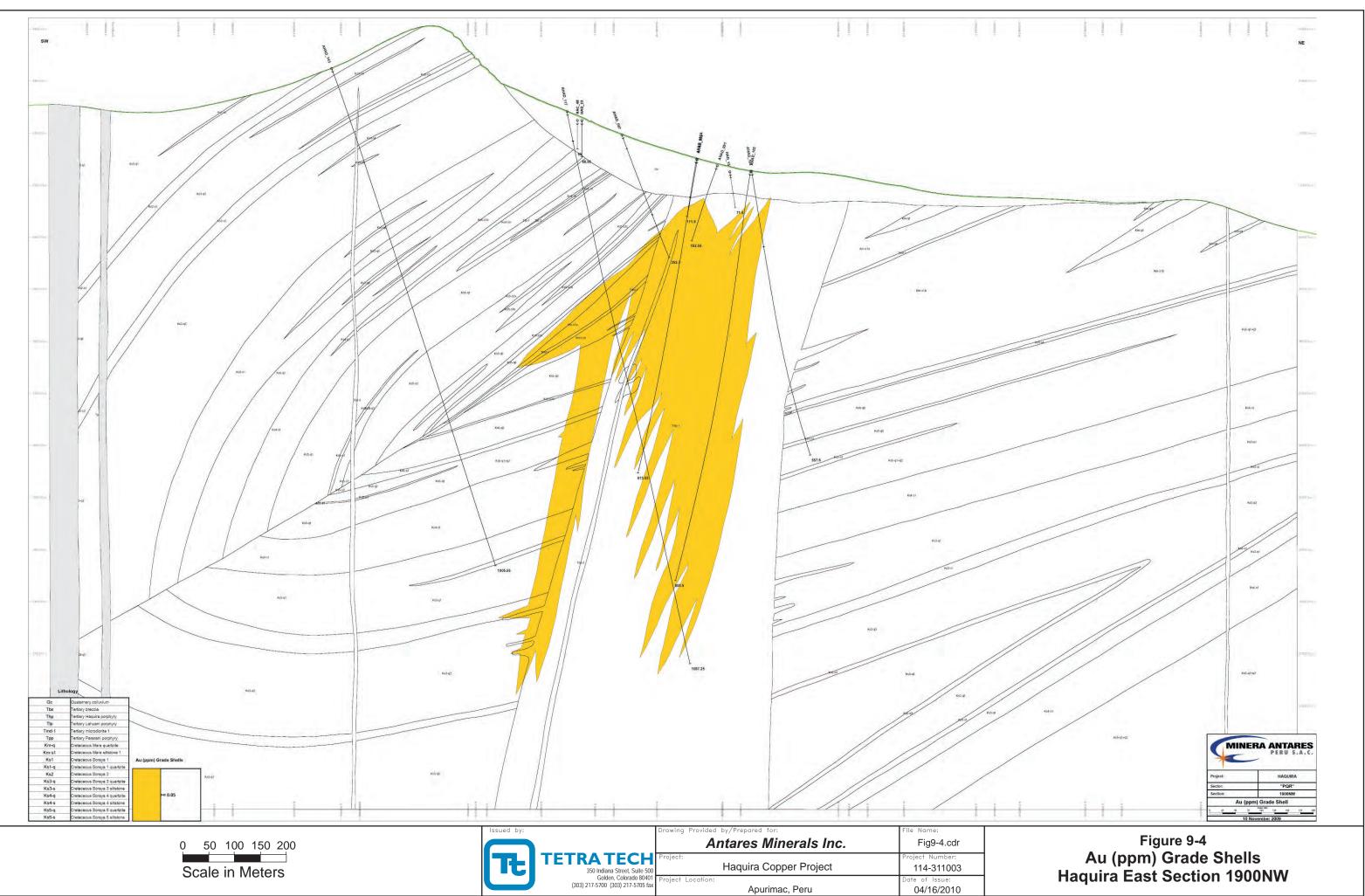
See FIGURES 9-1 to 9-7 to see an example section 1900NW through the Haguira East deposit (FIGURE 9-1). The sulphide mineral distribution (FIGURE 9-2), %TCu grade distribution (FIGURE 9-3), Au (ppm) grade distribution (FIGURE 9-4), Mo (%) grade distribution (FIGURE 9-5), Au/Cu ratio (FIGURE 9-6), and superimposed %TCu, Au (g/t), Mo (%) grades on sulphide mineral species (FIGURE 9-7). Primary mineralization consists of chalcopyrite, bornite, molybdenite, with peripheral pyrite forming a "pyritic-halo" on the deposit. Bornite-rich zones typically contain elevated gold values. Recent work by consulting geologist Marco Einaudi (2008) on the Haguira East primary deposit, in conjunction with Antares geological staff, has documented a strong asymmetrical distribution of the primary copper sulphide mineral species, Au/Cu metal ratios, and EDM vein distribution, all of which suggests that only part of the Haquira East primary deposit has been found to-date. The north to northeast margin of the porphyry body is dominantly pyrite ± chalcopyrite which grades rapidly into chalcopyrite ± pyrite, chalcopyrite, bornite, and bornite ± chalcopyrite towards the south to southwest and is still open. Such asymmetric sulphide distributions are not typically encountered within porphyry copper systems, thus leading Einaudi (2008) and Antares geological staff to the possibility that only a portion of the Haguira East deposit has been discovered to-date. Molybdenite mineralization appears to form a shell-like cupola that is coincident with the top and margins of the main porphyry body.

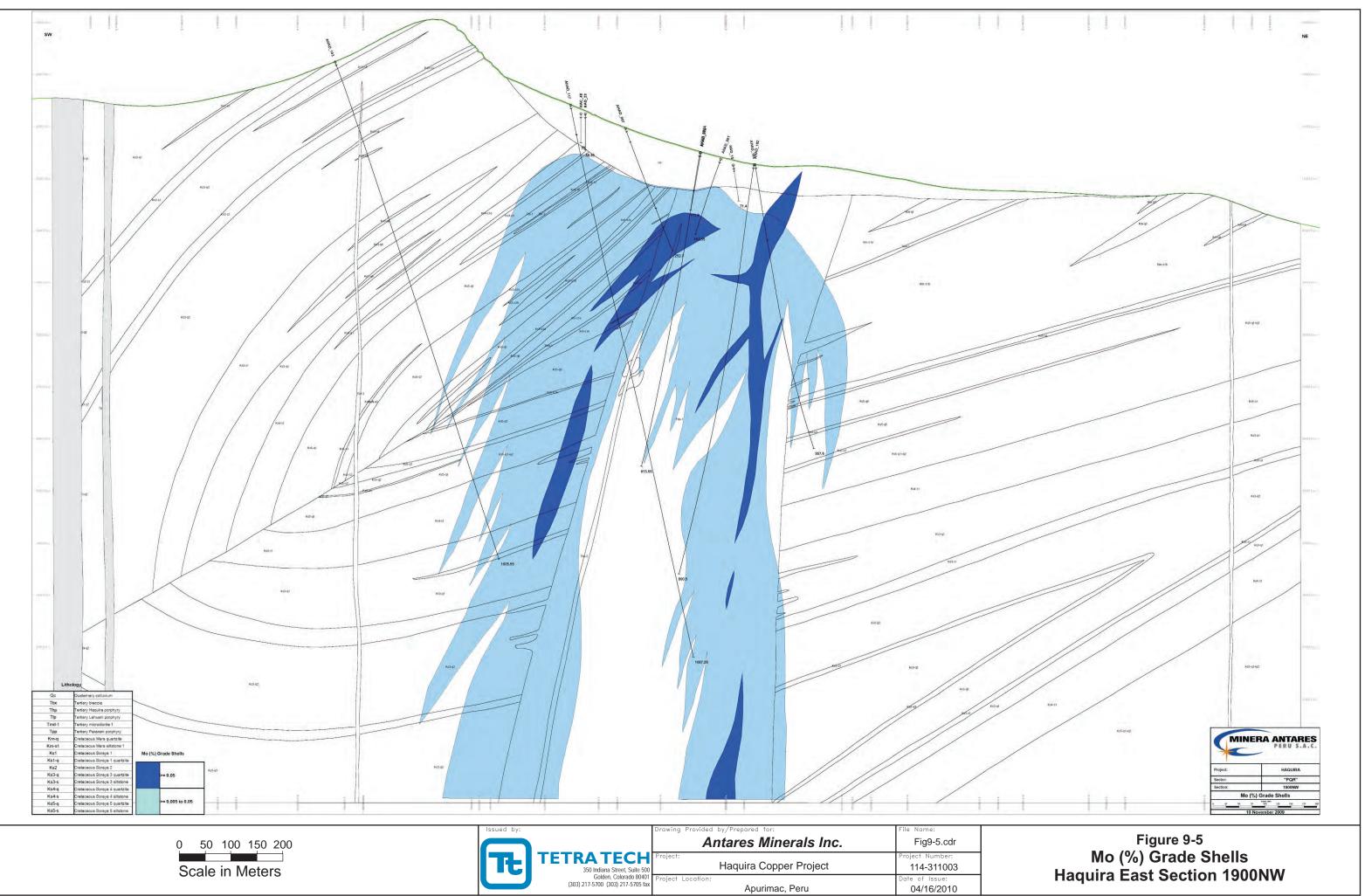
Quartz- and sulphide-bearing stockworks and sheeted-vein systems typical of porphyry copper systems have been recognized in these intrusive rocks and the surrounding sedimentary stratigraphic section, especially in proximal silicified and hornfelsed fine-grained sedimentary rock units. The primary mineralization exhibits a strong structural control, with the primary sulphide minerals occurring in well-fractured structural zones and as disseminations; both within the host porphyry intrusive rocks and within the surrounding fine-grained sedimentary rocks and quartzites (Photos 9-1 to 9-8).

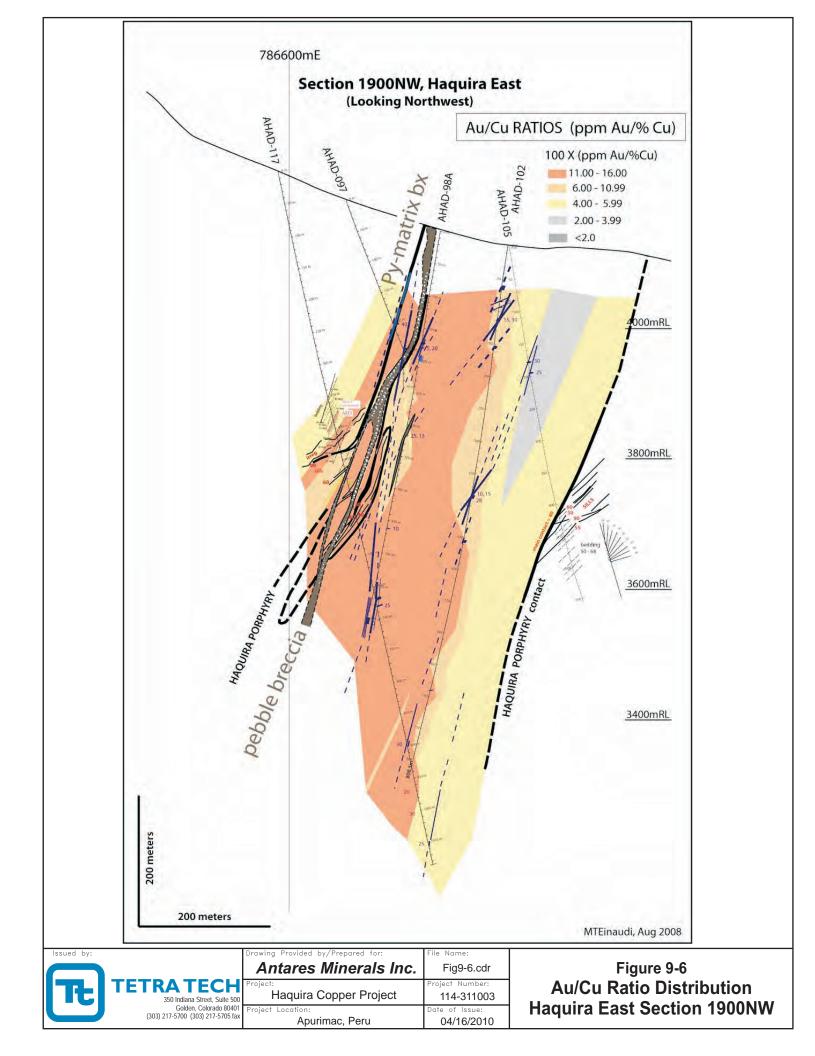












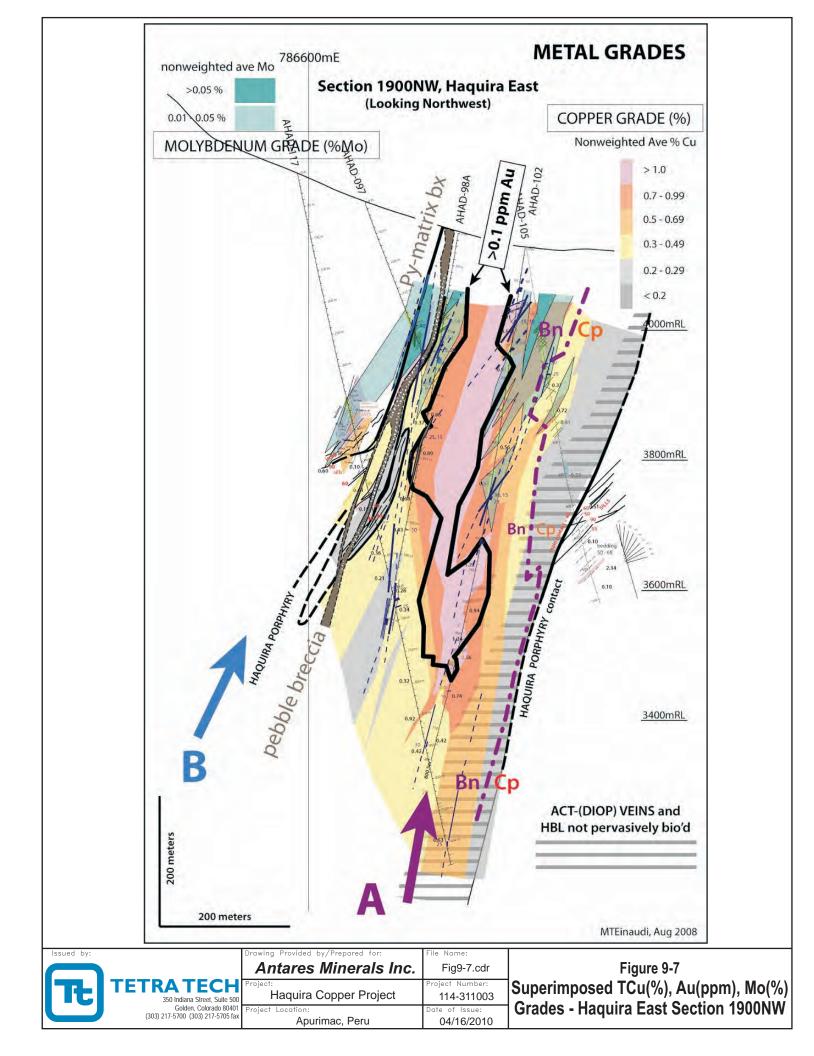




Photo 9-1: Mineralized sheeted quartz vein sets within the Haquira East porphyry

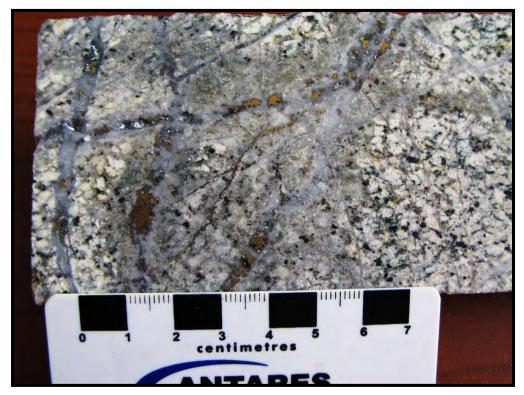


Photo 9-2: Chalcopyrite, bornite and molybdenite bearing quartz vein stockwork

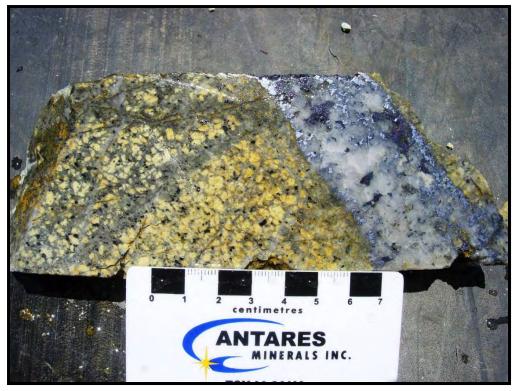


Photo 9-3: Molybdenite and bornite bearing quartz vein, Haquira East porphyry

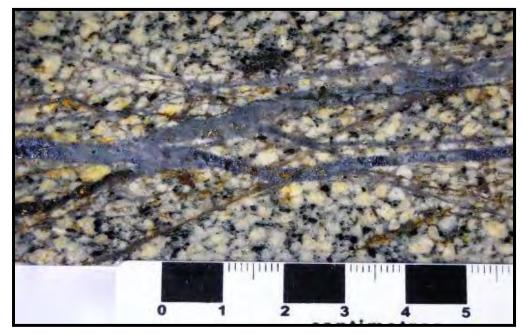


Photo 9-4: Sheeted quartz-molybdenite-bornite-chalcopyrite veins, Haquira East



Photo 9-5: EDM (early dark micaceous) vein halos (green)



Photo 9-6: Close-up of Fig 9-12 with abundant bornite-chalcopyrite in the EDM halo



Photo 9-7: Mineralized and altered fine-grained sedimentary wall rocks

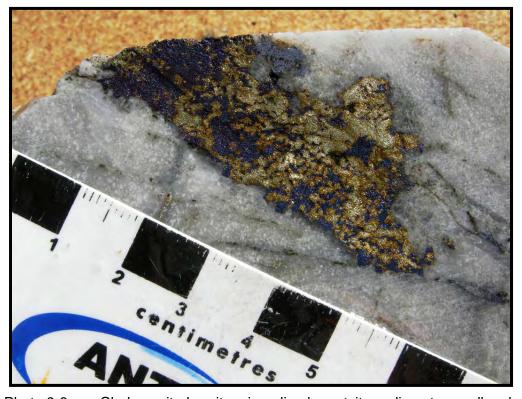


Photo 9-8: Chalcopyrite-bornite mineralized quartzite sedimentary wall rock

9.2 Secondary Mineralization

Secondary (supergene) mineralization occurs at both Haquira East and Haquira West as copper oxide minerals and locally the development of a secondary chalcocite blanket. The mineralogy and origin of the Haquira secondary minerals were studied by Prof. William X. Chavez of the New Mexico Institute of Technology in Socorro, on behalf of Antares.

Most of the secondary mineralization is characterized by black copper oxides (principally tenorite), Cu-bearing goethite and pitch limonite, suggesting a low-pyrite system. Brochantite and chrysocolla are commonly associated with the oxidation of chalcocite. Chalcocite "blankets" are best formed in and proximal to structures. Given the high permeability, the structures are sites of repeated leaching/enrichment as manifested by the rare occurrence of cuprite, chalcotrichite and native copper. Minor malachite has also been identified. See Photos 9-9 to 9-13 for examples of the secondary mineralization found at Haquira East and West.



Photo 9-9: Green Cu-oxide stained Haquira East porphyry with quartz stockwork

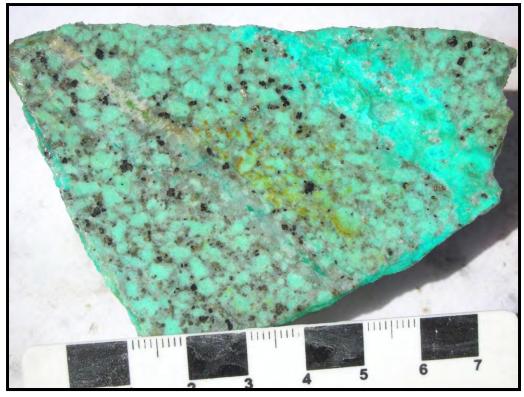


Photo 9-10: Green Cu-oxide stained Haquira East porphyry.



Photo 9-11: Chalcocite-cuprite filled fractures in a quartzite wall rock, Haquira East

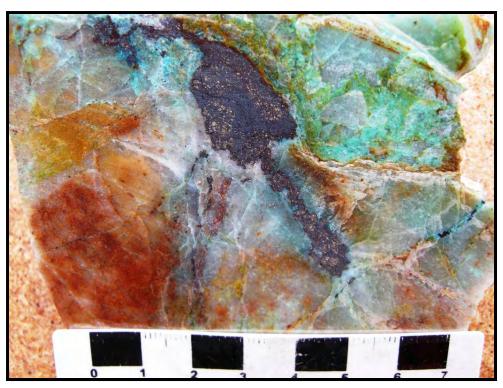


Photo 9-12: Green Cu-oxides and chalcocite after bornite-chalcopyrite in a quartzite wall rock, Haquira East



Photo 9-13: Green Cu-oxides in a quartzite wall rock , typical of Haquira East and West mineralization

9.3 Mineral Zones

The following mineralization zones have been adapted and modified from a system originally used by PD Peru for the Haquira project. They describe the succession, mainly in a vertical sense, of mineral assemblages as shown in TABLE 9-1.

ZONE	NAME	DIAGNOSTIC MINERALS								
1	Leach Cap	FeOx-MnOx-Clays								
2	Oxides	BkCuOx-BGCuOx-Cuprite-Cu ^o								
3	Mixed Oxides & Supergene Enrichment	(BkCuOx-BGCuOx-Cuprite-Cu ^o)+(Cc)								
4	Supergene Enrichment	Cc								
5	Mixed Supergene Enrichment & Primary Cu-Mo-Fe Sulphides	(Cc)+(Cpy-Py-Bo-Mo)								
6	Primary Cu-Mo-Fe Sulphides	Сру-Ру-Во-Мо								
7	Primary Fe Sulphides (no Cu or Mo)	Ру								
9	Not Mineralized	-								
8	Cover (soil and/or colluvium)	-								
	Mineral Abbreviations									
FeOx:	lron oxides (geothite, jarosite, hematite)	Cc: Chalcocite								
MnOx:	Manganese oxides	Cpy: Chalcopyrite								
BkCuC	Dx: Black copper oxides (neotocite, Cu-wad))	Py: Pyrite								
BGCu	Dx: Blue-green copper oxides (azurite, malachite, chrysocolla)	Bo: Bornite								
Cuº: N	ative copper	Mo: Molybdenite								

TABLE 9-1:Haquira Mineral Zones

The zones are described in more detail below. Percentages of minerals refer to the fraction of each mineral in the secondary copper mineral suite, not to weight percent in the rock.

Mineralization of potentially economically-leachable grades occurs mainly in Zones 2, 3, and 4.

Zone 1 – Leached Cap Zone

Consists of rocks that have undergone strong to intense surface oxidation during supergene weathering. The zone is characterized by the presence of iron oxides (FeOx) \pm manganese oxides (MnOx) and the complete destruction of all primary sulfide and secondary Cu-oxide and Cu-sulfide minerals. There are examples where the oxidation (leaching) has not completely destroyed all the primary sulfide minerals; however it is sufficiently leached to warrant inclusion into the leached cap zone. Importantly, there are no significant Cu-bearing oxide minerals found within this zone; therefore, it typically returns very low copper assay results. The distribution of Zone 1 is controlled by two principal factors:

Proximity to the surface topography; and

Faults and zones of stronger fracturing.

Sub-vertical faults and zones of stronger fracturing allowed the supergene fluids, responsible for the oxidation, to penetrate deeper down, away from the surface. For this reason, it is quite common to encounter leached cap rocks at depths of over 100 m below the surface, and some cases as deep as 200 m.

Zone 2 – Oxide Zone

Consists of rocks similar in overall appearance to those described for Zone 1 above, but in Zone 2 there are abundant secondary Cu-oxides. A variety of secondary Cu-oxide minerals can occur; black Cu-oxides (BkCuOx) (Cu-Mn wads), blue-green Cu-oxides (BGCuOx) (e.g., chrysocolla, malachite, brochantite), and an as yet unidentified yellow-colored mineral, which during the logging of Antares drillholes and re-logging of Phelps-Dodge drillholes was described as an oxide mineral (YelCuOx). No primary (hypogene) or secondary sulfide minerals are found in this zone.

Zone 3 – Mixed Oxides & Supergene Enrichment Zone

Mixed Oxides & Supergene Enrichment Zone consists of a mixture of secondary Fe-oxide (±FeOx), Mn-oxide (±MnOx), and Cu-oxide (±BkCuOx, ±BGCuOx, ±YelCuOx) minerals and the presence of secondary chalcocite (Cc) (± other secondary Cu-sulphides). Remnant amounts of primary (hypogene) sulphides may be present.

Zone 4 – Supergene Enrichment Zone

Consists of greater than 60% secondary chalcocite (Cc) \pm and minor quantities of other secondary Cu-sulfide minerals. FeOx, MnOx, BkCuOx, BGCuOx, and YelCuOx minerals are only found in trace amounts.

Zone 5 – Mixed Supergene Enrichment & Primary Cu-Mo-Fe Sulphides Zone

Consists of between 30 and 60% secondary chalcocite (Cc) (± minor quantities of other secondary Cu-sulfide minerals) and 70% to 40% primary Cu-Mo-Fe sulfide minerals. FeOx, MnOx, BkCuOx, BGCuOx, and YelCuOx minerals are only found in trace amounts.

Zone 6 – Primary Cu-Mo-Fe Sulphides Zone

Consists of variable amounts of chalcopyrite, bornite, molybdenite, hypogene chalcocite, and pyrite. If there is secondary chalcocite present, it must represent less than 30% of the total Cusulphides present. FeOx, MnOx, BkCuOx, BGCuOx, and YelCuOx minerals are only found in trace amounts.

Zone 7 - Primary Fe Sulphides Zone or Pyrite Zone

Consists of pyrite and does not contain any Cu- or Mo-sulfide minerals. No BkCuOx, BGCuOx, or YelCuOx minerals, and only trace amounts of FeOx and/or MnOx, should occur.

Zone 8 – Cover (Colluvium or Soil) Zone

Consists of soil and/or colluvium. In some instances, the colluvium may contain BkCuOx, BGCuOx, and YelCuOx minerals, thereby classifying it as Zone 2.

Zone 9 – No Mineralization Zone

Contains no secondary oxide or sulfide minerals and does not contain any FeOx or MnOx minerals due to the oxidation of sulfide minerals. Typically, this zone is found in rocks outside the area of influence of the Haquira mineralizing porphyry system.

10.0 EXPLORATION

Antares has focused its exploration and drilling efforts on the original mineral properties acquired from PD Peru in mid-2005. Antares has increased its mineral properties holdings from 5,700 to 14,800 ha by staking surrounding contiguous area and with the recent agreement to acquire up to a 60% interest in the adjacent Cristo de los Andes property the complete property position of the Haquira project now totals 20,900 ha. The Company has completed only minimal exploration work on the new mineral concessions.

As mentioned earlier, Haquira borders the Las Bambas Special District, where Xstrata Copper is working, to the north, and Southwestern Minerals' Cristo de los Andes property to the south (now subject to an option agreement with Antares). The district is highly mineralized, and there is good potential for additional discoveries of primary porphyry, secondary enrichment, and skarn mineralization.

Exploration of the Project prior to Antares' acquisition was undertaken by PD Peru. The PD Peru geophysical and geochemical surveys were instrumental in guiding the location of potential drillholes, which resulted in discoveries of primary and secondary mineralization.

Exploration by PD Peru on the Haquira Property commenced in 2000 with a regional streamsediment sampling program. Anomalies were traced to source areas and copper oxides were recognized at surface in the project area. Follow-up work by PD Peru identified both primary and secondary copper mineralization typical of porphyry copper deposits. Exploration by PD Peru in the period 2000-2005 consisted of geological mapping, geochemical (stream-sediment and soil) surveys, geophysical (IP, resistivity and magnetic) surveys, and drilling (61 reverse circulation holes for 7,920 m and 24 diamond core holes for 3,460 m).

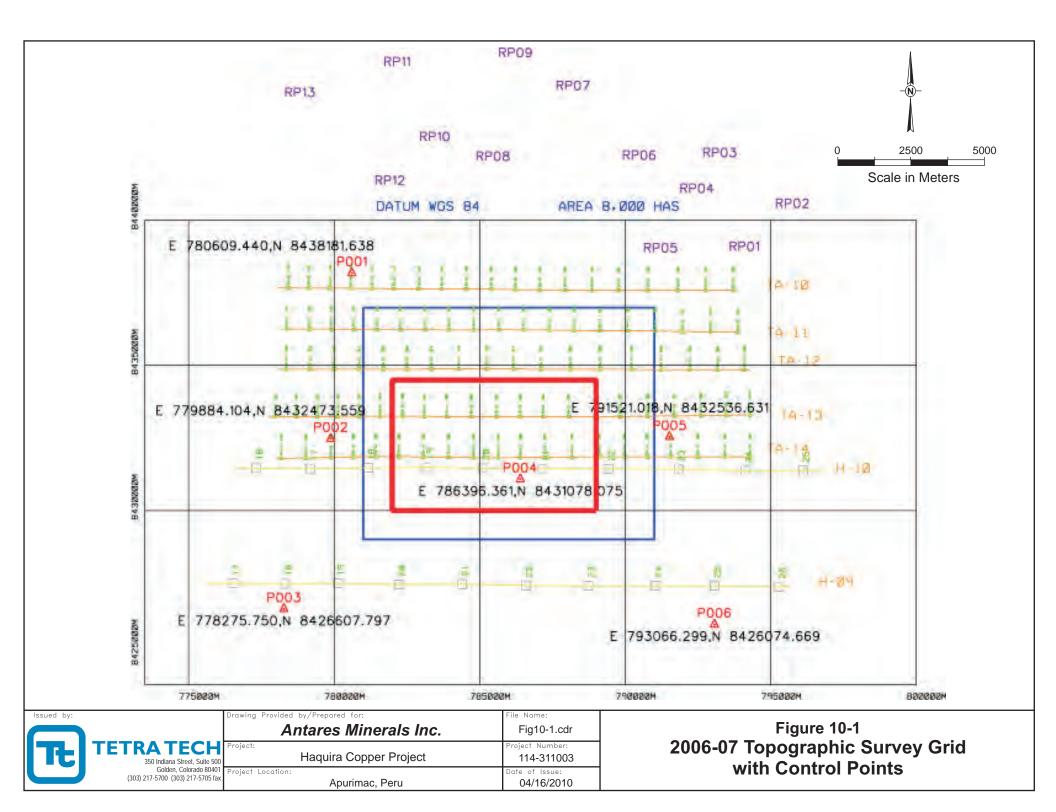
From 2005 to 2009, Antares completed a total of 63,746.20 m in 208 drillholes; plus an additional 685.70 m in 6 metallurgical drillholes. In total, there has been 75,126.60 m drilled in 299 drillholes at the Haquira project to year-end 2009.

10.1 Topographic Surveys

PD Peru initially provided Antares with an electronic topographic file for the Haquira property. Contour intervals for the topographic map were represented at 25-m intervals. In April 2006, Antares contracted Horizons South America SAC to provide:

- Accurate location coordinates (X,Y,Z) of 8 previously identified monuments, part of a geodesic network on the Haquira property;
- Accurate location coordinates (X,Y,Z) of all drillhole collars on the property;
- Locate 6 additional monuments to be used as control points for orthophoto restitution;
- Create a topographic map of scale 1:2000 with 2-m elevation contours in the red zone on FIGURE 10-1; and
- Create a topographic map of scale 1:5000 with 5-m elevation contours in the blue zone on FIGURE 10-1.

The methodology utilized differential GPS and trigonometric leveling to obtain horizontal and vertical coordinate values. A base point, located in Xstrata Copper's camp (point RP01), was used for the Haquira topographic survey. From the RP01 point, a second point (P001) was established close to the Haquira project site, which became the reference point for the Haquira project survey.



10.2 Geochemical Surveys

PD Peru commenced exploration of the Haquira Property in 2000 with a stream-sediment sampling program. Anomalies were followed up-stream to the source areas where copper oxides were recognized in outcrops. During subsequent exploration, surface soil and rock-chip samples were collected on grids to help define drill targets. Reports from the PD geochemical surveys were not available to Tt for review. Samples were analyzed at the internationally accredited and certified commercial laboratories of ALS Chemex (ISO 9000 1) and SGS (ISO 9000 1) and ISO 17025 in Lima, Peru.

10.3 Geophysical Surveys

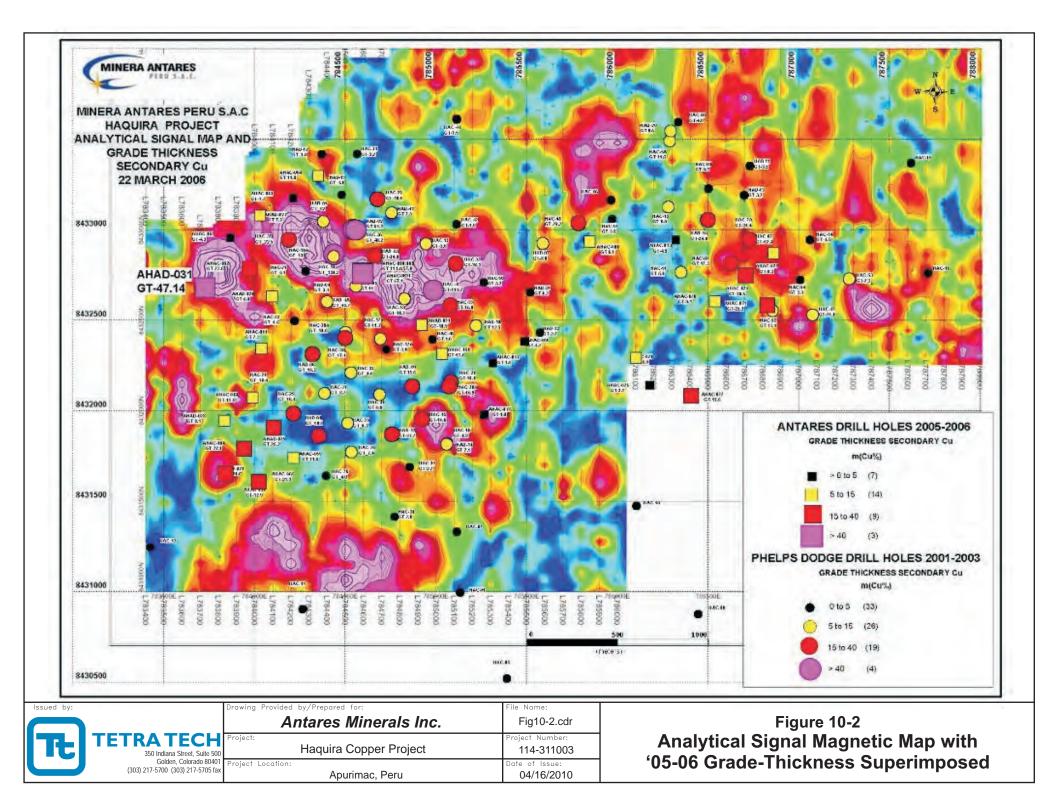
In 2001, 2-pole-dipole IP lines were completed by PD Peru to determine the response from known mineralized zones. In 2002 through 2004, Quantec Geosciences Peru S.A.C. conducted total field magnetic, IP, and resistivity surveys to identify additional drill targets. Reports on the results of these surveys were not available to Tt for review.

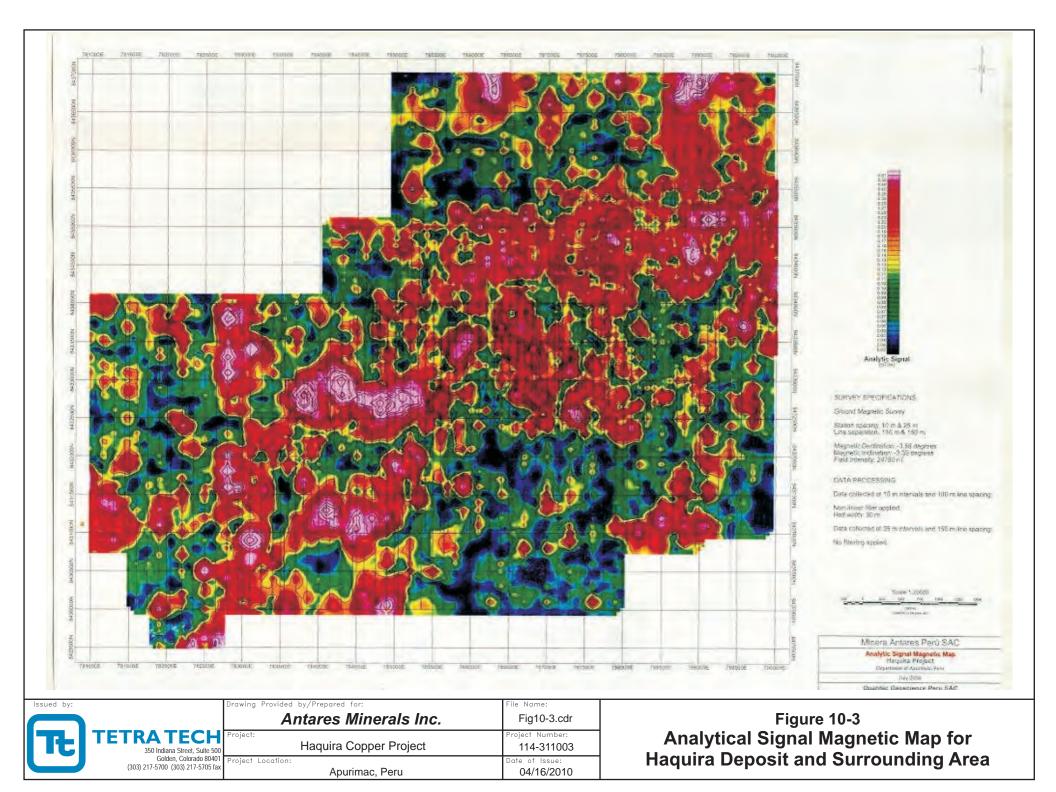
In June 2004, PD Peru completed a ground magnetics survey over an area covering both the Haquira West and East zones of mineralization. This survey was conducted using 100-m spaced lines with measurements collected every 10 m along those lines.

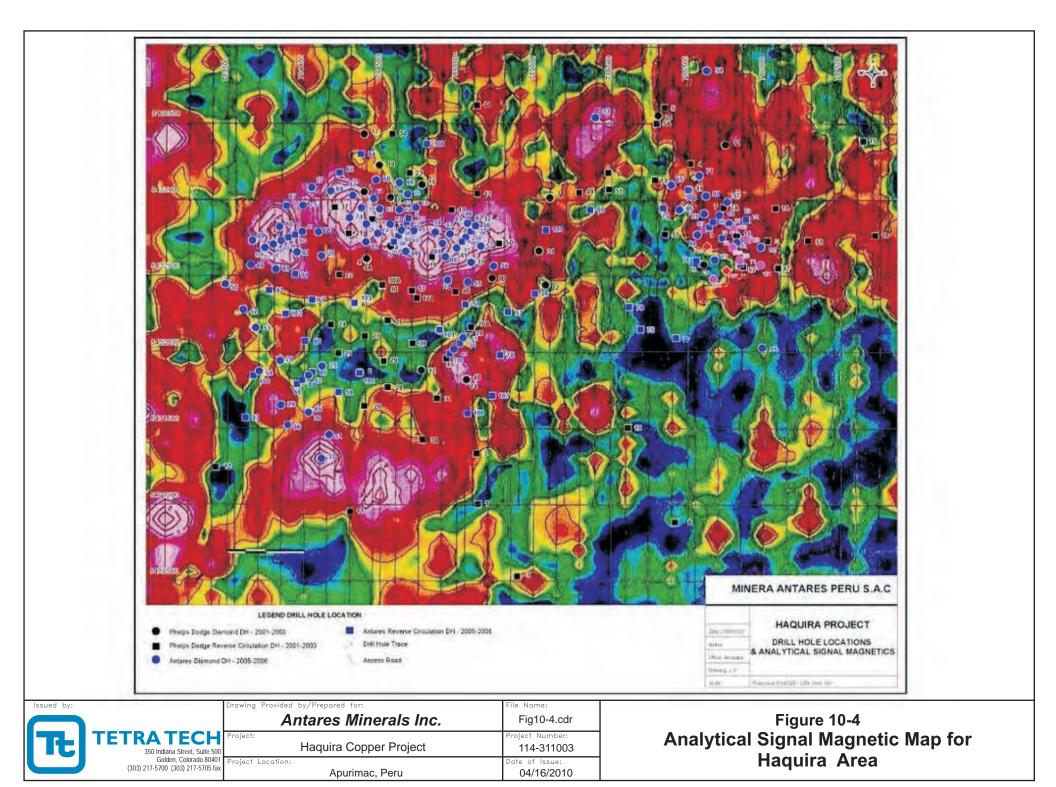
There appeared to be a correlation between high magnetics and some of the better gradethickness values; especially in the in the higher-grade zone in the northern portion of the Haquira West Zone. Although this relationship is not well understood, it appears that higher magnetic signatures may be related to magnetite-calc-silicate style alteration developed within finer-grained sedimentary rock units, which also carry some of the higher-grade copper values. Therefore, based on this apparent association, additional ground magnetic surveys were planned to extend the area of coverage.

In June 2006, Quantec Geoscience Peru SAC completed a ground magnetic survey over the Haquira project (FIGURES 10-2 to 10-4) for Antares. The 2006 survey was designed to expand the peripheral extents of the previous 2004 PD Peru survey (also conducted by Quantec) in order to better understand the aforementioned associations of magnetics to known higher grade mineralization, and to better delineate potentially important structures and porphyry intrusive bodies, be they dikes or stocks.

The survey consisted of 60 north-south lines, each of varying length and separated by a distance of 150 m. Ground magnetic data were collected at 25-m intervals along the lines. In total, 227.8 km of ground magnetic data were collected. The ground magnetic data were shown in a series of maps, (a) total magnetic field, (b) total magnetic field profiles, (c) reduced to the equator, and (d) analytic signal.







The extensions to the original 2004 survey show that additional magnetic targets are present to the south and to the west of the previous grid. Some of these magnetic targets were the focus of the later drill campaigns.

Figures 10-2 and 10-4 show an apparent correlation between the areas of higher density drilling (*i.e.*, better mineralization) and areas of higher magnetic response (red-magenta colors).

In 2007, Antares conducted a new IP (Induced Polarization) Geophysics program over both Haquira East and Haquira West. This program commenced in October 2007 and was completed in early December 2007. IP results were compared with drilling results at Haquira East in order to better define additional Haquira East targets for 2008 and to define a drilling program for Haquira West to begin in 2009.

10.4 Geological Mapping

PD Peru prepared a geological map of the Haquira Property showing rock types, alteration, mineralization, structures, and surface features (roads and drill sites) at a scale of 1:10,000. Geological mapping by Pratt (2006) and Gans (2008) provided more detailed information to assist the interpretation from subsurface geologic information gained from drilling.

10.5 Drilling Campaign

A substantial drilling campaign has been carried out by Antares from 2005 through 2008, as described in Section 11.0. Drilling in 2009 was primarily directed at testing the primary porphyry-copper mineralization beneath the secondary zone at Haquira East and some exploratory drilling at the Haquira Far East, Potato Patch and Haquira West deep hypogene targets. Drilling has resulted in interceptions of significant copper, molybdenum and gold mineralization beginning approximately 100 to 150 m below surface.

11.0 DRILLING

Drilling at the Haquira project started with PD Peru in 2001 and continues with Antares. Both companies have employed reverse circulation ("RVC") and diamond core drilling.

The various zones of secondary mineralization are sub-horizontal to gently-inclined, usually following topography to a large degree. Drilling on the property has thus been inclined at an average of about 15 degrees from vertical, to account for the inclination of secondary mineralization. Drill intercepts presented in this section are not true thicknesses, but are probably within 5% of true thicknesses.

11.1 Drilling by PD Peru, 2001-2003

During 2001 to 2003, PD Peru drilled 61 reverse circulation and 24 diamond drillholes for a total of 11,380 m, with 4,203 samples analyzed. TABLE 11-1 shows a summary of the results of the PD Peru drilling campaigns from 2001 through 2003, including the drilling, sampling, analytical, and QA/QC methods. Drillhole locations are shown on FIGURE 11-1, with PD Peru holes shown as black dots. The exploration campaigns defined mineralized zones in two areas referred to as the Haquira West and Haquira East targets.

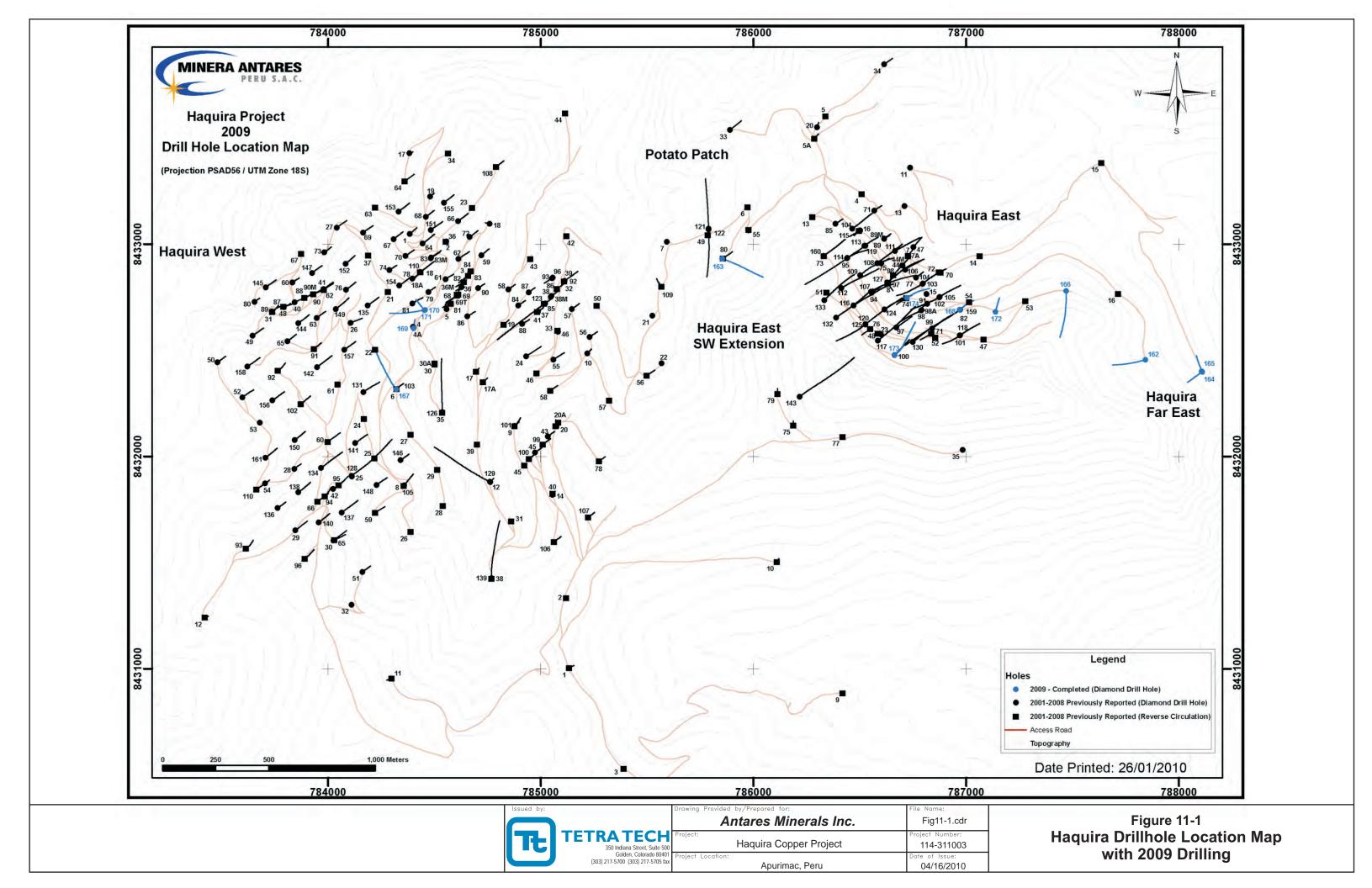
Reverse-Circulation Drilling

Four RVC drilling programs were completed by PD Peru during 2001, 2002, and 2003. The PD Peru RVC drillholes are labeled by the prefix of 'HAC' and include holes numbered from HAC-01 through HAC-055. Several holes were re-drilled or twinned and are labeled by a suffix of "A". Andes Drilling S.A. was contracted for the first two programs (15 holes for 2,112 m), and AK Drilling was contracted for the two programs in 2003 (46 holes for 5,809 m). Flowing water was an issue at and below 90 m for many of the drillholes, but sample recovery was generally greater than 85%; holes that had bad recovery were terminated and in most cases re-drilled. Drillholes with poor recovery that were not re-drilled include HAC-07 and HAC-17. Sample intervals were 3 m below the casing.

Diamond Core Drilling

Two core rigs, a Boyles 37 and an UDR 650, completed the PD Peru diamond drilling on the project. The PD Peru diamond core holes are denoted by the prefix HAD and include holes numbered from HAD-01 to HAD-23. Twenty-four holes for a total length of 3,460 m were drilled during the fourth quarter of 2003; due to poor recovery, HAD-04 was re-drilled as HAD-04A. All core was HQ-size (6.35-cm diameter).

The distance between the ground surface and the top of the interior drill platform was measured. This distance plus the length of core tubing that sticks out above the drill platform was considered the length of the core run completed. Once the core barrel was removed from the drillhole, the space between the top of the drill core and the top of the core barrel was measured. This length was subtracted from the length of the core barrel to obtain the true length of the drill core and to calculate the linear recovery of the sample.



	2001	2002	2003				
			2003-I	2003-II			
Drilling Period	Oct-Nov	Oct	Jun	Oct-Nov	Oct-Nov		
Drill Contractor	Andes Drilling Peru SAC	Andes Drilling Peru SAC	AK Drilling International SA	AK Drilling International SA	Perforaciones del Períu SAC		
Drill Rig	Foremost W-505	Foremost W-750	Foremost W-750	Foremost W-750	Universal Drill Rig UDR 657	Boyles A-37	
Drilling Method	RC, Face sampling hammer	RC, Face sampling hammer	RC, Face sampling hammer	RC, Conventional hammer	Diamond Drill HQ & NQ	Diamond drill HQ	
Total Drillholes	7	8	10	36	16	8	
Total Meters Drilled	743	1369	1882.5	3926	2362.15	1066.7	
Sample Method					HQ = 2295.45m & NQ= 97.70m	Diamond Drill HQ= 1066.7 m	
Dry	Total sample split on site (<5%)	Total sample split on site (<5%)	Total sample split on site (<5%)	Total sample split on site (<5%)			
Wet	Composite each meter directly from cyclone	Composite each meter directly from cyclone	Composite each meter directly from cyclone	Composite each meter directly from cyclone			
Wet (15m sample)	no	Composite every 3 m from cyclone	no	no			
Recovery Control	Volumetric	Volumetric	Volumetric	Volumetric	Linear measurement on site, weighed at Co. Verde		
Sampling	Stapled & Rolled plastic bags (2- 5kg)	Stapled & Rolled plastic bags (2-5kg)	Stapled & Rolled plastic bags (2- 5kg)	Stapled & Rolled plastic bags (2-5kg)			
					Aluminum boxes from drill site Transferred to cartons, photog		
Laboratory	SGS del Perú SAC, Lima	SGS del Perú SAC, Lima	SGS del Perú SAC, Lima	SGS del Perú SAC, Lima	Co. Verde Mine, Arequipa Pulverized to -100 mesh See Annex		
Lab Preparation	Pulverized to -140 mesh, 4-acid digestion	Pulverized to -140 mesh, 4- acid digestion	Pulverized to -140 mesh, 4-acid digestion	Pulverized to -140 mesh, 4-acid digestion			
Cu Total & Cu Sequential	Pulverized to -140 mesh	Pulverized to -140 mesh	Pulverized to -140 mesh	Pulverized to -140 mesh			
ICP	227	531	566	no	No	no	
Cu Total	3	19	220	1297	1027	555	
Cu Sequential	3	19	220	1290	1027	555	
S.G.	No	No	No	no	1027	555	
Rejects	Plastic bags	Plastic bags	Plastic bags	Plastic bags	Plastic bags	Plastic bags	
Pulps	Envelopes	Envelopes	Envelopes	envelopes	envelopes (5)	envelopes (5)	
Standards	Yes	Yes	Yes	yes	No	no	
Duplicates	Yes	Yes	Yes	yes	Yes	yes	
Logging	on site	on site	on site	on site	on site & Co. Verde	on site & Co. Verde	
Observations	Strong water influx during drilling. Program halted due to climatic conditions	15m composites made on certain holes due to lack of copper mineralization	Contracted booster and additional compressor to combat water influx and improve recovery.	Limited to TD's generally <125m to avoid potential sample recovery problems and concentrate on primary target (leachable copper)	UDR 650 with problems crossing post-mineral coverage in HAD-15 & 23.	Boyles 37 with consta mechanical problems.	

TABLE 11-1: Summary of PD Peru Drilling Campaigns

11.2 Antares 2005 - 2009 Drilling Programs

Antares has conducted reverse-circulation and diamond core drilling from November 2005 through December 2009, with plans to continue drilling into 2010. The Antares drilling has successfully extended the known mineralization at both the Haquira West and Haquira East zones previously defined by the PD Peru drilling programs. Infill drilling has also been completed to confirm continuity of known mineralization and provide data to evaluate optimal drill spacing for future infill drilling.

Reverse-Circulation Drilling

To date, Antares has completed 56 reverse circulation drillholes for a total of 8,465 m. The Antares RVC drillholes are denoted by the prefix of AHAC and include holes numbered from AHAC-056 through AHAC-110 (continuing from the last PD drillhole number). Drilling was completed by AK Drilling Peru S.A.C. utilizing two drill rigs, a buggy-mounted Foremost W-750 and a conventional truck-mounted Schramm T660H. As with previous drilling by PD, abundant water was an issue at, and below, 90 to 100 m for many of the drillholes. Nevertheless, the sample recovery was generally greater than 85%; holes that had poor recovery were terminated. Samples were collected in 2-m intervals for the all holes.

Diamond Core Drilling

To date, Antares has completed 152 diamond core drillholes for a total of 55,281.20 m. The Antares diamond core drillholes are denoted by the prefix of AHAD and include holes numbered from AHAD-024 through AHAD-174 (continuing from the last PD drill-hole number). The Haquira resource estimate presented in SECTION 17.0 of this report utilizes data up to and including AHAD-174. The 2005 drilling was completed by AK Drilling Peru S.A.C. utilizing a track mounted UDR650 drill rig. The entire core was HQ diameter (6.35-cm diameter). The 2006 diamond drilling was completed by Geotec Peru S.A.C. utilizing two Christianson 3001 truck-mounted drill rig. The entire core was HQ diameter (6.35-cm diameter). The 2007 and 2008 diamond drilling was completed by Geotec Peru S.A.C and AK Drilling Peru S.A.C. utilizing Christianson and UDR truck-mounted rigs and new EDM track-mounted rigs with up to 6 rigs drilling at a time. Drilling in 2007 and 2008 went to considerable greater depths than previous years and core consists of both HQ (6.35-cm) and NQ (4.75-cm) diameters. Sampling intervals were determined by changes in lithology, alteration, or mineralization and vary from 1 to 3 m in length. Overall sample recovery was very good with only a few isolated intervals with less than 90% recovery.

Of these holes, 6 have been drilled using large diameter core (PQ) for metallurgical testing. The holes were marked with a suffix "M" to the hole number ID. Although these holes have been drilled next to existing holes to compare assays, these holes were not use in the grade modelling process.

Most of the 2007 through 2009 drilling has been at the Haquira East and West deposits. These drill programs concentrated on Haquira East to test the primary zone and provide some infill drilling to move potentially leachable material from the inferred classification to the measured/indicated class. At Haquira West, additional infill drilling of the leachable material was completed to convert material from the inferred category to the measured/indicated class. Several deeper drillholes were also completed to test the deeper hypogene sulphide potential of the Haquira West area. Additional drillholes were completed at the Haquira Far East which returned discouraging results and at the Potato Patch targets with returned positive results.

A summary of drilling at the Haquira project is listed in TABLE 11-2. TABLE 11-3 details the significant intercepts reported since the last Technical Report.

Company/ Years Drilled	Drill Type	No. Of Holes	Hole Numbers	Meters Drilled
PD Peru	RC	61	HAC_01-55	7,920.50
2001-2003	Core	24	HAD_01-23	3,459.90
Antares	RC	56	AHAC_056-110	8,465.00
2005-2006	Core	74	AHAD_024-097	11,283.20
Antares	RC	0		
2007	Core	14	AHAD_098-110	8,685.60
Antares	RC	0		
2008	Core	51	AHAD_111-161	28,397.10
	Met	6	AHAD_036M-038M-044M-083M-089M-090M	685.70
Antares	RC	0		
2009	Core	13	AHAD_162-174	6,775.60
	RC	117		16,385.50
Total by Drill Type	Core	176		58,601.40
	Met	6		685.70
Grand Total		299		75,672.60

TABLE 11-2: Summary of Drilling Campaigns at Haquira Project

Drill-hole	Target	Total Depth (m)	From (m)	To (m)	From (m)	To (m)	From (m)	To (m)	Length (m)	Cu%	Mo%	Au g/t	Cu Eq % (*)	Comments
AHAD-162		488.35	194.80	218.15					23.35	0.57	< 0.001	0.029	0.57	0.2% Cu cut-off; primary
AHAD-163		544.75	149.60	217.90					68.30	0.61	0.002	0.013	0.63	0.2% Cu cut-off; all
				includes	149.60	175.50			25.90	0.69	0.002	0.008	0.69	0.2% Cu cut-off; secondary
				and	183.00	217.90			34.90	0.67	0.002	0.018	0.69	0.2% Cu cut-off; primary
AHAD-164		263.90	46.15	66.90					20.75	0.45	0.002	0.016	0.45	0.2% Cu cut-off; secondary
AHAD-165		236.80	65.00	71.10					6.10	0.98	< 0.001	0.012	0.98	0.2% Cu cut-off; secondary
AHAD-166		691.90	3.25	30.60					27.35	0.31	0.005	0.019	0.31	0.2% Cu cut-off; secondary
			61.60	71.20					9.60	0.48	0.004	0.024	0.48	0.2% Cu cut-off; secondary
			74.60	80.40					5.80	0.27	0.001	0.010	0.27	0.2% Cu cut-off; secondary
			181.10	188.55					7.45	0.38	0.001	0.038	0.38	0.2% Cu cut-off; secondary
			228.75	234.80					6.05	0.37	0.010	0.034	0.45	0.2% Cu cut-off; primary
AHAD-167		721.00	24.10	54.95					30.85	0.55	0.013	0.010	0.55	0.2% Cu cut-off; secondary
			117.05	124.20					7.15	0.37	0.010	0.009	0.44	0.2% Cu cut-off; primary
			243.65	256.40					12.75	0.70	0.014	0.110	0.85	0.2% Cu cut-off; primary
			422.90	436.80					13.90	0.35	0.002	0.024	0.38	0.2% Cu cut-off; primary
			456.30	467.10					10.80	0.34	0.004	0.011	0.37	0.2% Cu cut-off; primary
			511.90	627.40					115.50	0.59	0.016	0.040	0.72	0.2% Cu cut-off; primary
				includes	511.90	580.35			68.45		0.015	0.060	0.94	0.2% Cu cut-off; primary
						includes	550.45	575.55	25.10	1.43	0.021	0.129	1.63	0.2% Cu cut-off; primary
AHAD-168		510.20	120.40	170.35					49.95	0.70	0.021	0.017	0.85	0.2% Cu cut-off; mixed
				includes	120.40	134.60			14.20	1.12	0.009	0.014	1.12	0.2% Cu cut-off; secondar
			177.30	186.55					9.25	0.24	0.002	0.011	0.26	0.2% Cu cut-off; primary
			248.75	364.50					115.75	0.38	0.011	0.016	0.46	0.2% Cu cut-off; primary
			390.80	406.40					15.60		0.003	0.019	0.39	0.2% Cu cut-off; primary
AHAD-169		128.40	38.00	45.00					7.00	0.46	0.025	0.024	0.64	0.2% Cu cut-off; primary
AHAD-170		194.45	101.80	107.90					6.10	0.60	0.052	0.023	0.96	0.2% Cu cut-off; primary
AHAD-171		674.15	117.80	143.70					25.90	0.69	0.017	0.032	0.82	0.2% Cu cut-off; primary
			291.80	297.25					5.45	0.37	0.006	0.020	0.42	0.2% Cu cut-off; primary
			414.80	492.65					77.85	0.44	0.020	0.011	0.58	0.2% Cu cut-off; primary
AHAD-172		392.90						no sig	nificant minera	alizatio	n			
AHAD-173		1055.35	155.35	159.90					4.55	0.73	< 0.001	0.012	0.73	0.2% Cu cut-off; secondar
			171.10	182.60					11.50	0.43	0.004	0.018	0.47	0.2% Cu cut-off; primary
			208.90	216.25					7.35	0.31	0.006	0.013	0.36	0.2% Cu cut-off; primary
			239.10	265.70					26.60	0.40	0.015	0.017	0.51	0.2% Cu cut-off; primary
			271.40	284.30					12.90	0.49	0.015	0.015	0.49	0.2% Cu cut-off; secondar
			320.40	326.15					5.75	1.11	0.024	0.016	1.11	0.2% Cu cut-off; secondar
			338.85	350.65					11.80		0.008	0.007	0.43	0.2% Cu cut-off; secondar
			390.65	397.35					6.70		0.015	0.014	0.83	0.2% Cu cut-off; secondar
			456.25	508.50					52.25	0.45	0.036	0.019	0.70	0.2% Cu cut-off; primary
			531.00	543.50					12.50		0.013	0.006	0.31	0.2% Cu cut-off; primary
			551.80	1051.45					499.65		0.006	0.070	0.61	0.2% Cu cut-off; primary
AHAD-174		873.45	93.00	843.65					750.65		0.010	0.063	0.84	0.2% Cu cut-off; all
				includes	93.00	115.35			22.35		0.005	0.051	0.68	0.2% Cu cut-off; secondar
				and	353.60	835.90			482.30	0.81	0.011	0.059	0.91	0.2% Cu cut-off; primary

TABLE 11-3: Summary of Significant Drillhole Intercepts from the 2009 Drilling Program

12.0 SAMPLING METHOD AND APPROACH

12.1 PD Peru Sampling Methods

The following methods were used by PD Peru for sampling RVC cuttings and drill core.

RVC Samples

Returns were split in a cyclone with one-half collected in a plastic bucket. A sample was taken every half-meter and placed in a plastic bag. Each bag was tagged and closed using aluminum staples. Sample recovery was estimated from the total sample collected in the bucket(s) multiplied by two. Approximately 5 kilograms of sample was sent for each 3-m interval.

All cuttings from reverse-circulation drilling were bagged, tagged, secured, and transported by PD Peru personnel. Sample bags were delivered to SGS's handling facility in Arequipa. SGS was responsible for transport of the samples to Lima.

Drill Core Samples

After the specific gravity was determined, the core was transported to the core splitting area. The core was split into two equal parts parallel to the core axis assuring that both sides were representative of the mineralization and the structural characteristics of the total core sample. The core was split by cutting with a diamond impregnated saw.

The sample interval was determined by the length of the core run; thus, no sample was greater than 3.05 m. The total core was weighed. One half of the split core was placed in a plastic bag, weighed, tagged, and sent to the Phelps Dodge Cerro Verde analytical laboratory. The samples were pulverized, weighed and near-equal splits were placed in five separate envelopes. The remaining half of the split core was returned to the core boxto its original position, as were the wooden marker blocks.

12.2 Antares Sampling Methods

Antares' methods are well-documented in a series of memos describing the protocols for sampling and logging. The existing versions (replacing earlier versions) were written in 2005 and 2006. All exist in both English and Spanish versions, and are used by geologists and technicians on-site. The memos describing protocols include:

Core Processing (orientation, recovery, density, RQD, photos, logging and storage);

Sampling Methodologies (for surface, RVC, and core samples, includes rock codes);

Sampling Methodology (Quick Log and detailed logs) with example spreadsheet;

Geotechnical Logging (RQD for core);

Magnetic Susceptibility Readings (on split core); and

Drill Core Library and Digital Photo Catalogue.

RVC Samples

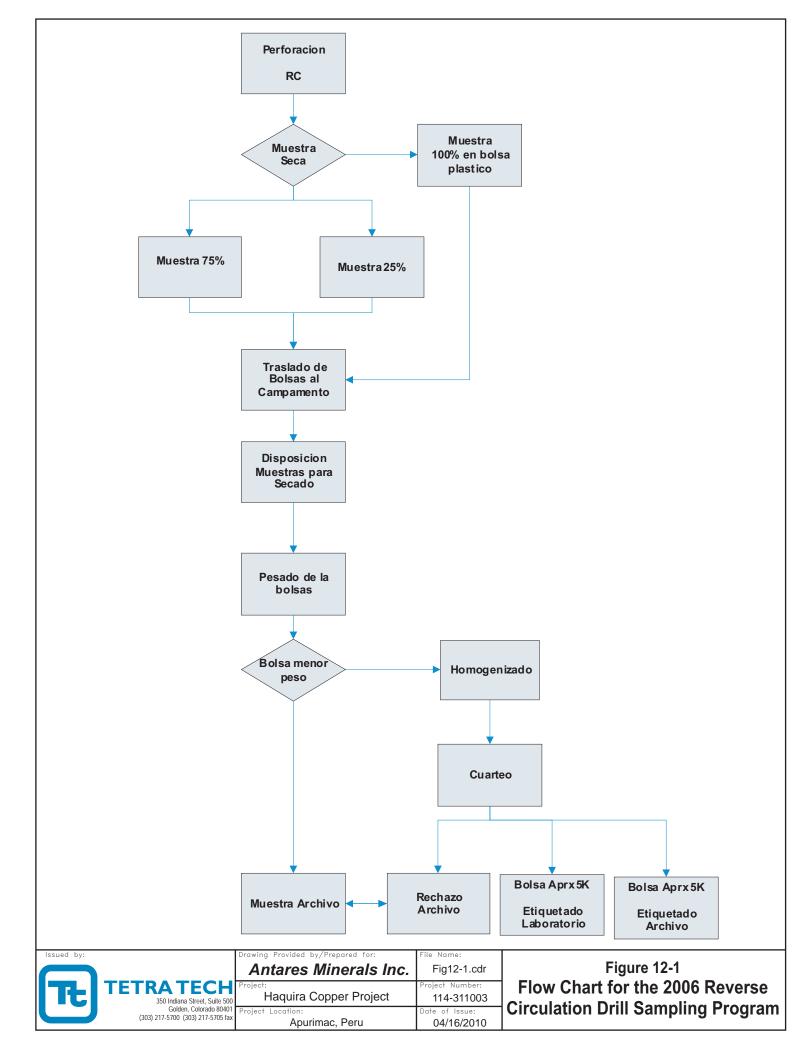
In 2006, the methodology for collection of reverse circulation drill samples was modified slightly based on experiences from the 2004 and 2005 drill campaigns. In those campaigns, drilling beneath the water table resulted in significant loss of sample. The new 2006 procedure for RVC sample collection consisted of the following steps:

Samples were collected every 2 m;

Collection was via frontal face sampling bit on the drill (Buggy 750); and

- 100% of the sampled material is collected at the drill site:
 - Dry conditions: if the sample was dry, then 100% of the rock material was taken directly from the cyclone collector and placed into large plastic bags with the hole-number and the "from" and "to" meterage labeled on the bags;
 - Wet conditions: if the sample was wet, then the splitter on the drill rig was employed. The splitter was set to a 75%-25% split, with both portions of the split being collected into separate, somewhat permeable cloth bags which were mounted into a metal collection bins, allowing the water to filter out and drain away. Once the majority of the excess water had drained the bags were ticketed and labeled. Usually somewhere between 2 and 4 bags of material were collected;
 - Bags were then transported by Antares personnel to the Haquira camp warehouse, where they were neatly laid out to further dry;
 - Cuttings were logged by a geologist, using a standardized logging chart;
 - Once the bags were dry, they were individually weighed;
 - Each sample was homogenized by passing the entire sample through a splitter three times, and re-combining the split fractions;
 - Once homogenized the sample was quartered until a sample of approximately 10 kg was obtained;
 - That sample was then put into 2 bags, approximately 5 kg per bag, ticketed and the bags sealed;
 - One 5 kg sample was sent to the Antares warehouse in Arequipa for consolidation and eventual shipment to ALS Chemex, and the other was kept in storage as a back-up sample;
 - The remaining sample material was stored in its original bag, labeled, and sealed, to be used for possible future uses such as additional geochemical work or for metallurgical testing. These sample bags are also stored in Antares warehouse in Arequipa; and
 - The cyclone and splitter were cleaned by using a high-pressure air hose at the rig, between sample runs.

The above-mentioned RVC sampling procedure is posted at the project site, as shown in FIGURE 12-1.



Diamond Drill Core Samples

Core samples were handled in the following manner:

- Drill core was taken from the drill core barrel and directly emptied onto a metal sleeve by drillers in the presence of an Antares technician;
- An Antares technician immediately recorded RQD information;
- Core was placed into white, plastic cardboard core trays marked with the drillhole number and depth information. Depth information was provided by the drill contractor to the Antares technician at the drill site;
- The filled core boxes were transported by Antares personnel, each morning, to the Haquira camp site in nearby Huanacopampa;

Core boxes were stored in a dedicated and locked sample-storage warehouse;

- Core was measured, sample intervals marked, and photographs taken of each individual box, by a technician;
- An Antares geologist completed a "quick log", noting the main rock types, main alteration, and main character of the mineralization (i.e., oxide versus sulfide, mineralization zone, etc.); and

Antares support staff then sawed the core in half lengthwise; using a diamond saw.

- a) One-half of the sampled core interval was returned to the core box;
- b) The other half of core was placed in a plastic bag labeled with a unique Antares sample number, and sealed with a plastic zip tie;
- c) Sealed bags with samples for analysis were stored in the secure warehouse.
- d) Photographs of the core boxes were taken after the cutting and sampling procedure;
- e) The half-core in the boxes were logged in detail by Antares staff geologists using chip-logs as a guide (see FIGURE 12-2);
- f) Bags with samples for assay were transported by ALS Chemex to the ALS Chemex sample prep facility and assay laboratory in Lima, Peru. The shipping documents prepared by Antares showed only sample numbers. No incidents regarding sample transport have been reported in the transport of the samples to the Arequipa warehouse, or during transport by ALS Chemex to the Arequipa warehouse, or during transport by ALS Chemex to Lima; and
- g) Boxes with the retained core split were shipped from the Haquira camp to Arequipa by commercial transport truck, and stored in the Antares warehouse in Arequipa.



FIGURE 12-2: Samples used to ensure Uniform Logging of Rocks

12.3 Specific Gravity Data

Phelps Dodge measured specific-gravity on 1,582 samples of drill core by weighing the sample in air and weighing the sample in water, then performing the necessary ratio calculations to determine the specific gravity. Apparently the samples were not sealed prior to immersion in water. Specific gravity measurements on un-sealed samples generally tend to overestimate the specific gravity, depending on the porosity of the rock.

Antares measured specific gravity on 1,245 samples of drill core using the paraffin-coating and immersion method, which is an acceptable method to determine specific gravity.

CAM prepared an evaluation based on specific gravity data within the interpreted mineral zone 500 and found a 4% discrepancy between the PD and Antares values. CAM also developed density assignments for mineral resource estimates based on an interpretation of leachable material by mineral zone verses depth of sample, which was used in calculating the mineral resource estimates.

Previous Technical Reports by CAM have attempted to explain the density variations at Haquira. However, until recently, the geology and mineral zone distribution was not well understood, which may have led to miss-classified density assignments. Nonetheless, Tt has utilized the same prior density assignments for consistency and to allow for comparisons between mineral resource estimates. However, now that the geology and mineral zones are better understood, Tt recommends that a new density study be undertaken to provide better assignment based on mineral zone and lithology.

The density assignments by mineral zone as developed by CAM and used in this report are shown in TABLE 12-1.

Mineral Zone	100	200	500	600	8000
Sample Count	97	345	1009	1362	14
Mean Value	2.210	2.478	2.400	2.617	2.037
Depth Adjusted	-	-	2.417	-	-
Selected Value	2.21	2.48	2.42	2.62	2.04

 TABLE 12-1: Densities by Interpreted Mineral Zones (CAM, 2007)

13.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

13.1 PD Peru Sample Preparation, Analysis and QA/QC

RVC Samples

All RVC samples were analyzed at the SGS laboratory in Lima, Peru. The RVC samples were dried and split. A 1-kg split was then pulverized to minus 140-mesh and subsequently a 5-gram pulp sample was analyzed. RVC samples were analyzed by the ICP method for 32 elements; select intervals were analyzed for Au (30-gram – Fire Assay, AA finish) and assay total copper (TCu) as well as the copper sequential method.

Pulps and rejects for all samples were initially stored at the SGS laboratory site in Lima. They were subsequently sent for storage in PD Peru's facilities in San Isidro and were eventually transported to PD Peru's facilities in Arequipa. Antares now has possession of all drill sample pulps and rejects.

The quality control and assurance of sample handling and analyses were under the control of qualified PD Peru personnel. One of 4 standards prepared by the Lakefield laboratory in 2000 was inserted every tenth sample; all samples were >90% minus 10-mesh. Apart from the round-robin analyses conducted by Lakefield prior to dispatching the samples to PD Peru, PD Peru has statistically established acceptable ranges for these samples over a three-year period, and for copper are: 1) 40-60 ppm, 2) 220-300 ppm, 3) 1650-1850 ppm, and 4) 8700-9500 ppm. In general, the grade of the sample intervals as estimated visually determined which standard was inserted, i.e., the copper grade of the standard generally was in the range of visual copper estimates.

Drill Core Samples

All core samples were analyzed at the private Phelps Dodge Cerro Verde analytical laboratory at the Cerro Verde Mine. Core samples were analyzed for total copper (TCu), then subjected to a sequential copper analysis for acid soluble copper (ACu) and cyanide soluble copper (CnCu). The plastic bags that contained the split core samples were transported to the Cerro Verde sample preparation site where the core samples were subjected to the following process:

The complete sample was carefully loaded into a primary crusher avoiding any spillage;

- The sample was crushed and the crusher thoroughly cleaned with compressed air before the next sample was started;
- The crushed sample was then passed through the secondary and tertiary crushers until the most of the sample attained a grain size of minus 10-mesh. All crushing vessels were carefully cleaned after a sample was completely pulverized;
- The sample was homogenized and subsequently quartered until a final sample size of one kilogram was obtained. This sample was placed in a metallic vessel with ceramic lining while the remainder of the sample was put back in the sample bag, weighed and stored as a reject in the warehouse. The weight of the reject sample was recorded on the same sheet where the split core sample weights were entered;
- The container with the one-kilogram sample was placed in an oven where it was dried for 12 hours at a temperature of 75°C;
- The dried sample was pulverized to a grain size of 100% minus 100-mesh. If some samples remained on the sieve, this material was reintroduced into the pulverizer until the entire sample passed the minus 100-mesh sieve;

- The pulverized sample was homogenized mechanically then manually on a rubber mat. The homogenized sample was than subdivided into five equal parts, each wrapped in wax paper and placed in individual manila envelopes. The envelopes are marked one through five each with the drill-hole number, length of the core run, sample number, and date of sample preparation; and
- The first envelope was sent to the analytical laboratory with a work order containing the drill-hole number, sample number, sample interval, and desired analyses. The third envelope of every twentieth sample was sent to the analytical laboratory as a check. The second envelope of every tenth sample was sent to the SGS laboratory as a check. Any remaining sample envelopes were placed in a plastic bag on which was written the drill-hole number and interval.

The quality control process for the core samples at the Cerro Verde laboratory was as follows:

- Pulp from every tenth envelope (envelope No. 1) is re-analyzed during the next shift. The personal of this shift is unaware of the original analytical results;
- Pulp from every tenth envelope (envelope No. 3) of the sample following the pulp repeat mentioned in the previous item is analyzed; and
- Pulp from every tenth envelope (envelope No. 2) was sent to the SGS laboratory in Lima.

The repeat analyses verify the database generated by diamond drilling.

The Cerro Verde laboratory performed the following internal control.

Analyze every 7 or 8 samples that were analyzed in the previous work shift;

Any results that vary more than 5% must be re-analyzed;

- For instrument control, primary standards were analyzed daily and consecutively with secondary standard samples from Industrial Mine Modules, Tertiary Industrial, and Diamond, all prepared for this purpose;
- Every six months, 0.25% of worked samples are sent to the CIMM laboratory for statistical comparison with PD Peru's samples; and

The company regularly performs an internal round-robin.

13.2 Antares Sample Preparation and Analysis

Reverse circulation cutting samples at the site were prepared as described in Section 12.2 above, and secured in the storage area at the Haquira camp for subsequent transport to the ALS Chemex laboratory in Lima.

Diamond drill core samples were prepared as described in Section 12.3.

During the sample collection and transport process described above, the samples are handled by Antares' support personnel at the drill site and in camp to collect, mark, photograph, split, and bag the samples. Sealed samples, and subsequently core boxes, are transported from the Haquira site to the Arequipa warehouse by Antares drivers. ALS Chemex is notified that samples are ready for transport from Arequipa to Lima and they are responsible for all further sample transport and handling.

All sample preparation and analysis was completed at the ALS Chemex laboratory in Lima, Peru, according to the following criteria. Samples are dried, then a 1,000-g split is pulverized to minus 200-mesh (85% or the sample smaller than 75 microns) to produce a sample pulp.

Sample pulps are then analyzed in the ALS Chemex Lima facility. All samples are analyzed for Total Cu using a 4-acid digestion and AAS (ALS Chemex process number Cu-AA61). Any samples that exceed 1% Cu are re-analyzed utilizing an aqua regia digest with an AA analysis (ALS Chemex process number Cu-AA46). Any samples with greater than 0.1% Total Cu are automatically selected for sequential Cu analysis (ALS Chemex process number CuS-LI01) and sequential Cu cyanide analysis (ALS Chemex process number CuCN-LI01).

No Antares officers or directors are involved in sample preparation or transport.

13.3 Antares QA/QC

Antares has implemented a quality assurance and quality control program to ensure the reliability of all litho-geochemical sampling and analysis of all drill samples from the Haquira project.

All samples were shipped directly to the ALS Chemex laboratory sample prep facility in Lima, Peru in sealed bags with unique Antares identification numbers. The samples were prepared at the ALS Chemex laboratory, whose quality system complies with the requirements of the international standards ISO 9001:2000 and ISO 17025:1999, which applies to all ALS laboratory sites. ALS Chemex controls data quality with the use of reagent blanks, reference materials, and replicates. The results of ALS Chemex standards, blanks, and duplicates are reported to Antares.

Antares independently inserts certified control standards, coarse field blanks, and duplicates into the sample stream to monitor data quality.

The blanks are prepared from the post-mineral dacitic Sencca Tuff that occurs on the property. Repeated analyses have shown this tuff to be barren of mineralization. Standards were purchased from a commercial source in Australia. Duplicates were split from original samples; splits in the case of reverse-circulation drilling, and quarter-core in the case of core drilling.

Standards are inserted blindly to the laboratory in the sample sequence, at the rate of 5% of assays. Antares knows the values that should be determined for these standard samples, but the laboratory does not, and the standards act as an independent test of the laboratory's accuracy of analysis. Antares also inserts a minimum of 10% control samples for drilling sample batches. The results of all data quality controls are carefully reviewed prior to the public release of any data.

Antares periodically performs unannounced laboratory visits to inspect cleanliness and assess overall lab performance.

13.4 Adequacy of Sample Preparation, Analysis and Security

Tt has reviewed the sample preparation, assaying, and security, including visits to the Antares storage facility in Arequipa and the ALS laboratory in Lima. Tt believes that the measures taken by Antares meet standard industry practice and are adequate for development of a database suitable for mineral resource estimation.

14.0 DATA VERIFICATION

The assay database was provided to Tt in an Access[®] database. While on-site at the project and in Arequipa, Tt reviewed the database preparation procedures with the Antares staff and believes that Antares is following best practices in preparation of the drillhole database, including entering and checking of sample numbers and logging information on site, and automatic merging of assay information with drillhole location using sample ID as a key.

Tt spot-checked approximately 10% of the database against assay certificates and found no discrepancies. Tt examined core from the Antares drilling campaigns and noted that the mineralogy observed in the core was consistent with the logged geology and assays; i.e. medium to high acid soluble Cu values occur in samples with blue and green minerals, while medium to high cyanide soluble intervals contain chalcocite.

As Tt prepared the three-dimensional geologic model, minor logging discrepancies were noted and forwarded to Antares for review. Adjustments, if necessary, were made as soon as practical.

Based on these checks of data entry discussed previously, Tt believes that the exploration database has been prepared according to industry norms and is suitable for the development of geologic and grade models for use in mineral resource estimation.

Antares' review of the database disclosed that some of the RVC holes were apparently subject to downhole contamination (based on twin-hole analysis), and that in general diamond core holes seemed to have sharper grade boundaries than reverse-circulation holes. Antares adjusted the database accordingly as shown in TABLE 14-1. Tt has reviewed these changes to the database and believes they are reasonable.

Reason	Holes	Meters
Assays dropped below given level due to possible	HAC-18	200
downhole contamination	AHAC_085	75
Short diamond holes excluded, longer re-drill available	HAD-4A, AHAD-093	
	HAC_32, HAC_33	
	HAC_36, HAC_40	
Holes excluded because a diamond twin was available	AHAC_062, AHAC_065	
Tibles excluded because a diamond twill was available	AHAC_084, AHAC_101	
	AHAC_103, AHAC_104	
	AHAC_105	
Heles evoluted due to possible downhele contemination	AHAC_070, AHAC_087	
Holes excluded due to possible downhole contamination	AHAC_089	
	HAC_09, HAC_10	
Holes excluded due to the long-distance from the	AHAC_075, AHAC_077	
modelling boundary.	AHAC_079	
Heles evoluted because they are matellurgical heles	AHAD_036M, AHAD_083M	
Holes excluded because they are metallurgical holes	AHAD_038M, AHAD_089M	
	AHAD_044M, AHAD_090M	

TABLE 14-1: Adjustments to Antares Database

15.0 ADJACENT PROPERTIES

The Las Bambas Special District is located immediately north of the Haquira property and is shown in FIGURE 4-2. The Southwestern Resources Corp. Cristo De Los Andes property is located within 10 km to the southeast of the Haquira project.

There is no indication that mineralization from adjacent properties extends onto the Haquira property. No assays or extrapolations from outside the Haquira property were used in preparation of this report.

16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

16.1 General

Antares proposes to develop a copper open pit, utilizing both a heap leach, solvent extraction - electro-winning facility and a flotation concentration facility for the Haquira Copper Project. The prior and on-going metallurgical test work has been and is being conducted to reflect this goal.

16.2 Metallurgical Testing

2006 Tests

In 2006 and 2007, Antares submitted oxide and leachable sulfide material to METCON Labs in Tucson, Arizona. The material submitted contained mainly oxide and secondary-sulfide minerals, with only small amounts of primary sulfide material. Economic minerals in these zones include secondary chalcocite, chrysocolla, malachite, brochantite, cuprite, black Cu oxides, Cu-Mn wads, Fe oxides, and Mn oxides. Forty composites were prepared from coarse rejects from RVC and core holes, selected to represent the complete range of combinations of lithology, grade, and mineralization styles. No outcrop or trench material was used.

In 2006, 40 composite samples were crushed to 100% minus 10-mesh material and two test charges of 1,000 g each were prepared for each composite. A test charge was pulverized to 100% minus 150-mesh and a sample was split and submitted for total copper, total iron and sequential copper analyses. Sulfuric acid bottle-roll tests were conducted on 1,000-g test charges and subjected to bottle roll agitation leaching for a 96-hour leach cycle with sampling at 4- and 24-hour intervals to determine copper extraction versus time. Metallurgical calculations were performed to determine the gangue acid consumption, total copper and iron extractions.

Bottle roll tests were conducted in 2007 on 14 of the 40 composite samples at a particle size of 100% minus 10-mesh. Each 1,000-g test charge was subjected to bottle roll agitation leaching for a 360-hour leach cycle with sampling at 4- and 24-hour intervals to determine copper extraction versus time. Metallurgical calculations were performed to determine the gangue acid consumption, total copper and iron extractions.

The bottle-roll studies showed that:

- The composite samples are amenable to extraction of copper using acid solution containing 10 g per liter of sulfuric acid and 6 g per liter of ferric iron;
- The extended leach cycle of 360 hours increased copper extraction on each sample;
- An average recovery of 75% of Total Cu is indicated in tests to date; and
- Locked-cycle ferric-leach column tests should confirm acid-leach recoveries, cycle times, and process methodology.

2008 Tests

In 2008, Antares submitted several hundred kilograms of drill core samples representing the various lithologies (Haquira Porphyry, Pararani Porphyry, fine grained clastic sedimentary units and quartzite) to Resource Development Inc., (RDi) in Denver, Colorado for additional bottle roll and column leach tests. Ore composites were made to test the full range of rock type and mineral blends. Nine composite samples, shown in TABLE 16-1, were prepared based on lithology and feed grade for the testwork.

RDi Composite No.	Hole	Lithology	Location
1.	44	HP	East Haquira
2.	89	HP	East Haquira
3.	36	FCSU	West Haquira
4.	83	PP	West Haquira
5.	83	FCSU	West Haquira
6.	90	QZTZ	West Haquira
7.	90	FCSU	West Haquira
8.	38	FCSU/QZTZ	West Haquira
9.	38	High Grade QZTZ	West Haquira

TABLE 16-1:	Description of	Composite	Samples
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Note: HP – "Haquira" Porphyry

PP – "Pararani" Porphyry

FCSU – Fine-grained Clastic Sedimentary Unit

QZTZ – Quartzite

The head analyses of the composites, given in the TABLE16-2, indicated that the samples assayed 0.1968% TTCu to 1.806% TTCu and the total sulfur content varied between 0.39% and 6.49%.

Assay	COMPOSITE NO.								
	1	2	3	4	5	6	7	8	9
TTCu %	1.458	0.518	1.428	1.774	0.1968	1.806	0.494	1.577	1.303
ASCu%	1.242	0.3088	0.874	1.556	.1296	0.534	0.1472	1.086	1.016
CnCnCu %	0.0267	0.0339	0.460	0.2176	0.0624	0.2572	0.1948	0.488	0.286
Total Total S	0.77	0.81	2.64	0.77	0.81	2.64	6.49	0.78	0.39
%									
Sulfide %	0.45	0.77	2.20	0.45	0.77	2.20	6.34	0.53	0.26
Sulfate %	0.32	0.04	0.43	0.32	0.04	0.43	0.15	0.25	0.12
In Inorganic	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
C%									
CI, ppm	105	140	19	29	41	21	23	54	86
F, ppm	<2	13.2	<2	8	8	<5	10	6	<5
Moisture, %	1.80	0.30	0.80	1.29	0.09	0.06	0.21	0.21	0.06

 TABLE 16-2: Head Analyses of Composite Samples

The sequential copper analyses of the composite indicated that the oxide, secondary and primary copper content varied significantly in these samples as shown in the TABLE 16-3.

Composite No.	Lithology	Distribution % Cu				
		Oxide	Secondary	Primary		
1.	HP	85.2	1.8	13.0		
2.	HP	59.6	6.5	33.9		
3.	FCSO	61.2	32.2	6.6		
4.	PP	87.7	12.3	0		
5.	FCSU/QZTZ	65.9	31.7	2.4		
6.	QZTZ	29.6	14.2	56.2		
7.	FCSU	29.8	39.4	30.8		
8.	FCSU/QZTZ	68.9	30.9	0.2		
9.	High Grade QZTZ	78.0	21.9	0.1		

Static bucket leach tests with acid (10 g/L H_2SO_4) and ferric ions (6 g/L ferric sulfate) were performed on selected composite samples to determine the copper extraction as a function of particle size. The test results indicated that a crush size of P_{100} of one inch should be appropriate for heap leach operation as shown in the TABLE 16-4.

TABLE 16-4: Calculated Copper Extraction for Plus 1 inch and Minus 1 inch Material in
Bucket Tests.

Composite	Days	Extraction % Cu					
No.		+ 1 inch	-1 inch	34 x 1 inch			
1	23	36.7	53.4	63.7			
2	23	37.5	53.9	51.8			
3	21	44.4	38.1	44.8			
4	21	50.8	55.0	66.4			
6	21	13.0	16.3	35.4			
8	21	36.1	25.1	17.4			

Bottle roll tests with acid and ferric ions at a grind size of P_{80} of 200 mesh provided an idea of copper extraction for these sample. The acid was varied between 5 g/L H_2SO_4 and 15 g/L H_2SO_4 and ferric ions were varied between 6 g/L and 15 g/L. The copper extraction ranged between 35% and 90%. The bottle roll extraction was compared with maximum but leachable copper in the samples as shown in the TABLE 16-5.

Composite No.	Lithology	Maximum Leachable Copper, %	Extraction %Cu	Leach Test No.
1	HP	87.0	82.1	9
2	HP	66.2	57.4	16
3	FCSU	93.4	72.20	25/26
4	PP	100	82.4	28/29
5	FCSU/QZTZ	97.6	80.9	32
6	QZTZ	43.8	37.5	35
7	FCSU	69.2	47.2	39
8	FCSU/QZTZ	100	85.8	41
9	High Grade QZTZ	100	89.8	44
Note: Maximun	n leachable copper was	s calculated by the fo	llowing equation: (idsol+Cu CNSol CuTotal)%

TABLE 16-5: Comparison of Copper Extraction in Bottle Roll Tests versus Maximum Leachable Copper

Since the copper content in most of the composite samples in Phase I testwork was over 1% and the expected average grade is projected to be 0.5% TTCu, lower grade material with similar lithology was acquired from the project site to prepare more representative samples for column testing. The new composites averaged 0.5% to 1% TTCu as shown in TABLE16-6. The mixed lithology represented the proportional of various lithologies in the deposit and would be the most representative and/or average ore that would be leached on the heap.

	Crush				Feed	Assay, %Cu	l
Column No.	Size, inches	Lithology	Composite	Target	Assayed	Cal. Assay by Size	Cal. Residue and Solution
1	1	QTZ	66.9% 90M + 33.1% Composite 9	0.450	0.714	0.544	0.500
2	1	FCSU	Composite 7	0.494	0.427	0.411	0.550
3	1	HP	63.4% 89M + 36.4% Composite 1	0.703	0.722	0.744	0.727
4	1	PP	83M	0.756	0.762	0.780	0.780
5	1	FCSU	Composite 3	1.490	1.054	1.012	1.149
6	1	Mixed	Note 1	0.514	0.572	0.499	0.672
7	3⁄4	QTZ	66.9% 90M + 33.1% Composite 9	0.450	1.704	0.838	0.977
8	1	Mixed	Note 1	0.514	0.572	0.499	0.641
9	1	QTZ	38M	0.537	0.421	0.368	0.597
			54.5% of 89M, 9.1% of 90 .1% quartzite, 12% parar				

 TABLE 16-6:
 Description of Samples for Column Tests

The sequential copper analyses, given in the TABLE 16-7, shows that a significant amount of copper is present as primary or secondary copper in different samples. Secondary copper requires ferric ions for leaching and primary copper will not leach with acid.

Column No.	Lithology	Distribution % Cu				
		Oxide	Secondary	Primary		
1.	QTZ	62.5	31.7	5.8		
2.	FCSU	36.1	31.6	32.1		
3.	HP	72.0	2.2	25.8		
4.	PP	80.8	2.7	16.5		
5.	FCSU	63.2	20.2	16.6		
6/8.	MIXED	63.3	22.0	14.7		
7.	QTZ	41.2	53.5	5.3		
9.	QTZ	34.9	35.8	29.3		

TABLE 16-7 :	Forms of Copper	in Colum	Feed Samples

The bottle roll data for the new composite, given in TABLE 16-8, indicated copper extraction of 44% to 88% in 168 hours of leaching. The acid consumption was negative because of acid generation with excess ferric ions in solution.

Bottle Roll Test Results for Column Feed Samples (P ₈₀ =200 mesh, 40%
Solids, 10 g/L H ₂ SO ₄ , 10 g/L Fe ³⁺ ions, 168 hrs Leach Time)

Test No.	Composite No.	Extraction % Cu	Calculated Head, % Cu	Acid Consumption, kg/t
46	1	88.0	0.8066	(2.746)
47	2	44.1	0.433	(9.586)
48	3	66.4	0.773	(2.746)
49	4	62.1	0.750	(5.786)
50	5	66.3	1.052	0.295
51	6/8	72.3	0.449	(8.066)
52	7	80.4	1.014	2.575
53	9	53.6	0.465	(9.586)

Open-circuit column leach tests were run on eight samples at nominal one inch crush size and one sample at nominal 0.75 inch crush size. The samples were cured except for mixed ore in Column 6 and the solution was applied at 0.005 gpm/ft². The solution strength was 10 g/L sulfuric acid and 10 g/L Fe³⁺. The copper extractions ranged from 52.5% to 88.2% in 78 days of leach time plus rinse time as shown in the TABLE 16-9. The acid consumption could not be determined because of high amount of Fe³⁺ ions which generated acid.

TABLE 16-9 :	: Open-Cycle Column Leach Results Using Sulfuric Acid and Ferric lons
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Column No.	Lithology	Crush Size Inches	Extraction% Cu (78 days)	Residue % Cu	Cal Head % Cu
1	QTZ	1	84.3	0.0786	0.4997
2	FCSU	1	52.5	0.261	0.550
3	HP	1	78.9	0.1532	0.727
4	PP	1	84.8	0.1184	0.7795
5	FCSU	1	80.6	0.223	1.149
6	Mixed	1	77.7	0.1496	0.6721
7	QTZ	3⁄4	88.2	0.115	0.977
8	Mixed	1	82.0	0.1156	0.641
9	QTZ	1	78.7	0.1272	0.597

Five more open-circuit column tests were performed without the addition of Fe^{3+} ions to determine the copper extraction and acid consumption. Copper extractions were significantly lower in these tests as shown in TABLE 16-10 which indicated the need for ferric ions for copper extraction from secondary copper. The acid consumption in the leach test ranged from 6.6 kg/t to 27.8 kg/t.

Column No.	Lithology	Crush Size, Inches	Extraction % Cu (47 days)	Cal. Head, % Cu	Acid Consumption, kg/t	
10	QTZ	1	25.7	0.634	6.6	
11	FCSU	1	48.0	0.500	9.8	
12	HP	1	70.2	0.649	22.7	
13	MIXED	1	45.1	0.841	21.6	
14 [*]	MIXED	1	55.2	0.620	27.8	

TABLE 16-10: Open-Cycle Column Leach Results Using 10 g/L Sulfuric Acid Only

Note: Column 14 was fed with solution at 0.01 gpm/ft² as compared to 0.005 gpm/ft² in all other columns.

The comparison of leach results with and without ferric ion addition for 29 days, shown in TABLE 16-11, indicates that the addition of ferric ions is necessary for extraction of copper from secondary copper. Additionally, the acid consumption will decrease with ferric ion addition.

TABLE 16-11:Comparison of Copper Extraction With and Without Ferric Ion Addition (Leach Time: 29 Days)

Ore	With	ר Fe ³⁺ lons	Without Fe ³⁺ lons			
Lithology	Column No.	Extraction % Cu	Column No.	Extraction % Cu		
QTZ	9	71.8	10	23.5		
FCSU	2	47.5	11	46.4		
HP	3	72.5	12	67.5		
MIXED	6	71.5	13	43.4		

Since mixed ore represents the overall lithology of the leachable ore it is reasonable to assume that the copper extraction from this ore blend will represent the overall metallurgy for the project. Two duplicate columns (No. 6 and No. 8) were run under identical process parameters (10 g/L H_2SO_4 and 10 g/L ferric ions) for 78 days (leach plus rinse cycle) and recovered \pm 80% of copper (i.e., 77.7% and 82%). The copper extraction averaged 72.9% in 29 days of leach cycle. The same material without ferric ions extracted 45.1% to 55.2% of copper depending on solution rate in 47 days of leaching. The acid consumption was approximately 21.6 kg/t. Assuming 50% of acid recovery in the SX/EW circuit, the acid consumption would be around 10 kg/t. It is reasonable to project that the copper extraction using a lower addition of ferric sulfate to the leach would be closer to 80% than 55% and the acid consumption would be slightly lower than 10 kg/t. Discounting 3% on the copper recovery and 2 kg/t for acid, it was projected that the heap leaching of copper ore will recover \pm 78% of copper and the acid consumption will be \pm 8 kg/t.

2008 Flotation Tests

In 2008, Antares submitted two 20 kg samples of analytical rejects for metallurgical scoping study for the flotation of copper, molybdenum, gold and silver to Resource Development Inc.,

(RDi). In addition, one 10 kg sample of half cores, HQ/NQ size, was also sent for grinding characterization tests.

The metallurgical testwork included sample preparation and characterization, Bond's ball mill work index determination and rougher flotation tests. The highlights of the study indicated the following:

- Composite No. 1 sample assayed 1.592% TCu, 40 ppm Mo, 0.27 g/t Au, 18.02 g/t Ag and 1.06% Total S. (Table 16.12).
- Composite No. 2 sample assayed 0.754% TCu, 275 ppm Mo, 0.21 g/t Au, 8.58 g/t Ag and 0.62% Total S...
- Mineralogical study indicated that copper minerals present in the two samples were predominantly chalcopyrite and bornite with minor amounts of molybdenite and pyrite. Copper minerals liberated at a relatively coarse size (75% liberation at 28 mesh). Molybdenite may require fine grind for liberation.
- Bond's ball mill work index was determined to be 12.78 which are within the range of values reported for porphyry copper ores.
- Rougher flotation scoping tests results, given in TABLE 16.13, indicated that a simple reagent suite consisting of potassium amyl xanthate, diesel fuel and methyl isobutyl carbonyl will float majority of copper, gold and molybdenite values in the ore. The rougher concentrate recovered 95% and 92% of copper from Composite No. 1 and No. 2, respectively. The molybdenite recovery was dependent on feed grade; the higher the feed grade, higher the molybdenite recovery.
- The first two minutes of rougher flotation recovered over 85% of copper at a concentrate grade of 29% to 30% Cu.

A conceptual process flowsheet was postulated based on limited testwork. The flowsheet is similar to conventional Cu/Mo ores being processed in the U.S. The basis for the selection of the flowsheet and the assumptions are given in SECTION 16.3.

Table 16.12: Head Analyses of Antares Minerals Sulfide Samples							
	Assay						
Element	Composite No. 1	Composite No. 2					
TCu, %	1.592	0.754					
ASCu, ppm	394	428					
CnCu, ppm	9240	2228					
Mo, ppm	40	275					
Au, g/mt	0.27	0.21					
Ag, g/mt	18.02	8.58					
Total S, %	1.06	0.62					
S _{ulfide} , %	0.64	0.37					
S _{ulfate} , %	0.42	0.24					
Estimated from Core Ass	says						
TCu, %	1.43	0.63					
Mo, ppm	68	262					
Au, g/mt	0.21	0.041					

			Table	e 16.1	3: Sui	mmar	y of Fl	otatior	n Test	Resu	lts				
Test	Primary			Rou	gher F	lotatio	n (9 mi	nutes)		Та	iling As	ssay	(Cal. Fee	ed
No.	Grind	g/mt		Reco	overy			Grade		Cu	Мо	Au	Cu		
	P ₈₀		Wt.	Cu	Мо	Au	Cu	Мо	Au	%	рр	g/t	%	рр	g/t
	mesh		%	%	%	%	%	рр	g/t		m			m	
								m							
	4.50	5434 66	7.00	05.4	40.0		osite N		0.00	0.07	70	0.40	4 44	100	0.50
1.	150	PAX: 80 DO: 32 MIBC: 40	7.23	95.4	46.9	90.6	18.63	894	6.22	0.07	79	<0.10	1.41	138	0.50
2.	150	PAX: 40 AP-404: 40 DO: 32	8.32	94.5	48.6	79.8	15.16	688	2.18	0.08	66	<0.10	1.33	118	0.23
3.	150	PAX: 40 AP3477:4 0 DO: 32 MIBC: 40	9.47	95.5	50.1	79.0	14.07	615	1.80	0.07	64	<0.10	1.40	116	0.22
4.	100	PAX: 80 DO: 32 MIBC: 40	7.69	94.1	68.4	79.1	17.12	676	2.27	0.09	26	<0.10	1.40	76	0.22
						Comp	osite N	lo. 2				-			
5.	150	PAX: 79 DO: 32 MIBC: 40	5.68	91.2	84.8	54.1	12.08	4930	0.98	0.07	53	<0.10	0.75	330	0.10
6.	150	PAX: 40 AP404:40 MIBC: 40	5.10	90.9	79.7	43.3	11.15	4371	0.71	0.06	60	<0.10	0.63	280	0.08
7.	150	PAX: 40 AP3477:4 0 DO: 32 MIBC: 40	8.29	92.5	85.0	48.6	7.23	2810	0.52	0.05	45	<0.10	0.65	274	0.09
8.	100	PAX: 80 DO: 32 MIBC: 40	7.69	92.6	95.0	50.2	9.02	3391	0.61	0.06	15	<0.10	0.75	275	0.09

Note: PAX = potassium amyl xanthate DO = Diesel Oil MIBC = methyl isobutyl carbonyl Natural pH = 8.5 for Composite No. 1

Natural pH = 7.5 for Composite No. 2

16.3 Processing

There are two processing flowsheets for the treatment of Antares Haquira ores. They are (1). Heap Leach and SX/EW for processing oxide ores, and (2). Flotation process for treating sulfide ores.

Oxide Ore Processing

The simplified block diagram process flowsheet for treating oxide ore is given in FIGURE 16.1. The process consists of crushing the ore to nominal 19 mm in three stages of crushing. The primary crusher discharge will be conveyed to a primary crushed ore covered stockpile. Both secondary and tertiary crushers will have screening ahead of them to remove the finished product. The crushed product will be conveyed to the heap leach pad. The crushed material will be wetted on the conveyer belt by addition of process water and concentrated sulfuric acid. The plant will have process storage ponds for raffinate leaching solution, heap leach pregnant leach solution, intermediate pregnant leach solution and solvent extraction plant feed. The SX/EW plant facilities will consist of one train of SX, an EW tank house consisting of two bays of cells each with a central cathode stripping machine, and a tank farm area containing the associated process tanks, solution pumps, and equipment for the plant operation.

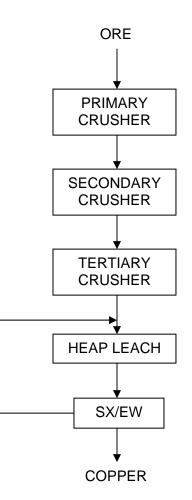


FIGURE 16-1: Block Diagram Simplified Process Flowsheet for Treating Oxide Ores

Projected Process Flowsheet and Metallurgy for Sulfide Ores

Based on the scoping study, it is possible to project a conceptual process flowsheet for the sulfide ores. The process flowsheet, given in FIGURE 16.2, would consist of crushing and grinding the ore to P_{80} of 100 to 150 mesh, and floating copper, molybdenum and precious metals in a bulk-rougher concentrate. The bulk-rougher concentrate would be subjected to first bulk-cleaner flotation. The tailings from the first bulk-cleaner flotation would be reground and subjected to scavenger flotation and scavenger-cleaner flotation. The scavenger-cleaner flotation concentrate and subjected to second-cleaner flotation.

The second-cleaner flotation concentrate would be subjected to Cu/Mo separation and molybdenite would be upgraded in the cleaner circuit. The need for regrind or the number of cleaner flotation stages for the molybdenite upgrading circuit is unknown at this stage of scoping study. Hence, five stages of molybdenite flotation were assumed based on similar Cu-Mo flotation circuits.

Based on past experience with Cu/Mo plants, an attempt has been made to project the recoveries of Cu, Mo and Au in the proposed process flowsheet. The following assumptions have been made to project the recoveries:

- Bulk cleaner flotation circuit will recover 97% of copper and 95% of molybdenite and gold present in the rougher concentrate.
- Projected rougher recoveries are 93% for copper, 60% for molybdenite and 75% for gold.
- Following the copper/molybdenite separation circuit, 96% of copper and gold and 3% of molybdenite will report to copper concentrate and 2% of copper and gold and 95% of molybdenite will report to molybdenite concentrate.
- The scavenger flotation tailing will contain 2% of copper, 2% of molybdenite and 2% of gold.

Based on the above assumptions, the recoveries will be as follows:

• Copper concentrate will contain 89.3% of copper and 72% of gold.

Molybdenite concentrate will contain 57% of the molybdenite from the ore.

• These projections are strictly based on other similar projects and additional testwork is needed to confirm these industry experience based estimates.

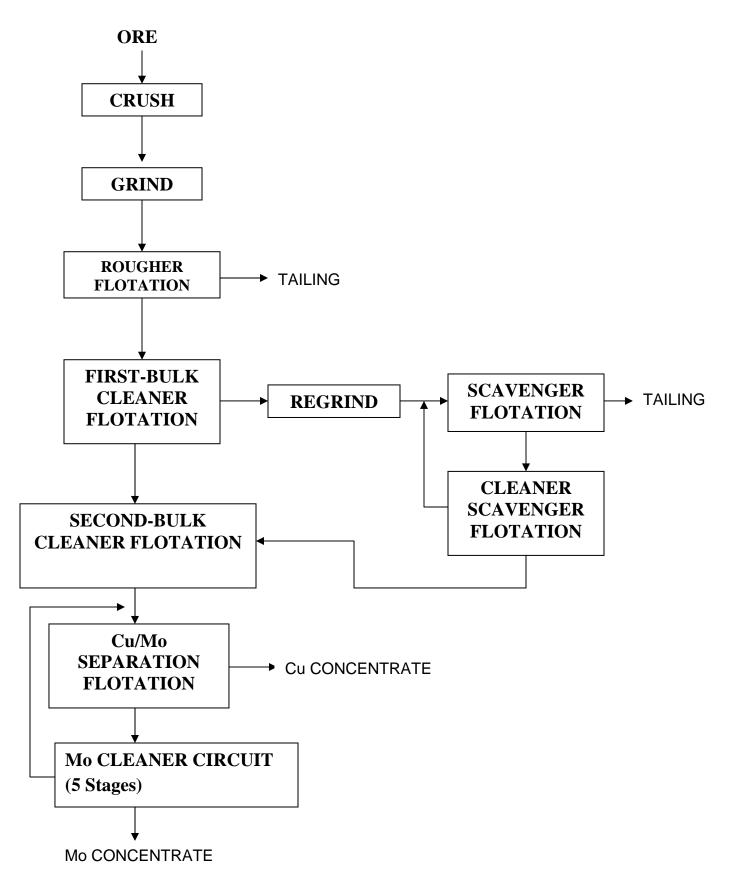


FIGURE 16-2: Block Diagram Simplified Process Flowsheet for Treating Sulfide Ores

16.4 Capital Costs

The order-of-magnitude capital costs for the two process plants, namely, heap leach SX/EW and flotation, were determined based on the following criteria:

- Heap Leach Plant will process 30,000 mtpd of oxide ore and
- Flotation Plant will treat 100,000 mtpd of sulfide ore.
- The capital cost for mobile equipment and buildings is included in the flotation plant only.

The capital cost for the flotation plant, given in TABLE 16-14, is estimated to be \$421,460,000. This cost excludes EPCM and contingency. The equipment cost and cost by area are given in Table 16-15.

The capital cost for the heap leach and SX/EW plant, given in Table 16-16, is estimated to be \$112,440,000. The equipment cost by area is given in Table 16- 17. As described in table, the estimate is made using recent cost factors derived from other similar projects known to the consultant RDi.

	Table 16-14. Total Capital Cost Estimate for 100,000 mtpd Flotation Plant							
No.	Item	Cost, \$						
1.	Purchased Equipment (PE)	203,977,800						
2.	Indirect Cost at 25% of PE	50,994,450						
3.	Concrete at 10% of PE	20,397,780						
4.	Structural Steel at 15% of PE	30,596,670						
5.	Piping at 30% of PE	61,193,340						
6.	Electrical Distribution @ \$400per KW	29,333,000						
7.	Instrumentation at 20% of Electrical Distribution	5,866,600						
	Subtotal Direct and Indirect	402,359,640						
8.	Spare Parts at; 3.5% of PE	7,139,220						
9.	Mobile Equipment Allowance	1,961,140						
10.	Buildings	10,000,000						
	Total Estimated Capital Cost	421,460,000						

	Table 16-15. Equipmer	t Size and Cost by	Area (F	lotation Plan	t)
No.	ltem	Size	Unit	Cost/Unit	Total Cost, \$
Prima	ary Crusher				
1.	Gyratory Crusher	60 in x 90 in 700 HP	2	3,600,000	7,200,000
2.	Apron Feeders		2	362,600	725,200
3.	Belt Conveyor	60 in x 200 ft,75 HP	2	326,200	652,400
4.	Rock Breakers		2	250,000	500,000
Coars	se Ore Handling				
5.	Metal Detectors		2	50,000	100,000
6.	Stacker	60 in x 200 ft	2	326,200	652,400
7.	Magnet		2	50,000	100,000
8.	SAG Feed Conveyor	42 in x 400 ft	2	245,00	490,000
9.	Stockpile Reclaim Conveyors/Feeders		8	450,000	3,600,000
Grind	ling And Classification				
10.	SAG Mill	40 ft dia. x 22 ft long 20,000HP	3	23,000,000	69,000,000
11.	Vibrating Screen	10 ft x 20 ft double deck	6	200,000	1,200,000
12.	Slurry Pumps	5000 gpm, 750 HP	6	150,000	900,000
13.	Ball Mills	20 ft dia. x 34 ft long 8500 HP	6	9,000,000	54,000,000
14.	Slurry Pump	6000 gpm, 750 HP	6	150,000	900,000
15.	Cyclones	26 in	28	22,700	635,000
Flota	tion				
16.	Slurry Pump	5000 gpm, 750 HP	6	150,000	900,000
17.	Rougher Cells	3,000 ft ³	30	200,000	6,000,000
18.	Scavenger Cells	3,000 ft ³	25	200,000	5,000,000
19.	Cleaner Cells	1,000 ft ³	24	95,000	2,280,000
20.	Regrind Mill	12 ft. dia. x 44 ft high 800 HP Tower	6	1,255,000	7,530,000
21.	Concentrate and Tailing Pump/ Sump		4	150,000	600,000
22.	Cleaner Feed Pump, Sump and Cyclones		2	200,000	400,000
23.	Cleaner Tail Pump Sump		2	150,000	300,000
24.	Cleaner Concentrate Thickener	150 ft diameter	1	1,050,000	1,050,000
Сорр	er Concentrate Handling				
25.	Concentrate Thickener	150 ft diameter	1	1,050,000	1,050,000
26.	Concentrate Underflow Pump		2	50,000	100,000
27.	Copper Filter Feed Tank with Agitator		2	50,000	100,000
28.	Copper Concentrate Pressure Filter		4	1,000,000	4,000,000
Mo RE	COVERY CIRCUIT				
29.	Mo Roughers	500 ft ³	10	65,000	650,000
30.	Rougher Concentrate Thickener	100 ft diameter	1	285,000	285,000
31.	Overflow and Under flow Pumps		4	50,000	100,000
32.	Regrind Mill	44 in radius x 37 ft high 400 HP Tower	1	732,000	732,000
33.	Cleaner Cells (5 Stages)	100 ft ³ 15 HP	15	35,000	525,000
34.	Concentrate Thickener	50 ft diameter	1	115,000	115,000
35.	Mo Concentrate Filter		2	900,000	1,800,000
36.	Holiflite Drier		1	1,000,000	1,000,000
37.	Bagging Station		1	100,000	100,000
Tailin	igs				

38.		Thickener	300 ft diameter	1	2,100,000	2,100,000		
					Sub-Total	177,372,000		
39.	39. Miscellaneous Equipment (15% of above)							
					Total	203,977,800		
		Table 16-16. Total Capital C	Cost for Heap Leac	h Oper	ation (30,000 m	tpd)		
No		Item			Cost, \$			
1.		Installed Equipment Cost			83,040	83,040,800		
2.		Indirect Costs @ 25% of abo	ve		20,760,200			
		Sub-total (Direc	t + Indirect)		103,80 ⁻	1,000		
3.	3. Spare Parts and First Fill (@ 8% of above) 6,643,264				264			
4.	4. Mobile Equipment Allowance 2,000,000					000		
			Total Estimated	Cost	112,444	4,264		

	Table 16-17. Equipment Cost by Area for Heap Leach	۱
No.	Item	Cost, \$
CRUS	HING AND CONVEYING	
1.	Primary Crushing & Conveying	4,900,000
2.	Secondary Crushing and Conveying	8,905,250
3.	Ore Stacking System	9,785,150
HEAP	LEACHING	
4.	Heap Leach	10,846,950
5.	Ponds and Solution Handling	4,628,300
PLAN	T FACILITIES	
6.	Solvent Extraction	7,092,650
7.	Tank Farm	5,807,300
8.	Electrowinning	28,701,300
9.	Reagents	1,439,600
10.	SX/EW Utilities	934,300
	TOTAL	83,040,800

16.5 Operating Costs

The operating cost was estimated for the flotation and heap leach and SX/EW plants. The two plants will be operated by the same management and hence, the salaried employees are less than that required for two separate operations.

The operating cost for the 100,000 mtpd flotation plant, given in TABLE 16-18, is estimated to be \$4.10/tonne of ore. The breakdown of cost for labor and reagents are given in TABLES 16-19 and 16-20.

The operating cost for the heap leach and SX/EW process plant, given in TABLE 16-21, is estimated to be \$3.22/tonne of ore. The breakdown of cost for reagents and labor are given in TABLES 16-22 and 16-23.

Table 16-18: Total Operating Cost for 100,000 mtpd Flotation Plant			
Category	Annual Cost \$	\$/Tonne	
Labor	5,396,972	0.15	
Consumables			
Power (\$0.074 per KW-hr)	68,620,000	1.88	
Reagents	24,820,000	0.68	
Mill Liners and Wear Material	12,775,000	0.35	
Grinding Steel	24,090,000	0.66	
Maintenance Supplies (5% of above)	6,935,000	0.19	
Miscellaneous Operating Supplies (5% of above)	6,935,000	0.19	
Total	149,571,972	4.10	

Table 16-19: Flotation Reagent Consumption and Cost Estimates					
Reagents	lb/tonne	Cost, \$/lb	Cost/tonne, \$		
Xanthate	0.03	0.75	0.0225		
Fuel Oil	0.02	0.60	0.0120		
DTP	0.035	3.40	0.119		
MIBC	0.20	1.10	0.22		
Flocculant	0.030	2.00	0.06		
Antiscalent	0.012	1.50	0.018		
Lime	3.5	0.06	0.21		
NaHS	0.04	0.50	0.02		
	•	Total	0.6815		

Table 16-20: Plant	Labor C	ost Estimate f	or 100,000 mt	pd Flotation	Plant
Area Description	No.	Pay Rate \$/hr	Annual Salary (\$)	Burden (40%)	Annual Cost, \$
Supervision					
Mill Superintendant	1		125,000	50,000	175,000
Mill Metallurgist	4		35,000	14,000	196,000
Mill Foreman	4		35,000	14,000	196,000
Maintenance Foreman	6		30,000	12,000	252,000
Electrical/Instrumentation Foreman	4		30,000	12,000	168,000
Chief Chemist	1		30,000	12,000	42,000
Mill Clerk	4		16,000	6,400	89,600
Sub-Total	24				1,118,600
Operating Labor					
Control Room Operator	9	7.50	15,600	6,240	196,560
Crusher Operator	6	7.50	15,600	6,240	131,040
Grinding Operators	9	7.50	15,600	6,240	196,560
Cu-Mo Flotation Operators	8	7.50	15,600	6240	174,720
Mo Flotation Operators	4	7.50	15,600	6,245	87,360
Concentrate Thickener/Filter Operators	6	7.50	15,600	6,240	131,040
Dryer Operators	6	7.50	15,600	6,240	131,040
Samplers/ Assayers	12	7.50	15,600	6,240	262,080
Operator Helpers	48	6.00	12,480	4,992	838,656
Laborers	32	6.00	12,480	4,992	559,104
Sub-total	140				2,708,160
Maintenance Labor					
Mechanics	24	10.00	20,770	8308	697,872
Electricians	20	10.00	20,720	8308	581,560
Process/ Instrumentation Technicians	10	10.00	20,770	8308	290,780
Sub-total	54				1,570,212
Total	218				5,396,972

Table 16-21: Total Operating Cost for Heap Leach					
Cost Category	Cost , Annual, \$	\$/Tonne			
LABOR	2,132,704	0.19			
CONSUMABLES					
Power	16,350,000	1.50			
Reagents	13,189,000	1.21			
Steel	218,000	0.02			
Maintenance Supplies (5% of above)	1,635,000	0.15			
Miscellaneous Supplies (5% of above)	1,635,000	0.15			
TOTAL	35,159,704	3.22			

Table 16-22: Heap Leach Reagent Consumption and Cost Estimate					
Reagents	Kg/t	Cost \$/kg	Cost/Tonne, \$		
Sulfuric Acid	8.5	0.120	1.02		
Diluents			0.15		
Other Reagents			0.03		
Assays/Lab Supplies			0.1		
		TOTAL	1.21		

Table	e 16-23	: Plant Labor	Costs for Heap) Leach	
Salaried		Pay Rate, \$/hr	Annual Salary, \$	With Burden 40%	Total, \$
Operating Labor					
Crusher Operators	8	7.50	15,600	6,240	174,720
Plant Operators	12	7.50	15,600	6,240	262,080
Pad Utility Operators	12	7.50	15,600	6,240	262,080
Samplers Assayers	8	7.50	15,600	6,240	174,720
Laborers/Operation Help	32	6.00	12,480	4,992	559,104
Misc. Hourly/Trainee	40	6.00	12,500	5,000	700,000
Total	112				2,132,704

17.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

17.1 Introduction

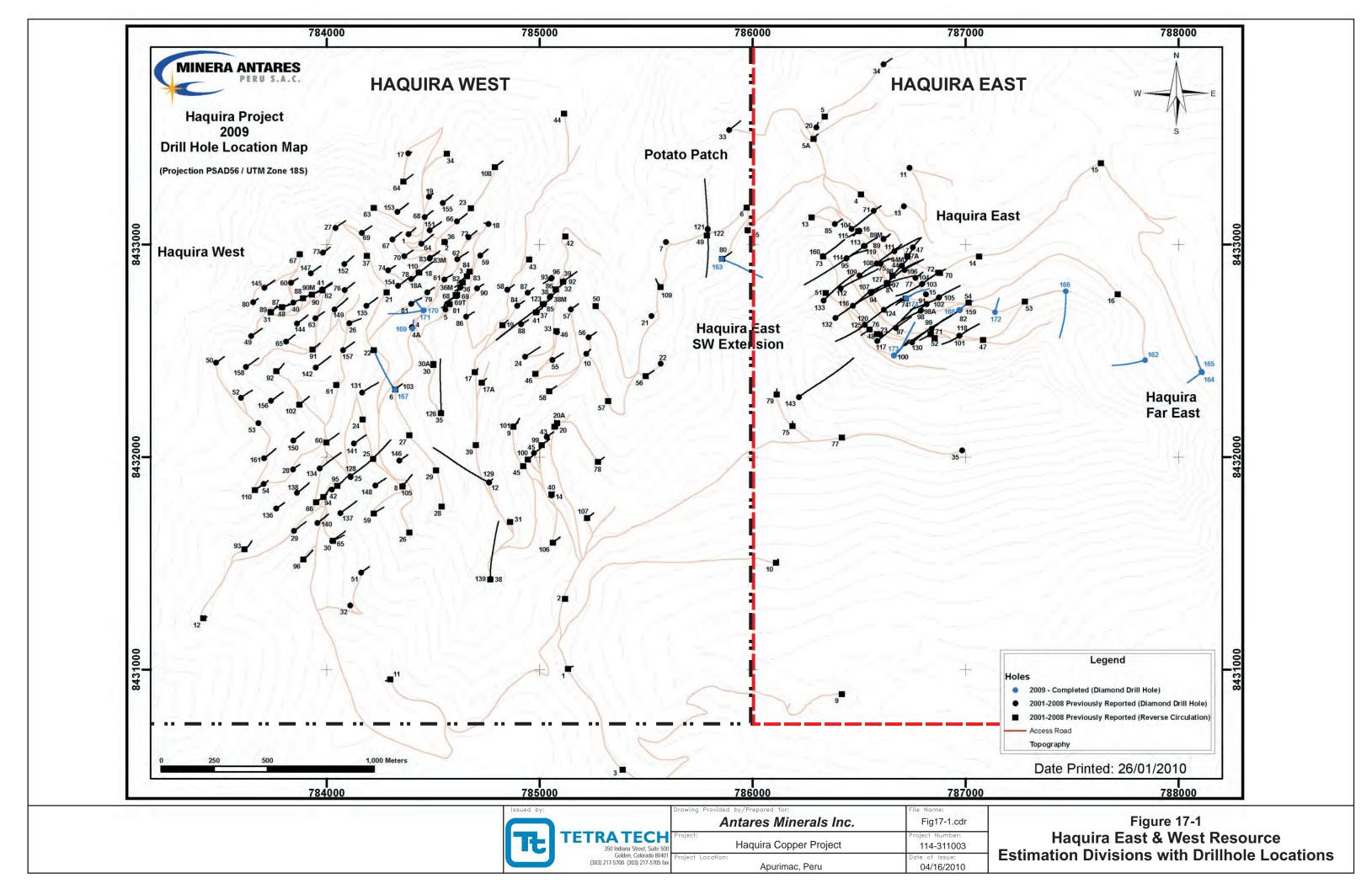
This SECTION of the report is unchanged from the April 16, 2010 Technical Report and is presented for completeness purposes only ...The mineral resource estimates has been generated from drillhole sample assay analyses and the interpretation of a geologic model which relates to the spatial distribution of copper and other metals in the Haquira East and West deposits. The locations of the deposits are shown in FIGURE 17-1. APPENDIX A contains table of the drillholes contained in the Haquira project database. Interpolation characteristics have been defined based on the geology, drillhole spacing and geostatistical analysis of the data. The mineral resources have been classified by a combination of their proximity to the sample locations and kriging error and are reported, as required by NI 43-101, according to the CIM standards on Mineral Resources and Reserves. This chapter presents:

- Statistics for drillhole assay and composite data that were analyzed for each of the defined rock codes;
- The density values for each rock code are based on the same values defined by CAM;
- Relative variograms were generated using the composite data. Model validation (Jackknifing) was used to determine the geostatistical ranges, direction and search parameters in estimating grade values;
- Ordinary kriging was used to estimate total copper, acid soluble copper, cyanide soluble copper, gold, silver, arsenic, molybdenum and sulfur;
- The kriged grade models were checked using block histograms and cumulative frequency plots compared with those of the underlying composite data;
- The block model values were visually inspected in section and plan and compared to the composite data; and
- A resource classification of measured, indicated and inferred was developed based on a combination of jackknifing and kriging error analysis.

17.2 Haquira East and West Block Model

The previous Tetra Tech 43-101 block model (east or west) (Technical Report dated January 16, 2009) was reduced from a 20x20x10 block size to 10x10x5. The nominal composite length was also reduced from 10-m down the hole to 5-m. The present composites are now calculated using the bench method.

Block model parameters for Haquira East were defined to best reflect both the drill spacing and current geologic interpretations. TABLE 17-1 shows the Haquira East block model parameters. The block model is rotated 325 degrees from north to the model's left boundary edge which was designed to cover both the Haquira West and East deposits.



Haquira East Model Parameters	X (Columns)	Y (Rows)	Z (Levels)
Origin (lower left corner):	784000	8428500	3100
Block size (meters)	10	10	5
Number of Blocks	700	500	310
Rotation	325 degrees a boundary	azimuth from I	North to left
Composite Length	5 m (bench)		

TABLE 17-1:	Haquira	East Model	Parameters
	inaquina	East model	i al al locol o

The Access[®] database provided by Antares contained the pertinent drillhole and assay information for both the east and west deposits. TABLE 17-2 shows the database names which consisted of 44 parameters (excluding re-assay check columns). Each of the parameter names, such as "Ag_ppm_ICP", is comprised of the element's symbol (Ag), the assay unit (ppm, which equals g/t) and the analytical method (ICP). ICP is the acronym for "inductively coupled plasma" and AA for "atomic absorption".

The data was entered into both MicroModel[®] (MM) and Gemcom (GEMS[®]) for geostatistical and geological analysis. Note that the parameter names are not always the same when looking at the MM listing. Also, both molybdenum and sulfur have been converted from units of ppm to percent for reporting. The database contained 277 of the 299 total drillholes. The difference in count is that 27 holes have been rejected. Rationale for each rejection is based on reasons such as holes specifically drilled for metallurgical data and significant loss of sample from rotary holes. The complete list of drillholes used in this resource estimate is provided in Appendix A.

		r						
Mie	croModel Names		Access Database – Variable Names					
1	%TCu	1	CuT_%AA	14	Al_perc_ICP	30	Nb_ppm_ICP	
2	CuCN%	2	CuCN_perc_AA	15	B_ppm_ICP	31	Sb_ppm_ICP	
3	CuSS%	3	CuSS_perc_AA	16	Ba_ppm_ICP	32	Sc_ppm_ICP	
4	Au g/t	4	Au_ppm_AA	17	Be_ppm_ICP	33	Sn_ppm_ICP	
5	Ag g/t	5	Ag_ppm_ICP 18 Bi_ppm_ICP 34		Sr_ppm_ICP			
6	%Mo	6	Mo_ppm_ICP 19 Ca_perc_ICP 35 T		Te_ppm_ICP			
7	*S%	7	S_ppm_ICP	20	Co_perc_ICP	36	Th_ppm_ICP	
8	Asppm	8	As_ppm_ICP	21	Cr_ppm_ICP	37	Ti_perc_ICP	
		9	Cd_perc_ICP	22	Fe_ppm_ICP	38	TI_ppm_ICP	
		10	Ni_ppm_ICP	23	Ga_ppm_ICP	39	U_ppm_ICP	
		11	Pb_perc_ICP	24	Hg_ppm_ICP	40	V_ppm_ICP	
		12	Zn_ppm_ICP	25	K_perc_ICP	41	W_ppm_ICP	
		13	P_ppm_ICP	26	La_ppm_ICP	42	Y_ppm_ICP	
				27	Mg_perc_ICP	43	Zr_ppm_ICP	
				28	Mn_ppm_ICP	44	Re_ppm_ICP	
				29	Na_perc_ICP			
* Cor	nverted to %							

TABLE 17-2 :	Access Database Names

TABLE 17-3 shows the Micromodel® listing of the assay data for the Haquira East and West deposits.

TABLE 17-3: Micromodel® Data Listing

* LABEL	TAL DRILLHOL NUMBER	AVERAGE	72 STD DEVIATION	MIN. VALUE	MAX. VALUE	# MISS.
* CuT%	34421	0.31267	0.59081	0.00010	37.60000	283
* CuSS%	10314	0.12746	0.51430	0.00050	20.40000	24390
* CuCN%	10314	0.14082	0.43559	0.00050	20.90000	24390
* Auppm	27891	0.02341	0.04247	0.00250	1.69500	6813
* Agppm	28717	1.17717	5.67970	0.10000	867.00000	5987
* Asppm	28812	34.56374	196.57904	1.00000	10000.00000	5892
* Moppm	28812	88.36971	201.92459	0.00000	8490.00000	5892
* S%	28808	0.68545	0.90390	0.00000	10.00100	5896

TABLE 17-4 shows the correlation between each of the eight parameters. FIGURE 17-2 shows these correlations graphically. Note that most of the metals are mono-modal, lognormal-like with a fairly weak positive correlation amongst themselves.

	Correlations (All_Ln(data)) Marked correlations are significant at p < .05000 N=7124 (Casewise deletion of missing data)												
Variable	LCuT% LCuSS% LCuCN% LAuppm LAgppm LAsppm LMoppm LS%												
LCuT%	1.00	0.72	0.78	0.45	0.47	-0.03	0.34	0.25					
LCuSS%	0.72	1.00	0.55	0.25	0.25	0.04	0.08	-0.16					
LCuCN%	0.78	0.55	1.00	0.34	0.45	0.04	0.34	0.44					
LAuppm	0.45	0.25	0.34	1.00	0.52	0.17	0.37	0.21					
LAgppm	0.47	0.25	0.45	0.52	1.00	0.37	0.33	0.38					
LAsppm	-0.03	0.04	0.04	0.17	0.37	1.00	0.05	0.16					
LMoppm	0.34	0.08	0.34	0.37	0.33	0.05	1.00	0.23					
LS%	0.25	-0.16	0.44	0.21	0.38	0.16	0.23	1.00					

TABLE 17-4: Correlation of Parameters

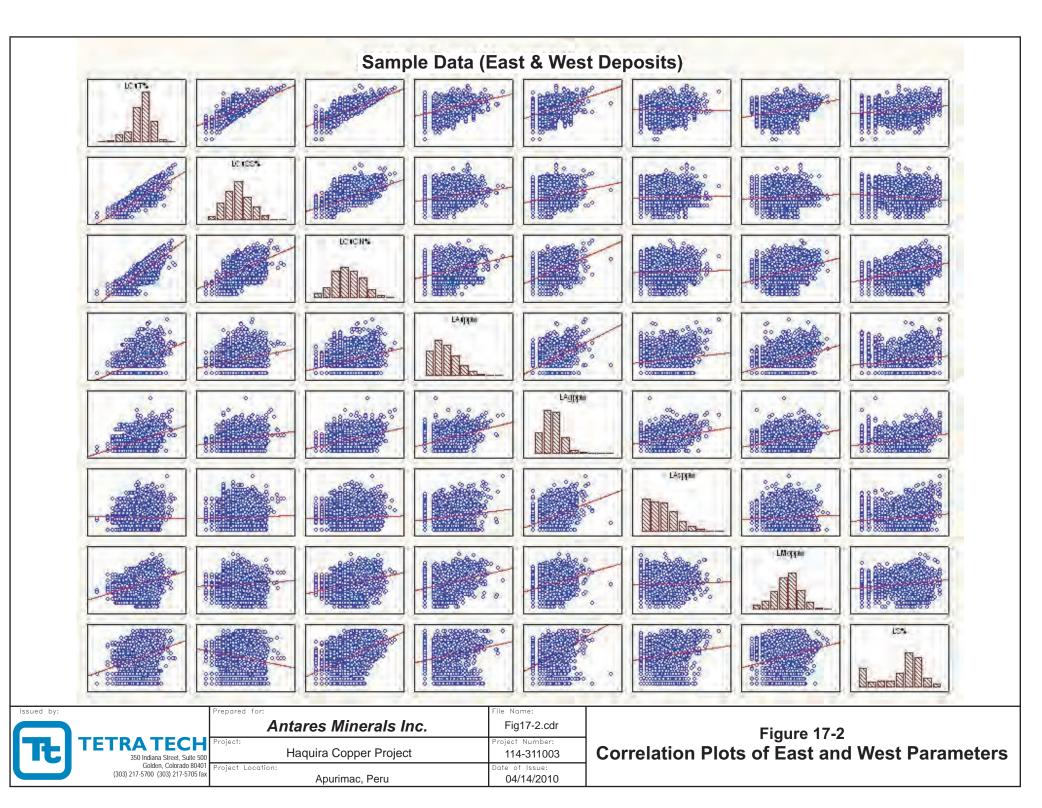


FIGURE 17-3 shows box-and-whisker plots of the Haquira East and West deposits side-by-side of the log transformed %TCu (top panel), %CnCu (middle panel) and %AsCu (bottom panel). The "box" of the box-and-whiskers clearly shows that for primary rock (Code 6000) the east deposit has average higher copper grades than the west. The "whiskers" show that the range of copper grades is greater in the west.

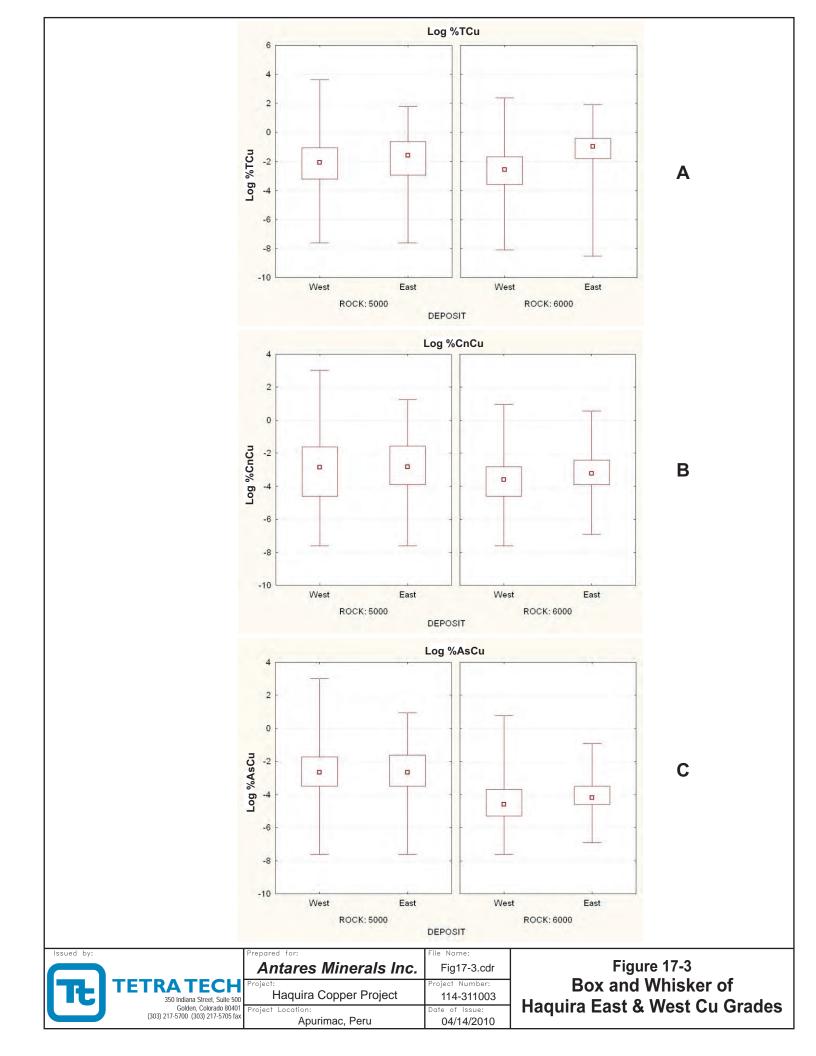
TABLE 17-5 shows the coding for lithology, mineral zone and grade envelope codes used in the present report. Note that the rock coding has changed with both the previous Tt and Chlumsky, Armbrust, & Meyer, LLC (CAM) studies. The present rock codes assigned by Tt are designed to take into account the combination of copper mineral zones using the PD mineral zone codes and lithology codes defined by Antares' geologists.

17.3 Haquira West Resource Estimation

FIGURE 17-1 shows the location Haquira West deposit. The Haquira West resource is based on rock codes that only use the mineral zone codes listed in TABLE 17-6.

The Haquira West mineral resource estimate was prepared in the following manner:

- The drillhole database (up to drillhole AHAD_174) was provided by Antares which contained more than 40 elements in addition to density, lithology and mineral zone codes;
- Sequential copper analyses (acid and cyanide leach assays) were included in the database;
- Antares provided cross sections with interpreted mineral zones that were digitized by Tt and converted into three-dimensional wireframe models which were assigned eight "rock codes" listed in TABLE 17-6.
- These rock codes were defined by geologic interpretation in section and converted into 3-D wireframes. These wireframes were in turn use to mark the 10x10x5-m blocks with their respective codes.
- The density of each mineral zone is also listed in TABLE 17-6.
- Drillhole samples and composites were coded when their position was within a block.



Mineral Zone Code (East and West Models) each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	200, 210, 220, 230, 240, 250 100, 110, 120, 130, 140, 150 320 330 300 310 8000 400 TT Recode 1000 5000
CSU/MCSU 30 Time and medium grained clastic sediments (Six Stratigraphy layers (Six, Stratigraphy layers) 30 MIDI 40 PP/PPc 50 Paranani Porphyry/PP chilled margin 50 IP/HPc 60 laquira Porphyry/HP chilled margin 60 P/LPc 70 ahuani Porphyry/LP chilled margin 80 SR/Bx/CCSR/PFLT/CP/APLT/BxFLT/LMST 90 Mineral Zone Code (East and West Models) Pl each Cap 1 Oxide Cu 2 Oxide+Chalcocite 3 Chalcocite 4 inriched Mix 5	D Codes	120, 130, 140, 150 320 330 330 300 310 8000 400 TT Recode 1000 5000
PP/PPc 50 Paranani Porphyry/PP chilled margin 60 IP/HPc 60 Haquira Porphyry/HP chilled margin 70 Soil/Colluvium 80 Scr/Bx/CCSR/PFLT/CP/APLT/BxFLT/LMST 90 Minor lithology designations 90 Mineral Zone Code (East and West Models) Pl each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	 330 300 310 8000 400 TT Recode 1000 5000
Paranani Porphyry/PP chilled margin 50 IP/HPc 60 Iaquira Porphyry/HP chilled margin 60 P/LPc 70 ahuani Porphyry/LP chilled margin 80 SR/Bx/CCSR/PFLT/CP/APLT/BxFLT/LMST 90 Mineral Zone Code (East and West Models) PI each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 inriched Mix 5	D Codes	300 310 8000 400 TT Recode 1000 5000
Iaquira Porphyry/HP chilled margin 60 P/LPc 70 ahuani Porphyry/LP chilled margin 80 Soil/Colluvium 80 SR/Bx/CCSR/PFLT/CP/APLT/BxFLT/LMST 90 Mineral Zone Code (East and West Models) 91 each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	310 8000 400 TT Recode 1000 5000
ahuani Porphyry/LP chilled margin 70 Soil/Colluvium 80 SR/Bx/CCSR/PFLT/CP/APLT/BxFLT/LMST 90 Mineral Zone Code (East and West Models) Pl each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	8000 400 TT Recode 1000 5000
BR/Bx/CCSR/PFLT/CP/APLT/BxFLT/LMST 90 Minor lithology designations Pl Mineral Zone Code (East and West Models) Pl each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	400 TT Recode 1000 5000
Minor lithology designations 90 Mineral Zone Code (East and West Models) Pl each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	TT Recode 1000 5000
Mineral Zone Code (East and West Models) each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	1000 5000
Mineral Zone Code (East and West Models) each Cap 1 Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5	D Codes	1000 5000
Dxide Cu 2 Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5		5000
Dxide+Chalcocite 3 Chalcocite 4 Enriched Mix 5		
Chalcocite 4 Enriched Mix 5		5000
nriched Mix 5		
		5000
		5000
Primary Cu-Mo-Fe 6		6000
Primary Pyrite 7		6000
Colluvium 8		8000
Indefined 9		9000
Interpreted Grade Envelopes		
(East Models)	MM	Code
CuT <= 0.2% %T(Cu	0
CuT > 0.2% and <= 0.3% %T		2
CuT > 0.3% and <= 0.7% %T		3
CuT > 0.7% %T		7
Au <= 0.05 ppm * Au g		0
u > 0.05 ppm * Au	-	5
Ao <= 0.005 ppm * %M	-	0
No >0.005 ppm and < 0.05 ppm * %M		5
10 >0.05 ppm * %M		50
etailed Rock Code for East is the Sum of Stratigraphy Code + Mineral Zone + Stratigraphy Code +		

Deposit	Detailed Rock Code	Block Grades Estimated	Consolidated Rock Code	Density
West, PP	1000	No	1000	2.21
West, PP	5000	Yes	5000	2.42
West, PP	6000	Yes	6000	2.62
West, PP	8000	No	8000	2.04
West, PP	9000	No	9000	2.5
West, PP	9999	No	9999	2.5

TABLE 17-6: West Model Rock Codes

TABLE 17-7 shows the statistics for each of the sample data broken out by mineral zone code. The codes of the secondary mineralization (5000) and primary mineralization (6000) have mean grades of 0.368% and 0.176% respectively. The coefficient of variation is 3.4. Note that there is a 5000 copper grade of 37.6%. The histogram for samples has a lognormal-like shape.

	DATA TYP: CURRENT	LABEL	: CuT%												
1	SA	MPLE C	OUNT		τ	NTRANSFOR				1) STATS	LOG-DE	
ROCK		BELOW	ABOVE	INSIDE					STD.	COEF.	LOG	LOG	LOG		COEF.
TYPE					MINIMUM			VARIANCE	DEV.				STD.DEV	MEAN	
1000	8	 0			0.000200			0.05184					1.0995	0.0356	1.5328
3000	15	ō	0					0.06074						0.1399	1.8908
5000	34	ō	ō		0.000500										3.0605
6000	29	ō	ō	5529	0.000300	10.850	0.17629	0.18180							3.1020
8000	6	ō	Ō	237				0.00249							0.8394
9000	0	0	0	15	0.01220	0.08660	0.02635	0.000354	0.01882	0.7144	-3.7904	0.2582	0.5082	0.0257	0.5428
9999		0	-					0.000232							0.7727
ALL	99	0	0	15181	0.000200	37.600	0.21672	0.53845	0.73379	3.3860	-2.7413	2.4276	1.5581	0.2171	3.2143
L	OWER BOU		PPER BOU		400	800	1200					2800	3200	3600	4000
	>=		-	+ 0041	+	+	+	+		+	+	+	+	+	+
	0.00			004) 0071*											
	0.00			007[* 012 **											
	0.00			012 "" 023 ***											
	0.00			0421****											
	0.00				********										
	0.00				*******		*******	* * *							
	0.00							 *********	***						
	0.01							********		***					
	0.02							********							
	0.04							*******							
	0.00							******							
	0.29		0.0	2021	********										
	0.53				********										
	0.98			058 ****											
	1.80			143 ***											
	3.31			8281*											
	6.08			6381*											
	11.16		20.4												
	20.48		37.6												

TABLE 17-7:	Sample Statistics	for %TCu (West Model)
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TABLE 17-8 shows the statistics for each of the 5m composites. The average grade for 5000 rock is 0.32% and for 6000 rock 0.16%. The coefficient of variation is 2.4. The previous

maximum has been reduced to a copper grade of 13.9%. Note that the histogram for composites is again lognormal-like in shape.

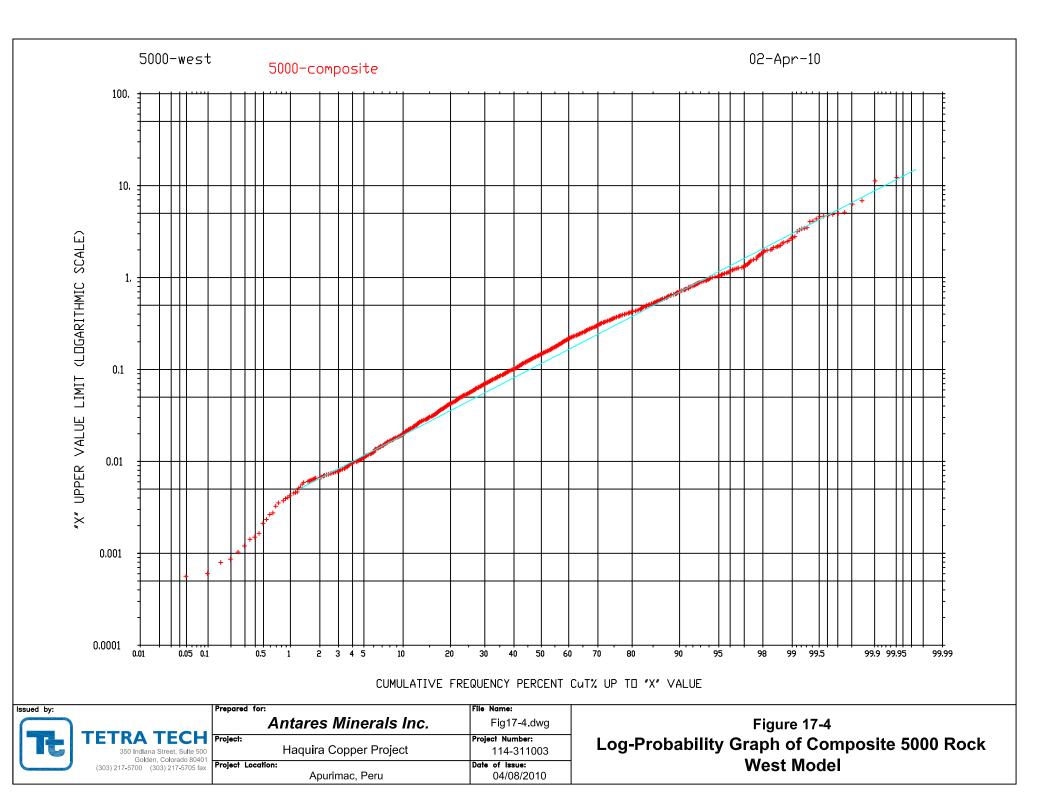
TABLE 17-8: Composite Statistics for %TCu (West Model)

FIGURE 17-4 shows the log-probability plot of the 5000 rock %TCu composites. Even though

	ATA TYPE URRENT LJ														
 I	COMPO	SITE (COUNT	 ا	 ט	NTRANSFOR	MED STAT:	ISTICS			LOG-TR	ANSFORME	D STATS	LOG-DE	RIVED
ROCK	H	BELOW	ABOVE	INSIDE					STD.	COEF.	LOG	LOG	LOG		COEF.
TYPE M.	ISSING LI	IMITS I	LIMITS	LIMITS	MINIMUM	MAXIMUM	MEAN	VARIANCE	DEV.	OF VAR	MEAN	VAR.	STD.DEV	ME AN	OF VAR.
 1000	21	0	 0	1063	0.00193	3.8014	0.04316	0.01896	0.13768	3.1901	-3.8449	1.0714	1.0351	0.0365	1.3855
3000	6	0	0	582	0.00104	2.3084	0.12633	0.03412	0.18471	1.4622	-2.6908	1.3603	1.1663	0.1339	1.7022
5000	19	0	0	2032	0.000559	13.899	0.32316	0.48727	0.69805	2.1601	-2.0130	1.9551	1.3982	0.3550	2.4626
5000	85	0	0	2157	0.000308	3.8113	0.15936	0.06937	0.26337	1.6527	-2.6473	2.0464	1.4305	0.1971	2.5961
3000	14	0	0	121	0.00682	0.35332	0.03808	0.00182	0.04269	1.1211	-3.5762	0.4956	0.7040	0.0359	0.8010
9000	0	0	0	6	0.01596	0.04342	0.02598	0.000109	0.01046	0.4024	-3.7144	0.1254	0.3541	0.0259	0.3655
9999	38	0	0	73	0.00561	0.06141	0.01840	0.000136	0.01167	0.6344	-4.1664	0.3283	0.5729	0.0183	0.6233
ALL	183	0	0	6034	0.000308	13.899	0.18660	0.20682	0.45478	2.4372	-2.6869	2.1570	1.4687	0.2002	2.7650
LOI	WER BOUNI) UPI	PER BOUT		100	200	300	400		-	600	700	800	900	1000
	0.0003	3		0051*											
	0.0005	5	0.00	209 i *											
	0.0009	,	0.00	015 **											
	0.0015	5	0.00	026 ****	7										
	0.0026	5	0.00	045 ****	******										
		5	0.00	277 ****	******	*******	* * * * *								
	0.0045				* * * * * * * * * *	* * * * * * * * * *	+++++++++	* * * * * * * * *							
	0.0045 0.0075	7													
			0.02	224 ****	******	*******	******	* * * * * * * * * *							
	0.0077	L	0.02	224 **** 383 ****	*********	*********	* * * * * * * * * *	* * * * * * * * * *	******	******					
	0.0077 0.0131 0.0224 0.0383	L 1 3	0.02	224 **** 383 **** 655 ****	***********	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * *	* * * * * * * * * * * *	*********	*******	*******	******			
	0.0077 0.0131 0.0224 0.0383 0.0655	L 1 3 5	0.02 0.03 0.04	224 **** 383 **** 655 **** 119 ****	* * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * *	************	**********	*******	*********	********	* * * * * * * * * *	* *	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119	L 1 3 5	0.02 0.03 0.04 0.13	224 **** 383 **** 655 **** 119 **** 912 ****	********	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	* *	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119 0.1912	L 1 3 5 9	0.02 0.03 0.04 0.13 0.19	224 **** 383 **** 655 **** 119 **** 912 **** 267 ****	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	***********	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	**	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119 0.1912 0.3267	L 1 3 5 9 2 7	0.02 0.03 0.04 0.12 0.12 0.32 0.55	224 **** 383 **** 655 **** 119 **** 912 **** 267 ****		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	**	
	0.0073 0.0133 0.0224 0.0383 0.0655 0.1119 0.1912 0.3267 0.5583	L 1 3 5 9 2 7 3	0.02 0.03 0.13 0.19 0.32 0.55 0.95	224 **** 383 **** 655 **** 119 **** 912 **** 912 **** 583 **** 540 ****		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	**	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119 0.1912 0.3267 0.5583 0.9540	L 1 3 5 9 2 2 7 3 3	0.02 0.03 0.13 0.19 0.32 0.55 0.99 1.63	224 **** 383 **** 655 **** 119 **** 912 **** 267 **** 583 **** 540 ****		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	* *	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119 0.1912 0.3267 0.5583 0.9540 1.6302	L 1 3 3 9 9 2 2 7 3 0 2	0.02 0.03 0.13 0.15 0.32 0.55 0.95 1.63 2.78	224 **** 383 **** 655 **** 912 **** 267 **** 267 **** 583 **** 540 **** 302 ****		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	* *	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119 0.1912 0.3267 0.5583 0.9540 1.6302 2.7858	L + 5 9 2 7 3 0 2 3	0.02 0.03 0.12 0.32 0.55 0.95 1.63 2.76 4.70	224 **** 383 **** 655 **** 912 **** 912 **** 267 *** 583 **** 583 **** 540 **** 302 **** 358 **** 604 **		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	* *	
	0.0077 0.0131 0.0224 0.0383 0.1119 0.1912 0.3267 0.5583 0.5583 0.9540 1.6302 2.7858 4.7604	L 1 3 5 9 2 7 3 3 3 1 3 1	0.02 0.03 0.13 0.32 0.55 0.95 1.63 2.78 4.70 8.13	224 + **** 383 + *** 555 + *** 912 + *** 913 + *** 913 + *** 914 + *** 915 + **** 915 + ***** 915 + **** 915 + **** 915 + **** 915 + ****		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	********	* * * * * * * * * * * *	********	* * * * * * * * * *	* *	
	0.0077 0.0131 0.0224 0.0383 0.0655 0.1119 0.1912 0.3267 0.5583 0.9540 1.6302 2.7858	L 1 3 5 9 2 7 3 3 3 1 3 1	0.02 0.03 0.12 0.32 0.55 0.95 1.63 2.76 4.70	224 + **** 383 + *** 555 + *** 912 + *** 913 + *** 913 + *** 914 + *** 915 + **** 915 + ***** 915 + **** 915 + **** 915 + **** 915 + ****		* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *		****	********	* * * * * * * * * *	* *	

there is a good straight-line fit for concentrations all the way to the highest value, a high cut of 3.5% composite copper values was employed.

FIGURE 17-5 shows two variograms for total copper in the west deposit. The top variogram (A) is the relative variogram looking in the SW direction, dipping at 45-degrees. The ultimate range is approximately 250-m in length. A SW dipping variogram of similar shape and structure exists for the 5000 rock. The vertical variogram shown for 5000 rock n the lower panel (B), has a much shorter range of approximately 50 meters.



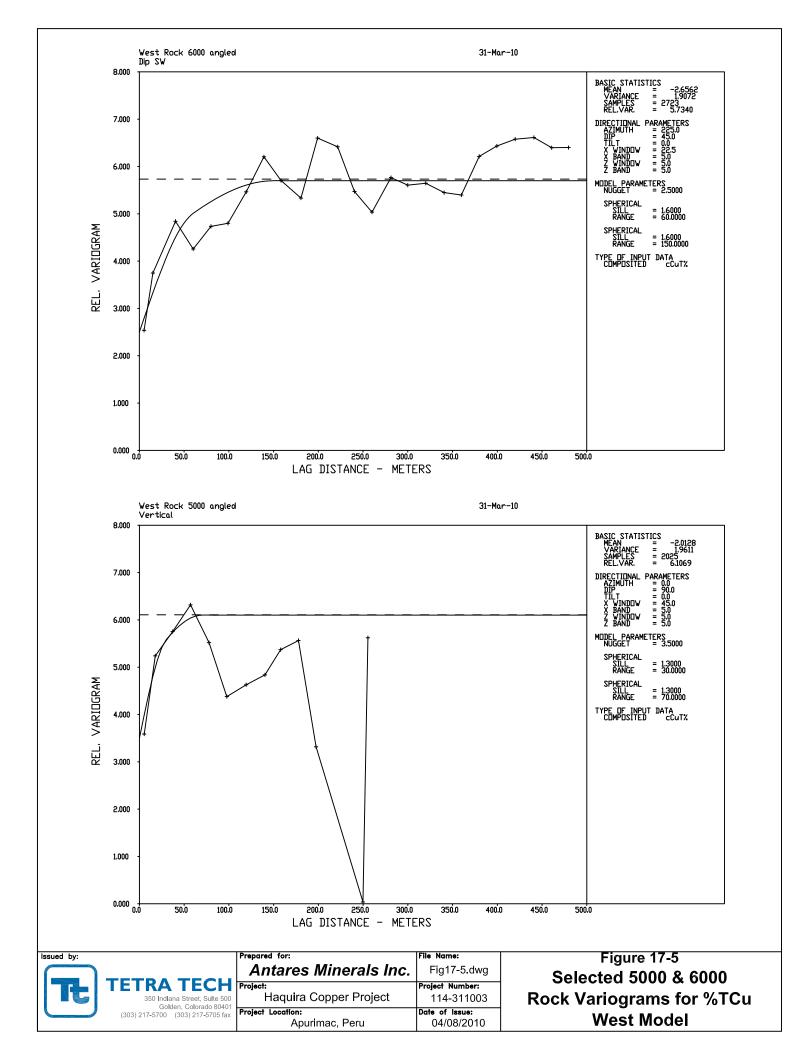


TABLE17-9 shows the kriging search and variogram parameters for the west deposit. Ordinary kriging using a unitized general relative variogram model was done. Estimation for 5000 and 6000 rock blocks were limited to blocks above the 300-m depth. This ultimate limit reflects at most west drilling has a depth of not greater than 200 meters.

	latching C			Anisot			,	MIFS	Search R	langes			Va	riogra	am Par	amete	ers	
General Codes	composite->block MM Answer Set Numbers	Zone Name	Axis	Anisotropy Axis Length (m)	Anisotropy Rotation	Type ³	Resource Class ⁴	Resource Code ²	Maximum Search Range	Number Closest Pts Max Pts Single Drillhole	Min Pts Required to Estimate	Rotation	Length	Nugget ¹	Nested	Model Type ⁴	Sill ¹	Range (m)
- 10			Primary	300	200	Az	М	1	50	8/4	4	200	100		1	Sph	0.2	50
5000- 5355	3	Secondary (Angled)	Second	150	30	Dip	1	2	125	8/4	4	30	100	0.5	2	Sph	0.2	200
647		(<u>3</u> ,	Tertiary	100	0	Tilt	F	3	400	8/4	4	0	40		3	Sph	0.1	400
		_	Primary	300	200	Az	М	1	50	8/4	4	200	100		1	Sph	0.2	100
6000- 6325	4 - 25	Primary (Angled)	Second	150	30	Dip	1	2	125	8/4	4	30	100	0.1	2	Sph	0.2	400
99		(Tertiary	100	0	Tilt	F	3	400	8/4	4	0	40		3	Sph	0.5	600
_		Primary	Primary	300	0	Az				8/4	4	0	100		1	Sph	0.3	50
6330	26	HP (Pre-	Second	150	90	Dip	D	4	600	8/4	4	90	100	0.1	2	Sph	0.2	200
•		Fill)	Tertiary	100	0	Tilt				8/4	4	0	40		3	Sph	0.1	1200
4 5		Primary	Primary	300	0	Az	М	1	50	8/4	4	0	100		1	Sph	0.2	100
6330- 6337	27	HP	Second	150	90	Dip	1	2	125	8/4	4	90	100	0.1	2	Sph	0.2	400
		(Overlay)	Tertiary	100	0	Tilt	F	3	400	8/4	4	0	40		3	Sph	0.1	600
uSS% Notes	i 1 2	, Auppm, J Unitize Ger Kriging Erro Az=Azimuth	Agppm, A heral Relat or is used	sppm, f tive (All v to adjust	Vloppm ariogram t prelimin	and S structi ary cla	% use ures ar uss 1,3	CuT% se re transfo ,5 to a fin	earch an rmed to al final re	d variog relative va esource c	ram pa ariograr lass of	aramet ns from 1,2,3,4,	ers log var 5&6	-	ns)			
		Sph=Spher								waru, mit	rotates	Civ alt	unu pri	inaly (ans.			
		M=Measure				ionudi,	Jau-	Gaussiai										
	5	monououre	a, i-maio	atou, i –i	noneu													

TABLE 17-9: Haquira Search and Kriging Parameters for Haquira West

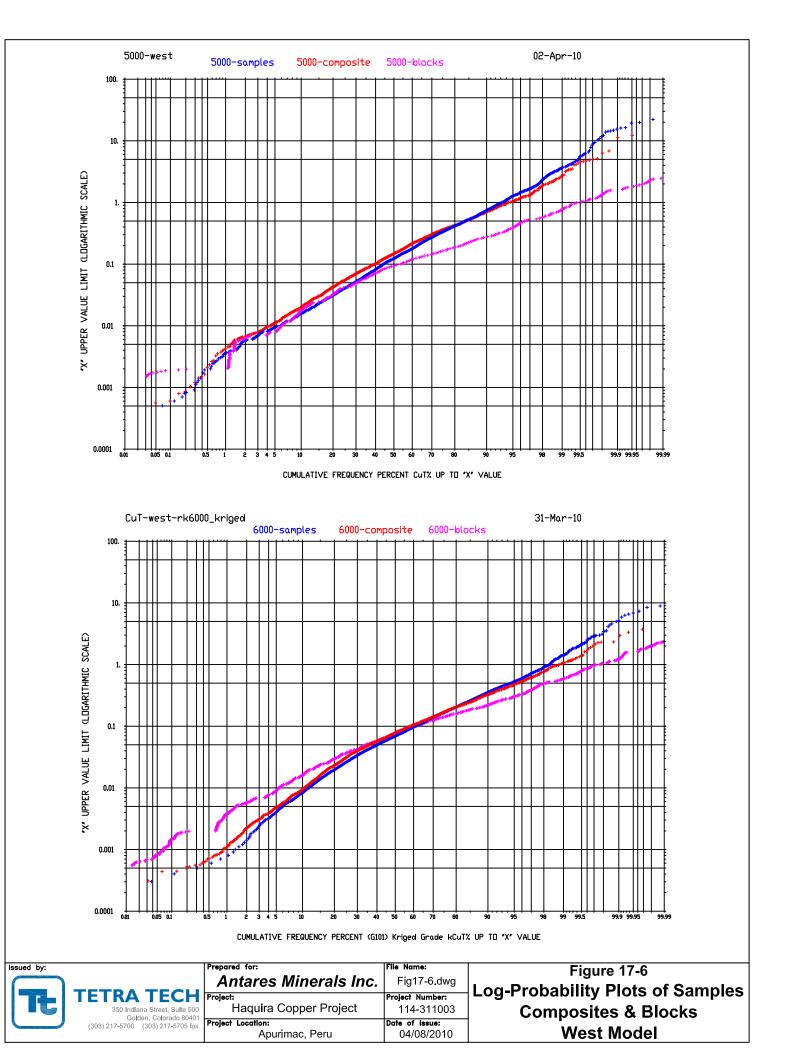
TABLE 17-10 shows the statistics for %TCu for the 10x10x5-m blocks. Note that the maximum of 3.5 %TCu for the kriged results (5000 rock). This value reflects the upper cut. A block code of 3000 was assigned to all blocks estimated 300-m below the surface. The average 5000 rock copper grade is 0.21% and for 6000 rock, 0.12%. The coefficient of variation is 1.2. The additional metal grades were kriged using the total copper variography,

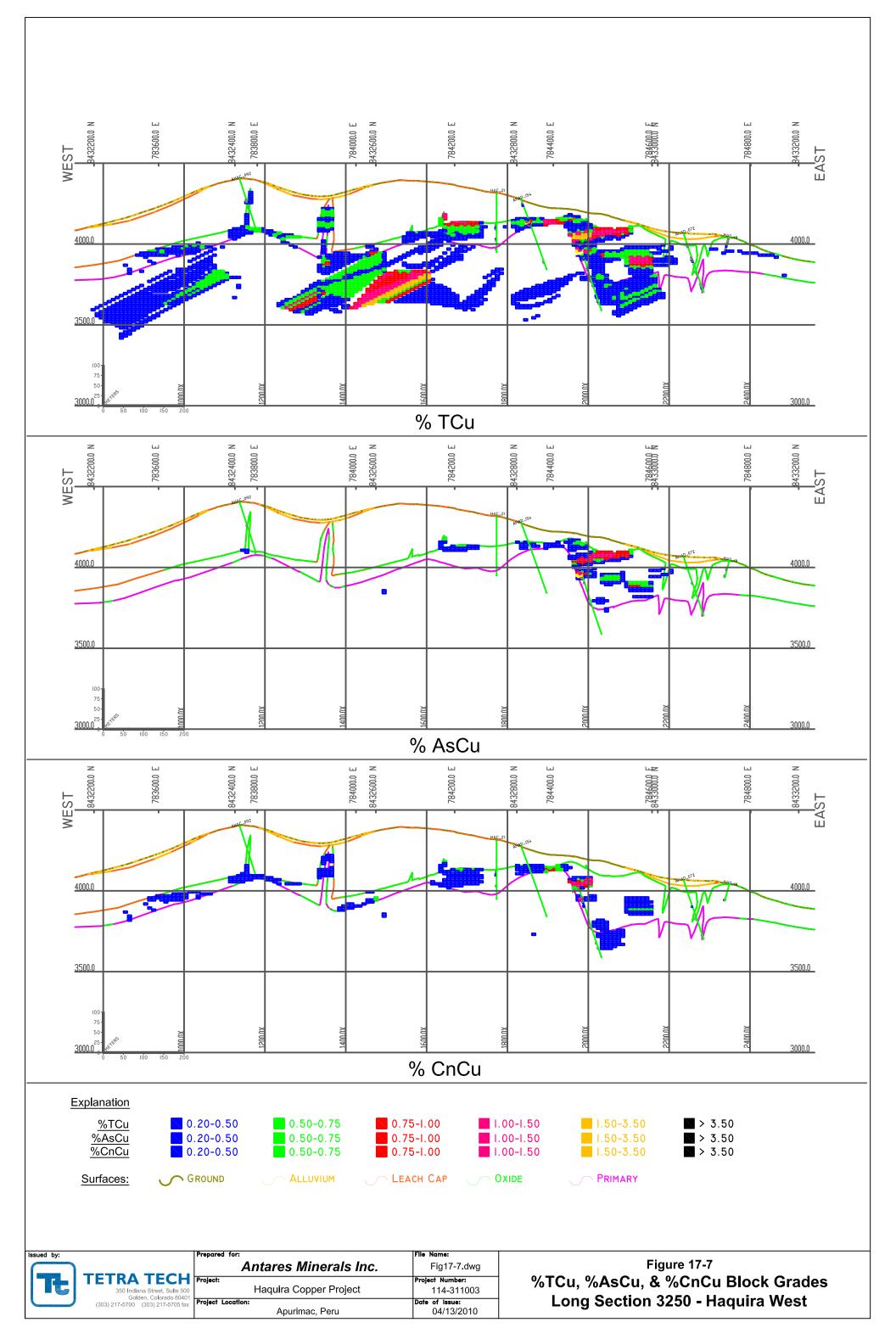
TABLE 17-10:	Block Statistics for %TCu, West Model
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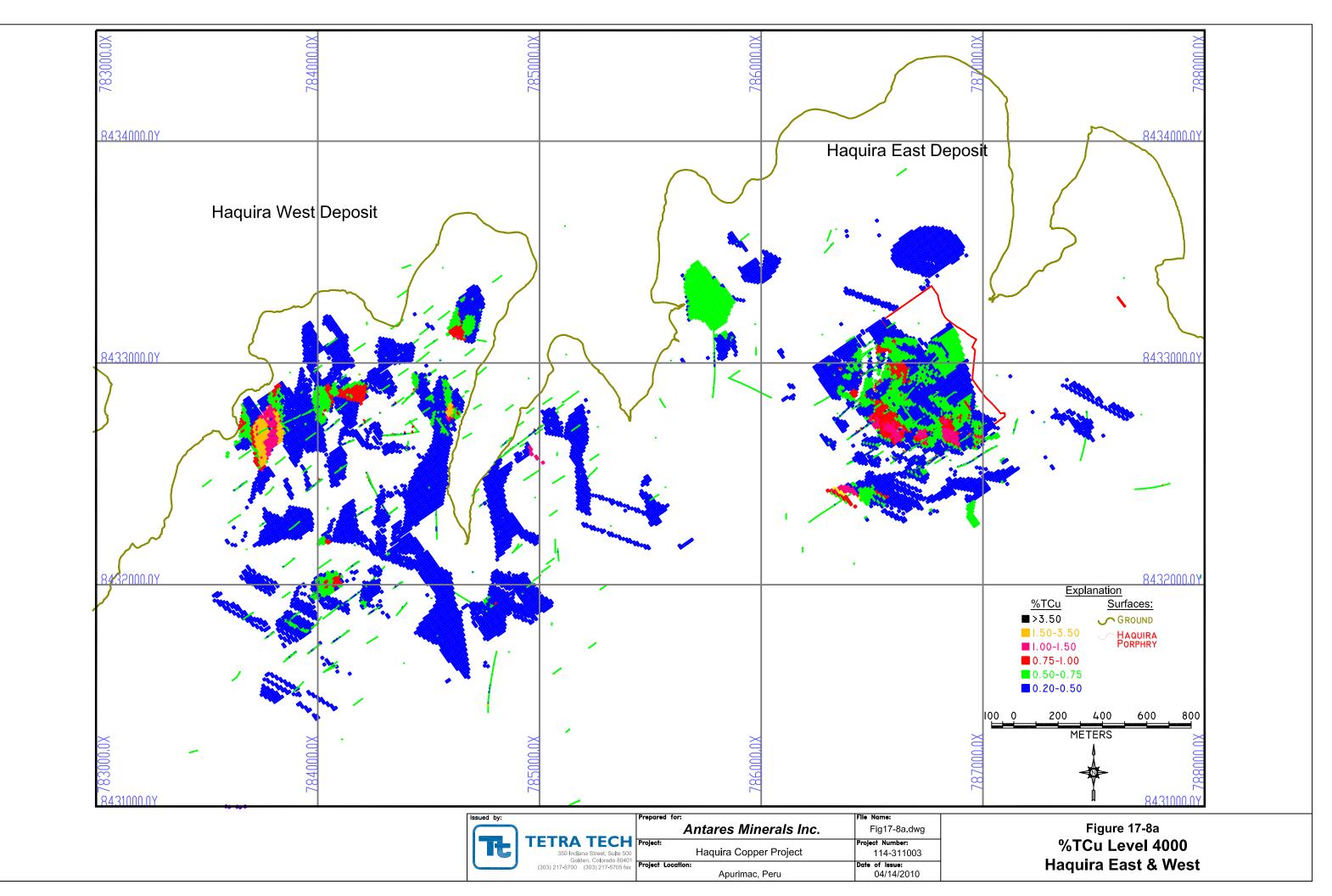
		BLOCK COUNT BELOW	ABOVE	INSIDE		NTRANSFOR	RMED STAT	ISTICS	erro.	COEF.	LOG-TR.	ANSFORMED LOG	LOG		COEF.
OCK YPE	MISSING	LIMITS	LIMITS	LIMITS	MINIMUM			VARIANCE	DEV.	OF VAR	MEAN	VAR.	STD.DEV	MEAN	OF VAR.
	7632911	 0	0					0.01760			-2.6593				
5000	48511	0	0	406957	0.000579	3.5000	0.20837	0.05624	0.23714	1.1381	-2.0699	1.2002	1.0955	0.2300	1.5234
5000	1325910	0						0.01795							
ALL	17571254	0	0	3731046	0.000369	3.5000	0.12622	0.02279	0.15097						
LOI	JER BOUND				0 2400				180000		\$40000			-	
	>=		+		+	-+	+	+	+	+	+	+		+	
	0.0004	0.0006 0.0009													
	0.0000	0.0005													
	0.0015	0.00231													
	0.0023	0.00361													
	0.0036	0.00581													
	0.0058	0.0091	* * * * * * * * * *	*****											
	0.0091	0.0144	* * * * * * * * * *	* * * * *											
	0.0144		* * * * * * * * * *												
	0.0227	0.0360	* * * * * * * * * *	* * * * * * * *	* * * * * * * * * *	* * * * * * * * *	* * * * * * * *								
	0.0360		********												
	0.0568		* * * * * * * * * *												
	0.0898	,	*******									*******	***		
	0.1420	0.0011	* * * * * * * * * *					* * * * * * * * * *	* * * * * * * * * *	*******	* * * * *				
	0.2244	,	*******		********	*******	***								
	0.3548		* * * * * * * * * * *	* * * * *											
	0.5608	0.8864													
	0.8864	1.4010													
	1.4010	2.2145													
	2.2145	3.5004						+							

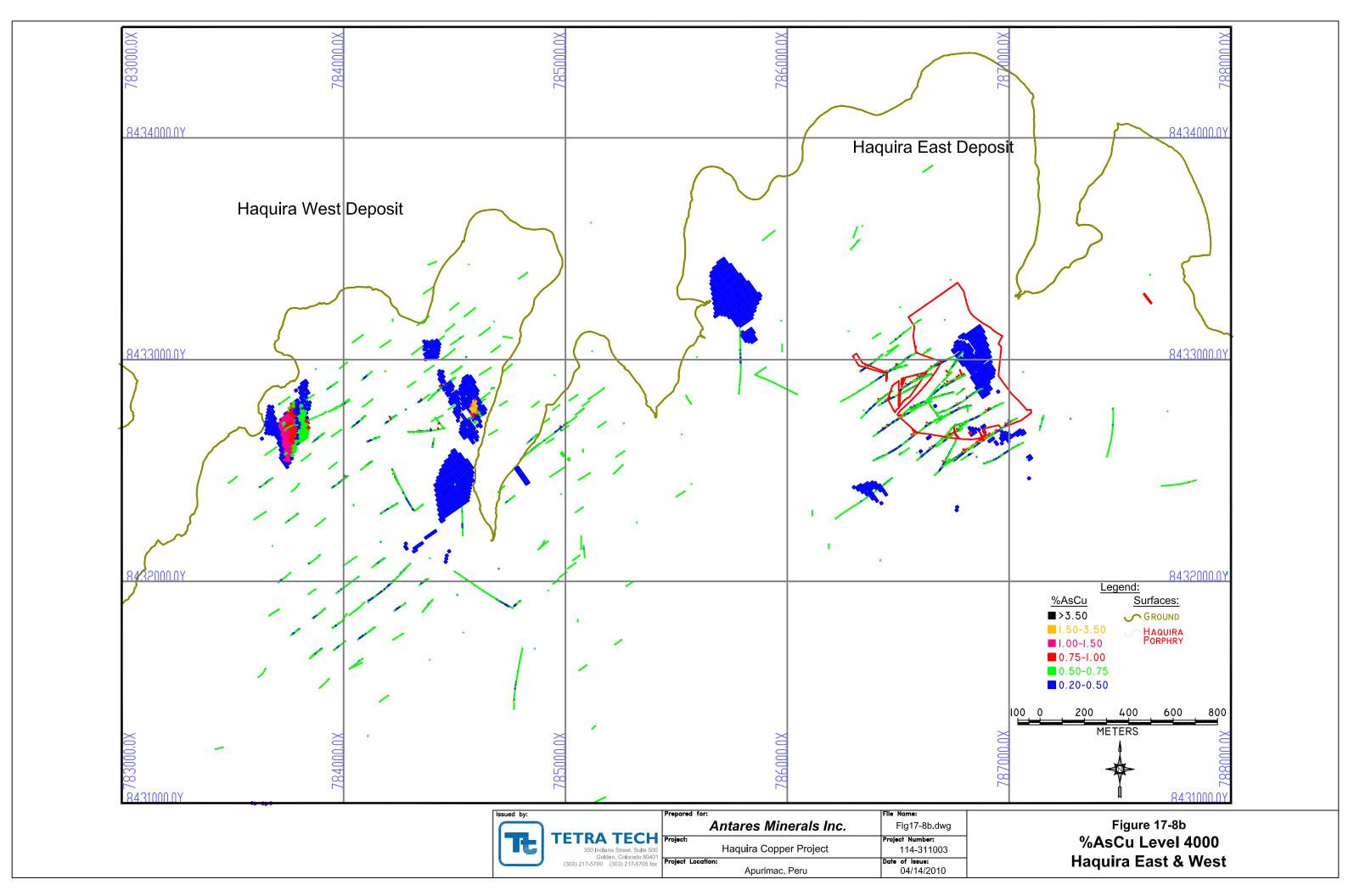
As a validation of the estimated results, FIGURE 17-6 shows the log-probability plots for samples, composites and blocks. In general the fits are a straight line with differing slopes representing the successive lowering of the variance as one proceeds from samples to blocks. Panel A is the plot of %TCu for 5000 rock. Panel B is the plot of %TCu for 6000 rock. The presentation of these plots indicates that the sequence of samples to composites to blocks is statistically valid.

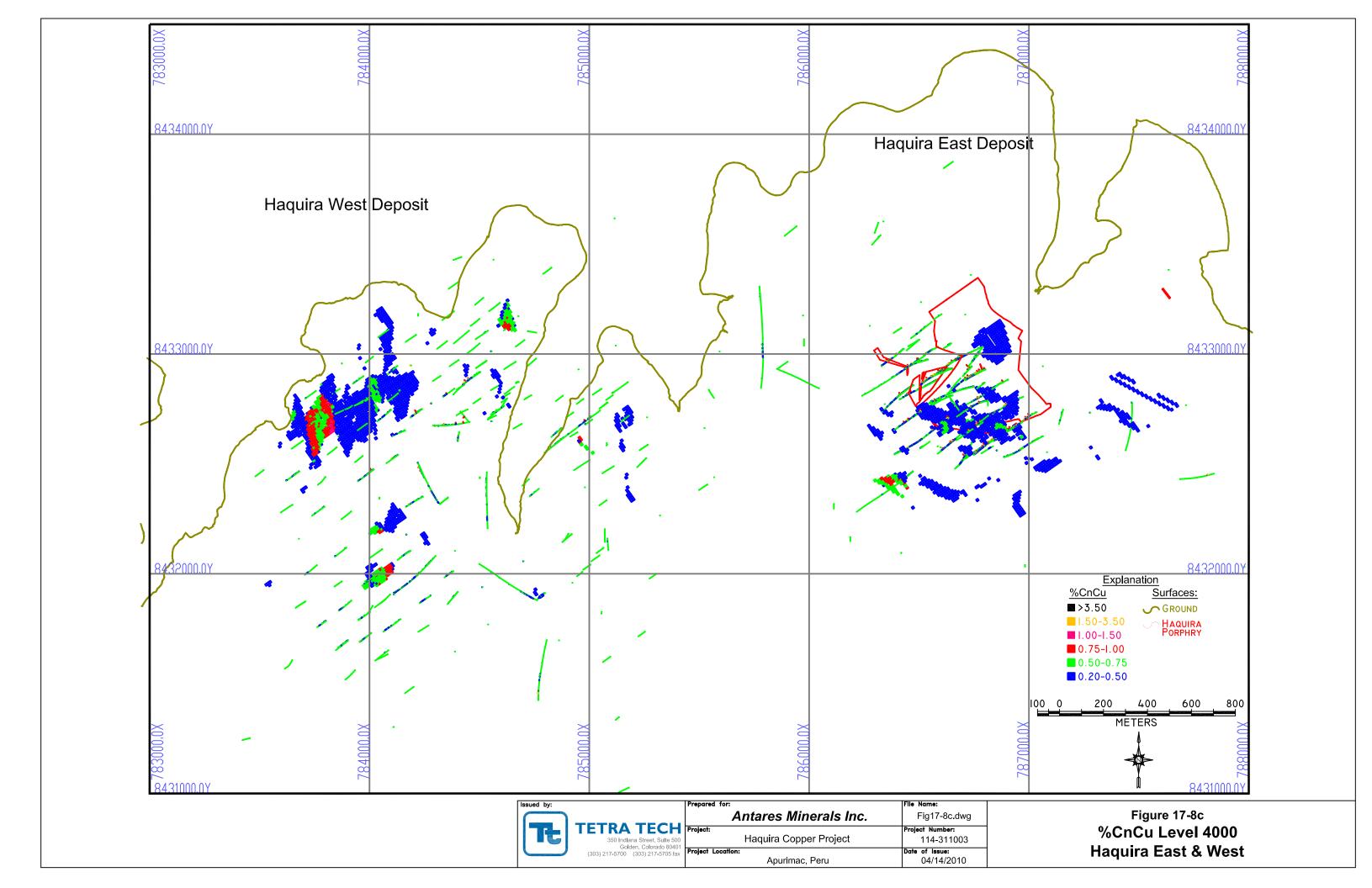
FIGURES 17-7 through 17-10a, 10b, and 10c are a series of long sections and level maps that provide a visual representation of the estimated grades by metal (i.e. %TCu, %AsCu, %CnCu, Ag g/t, Au g/t, and %Mo) for the entire Haquira project (both Haquira East & West).

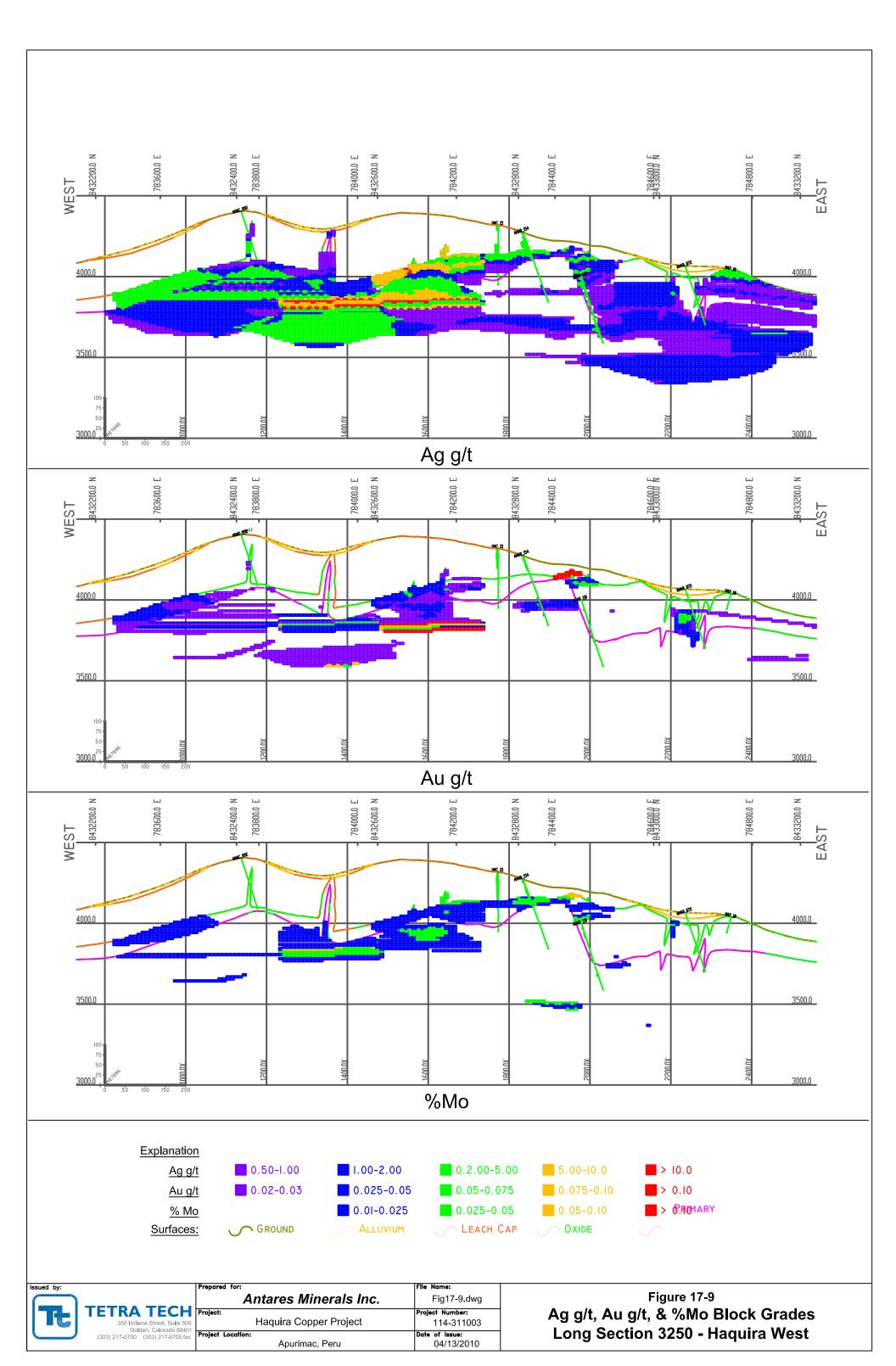


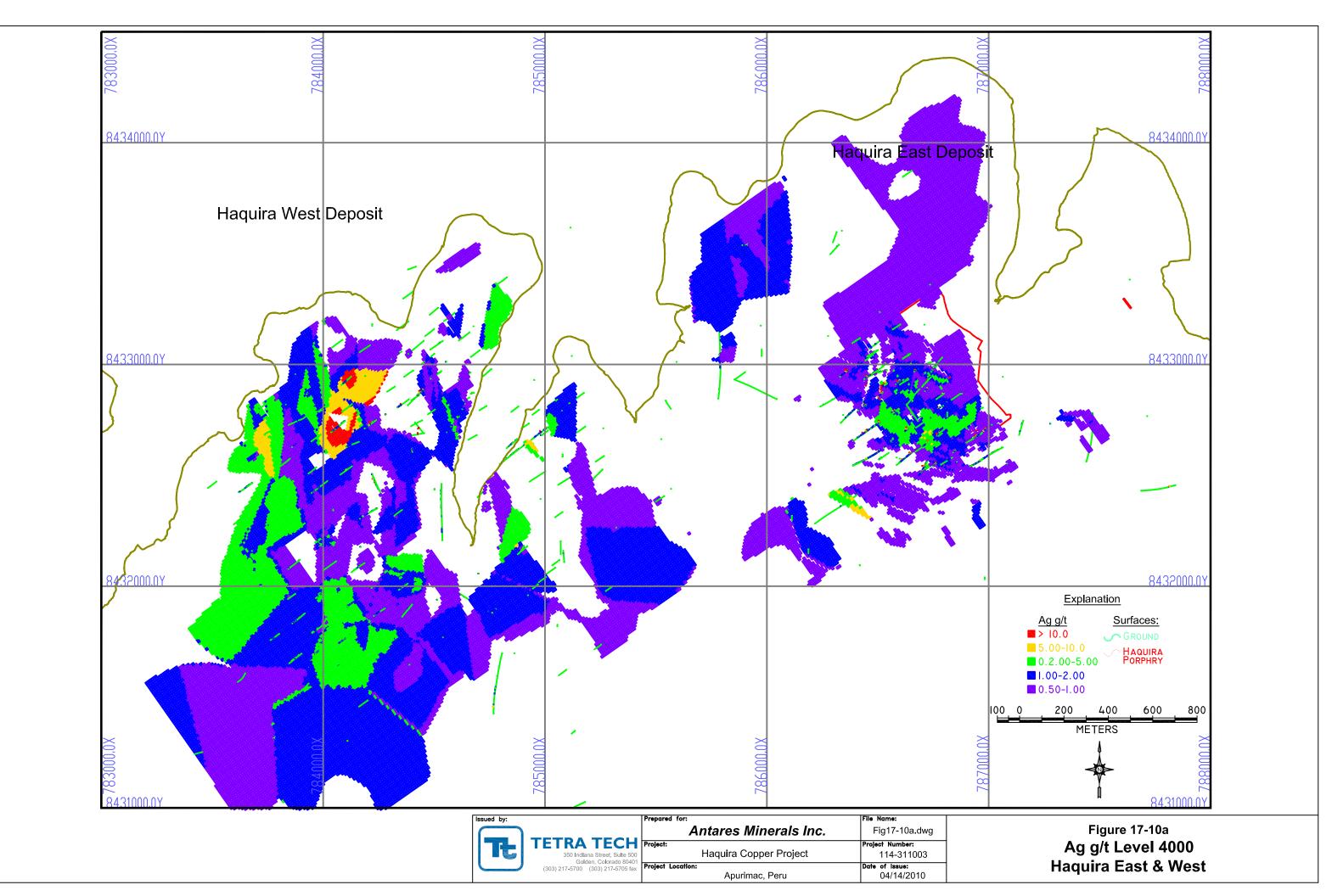


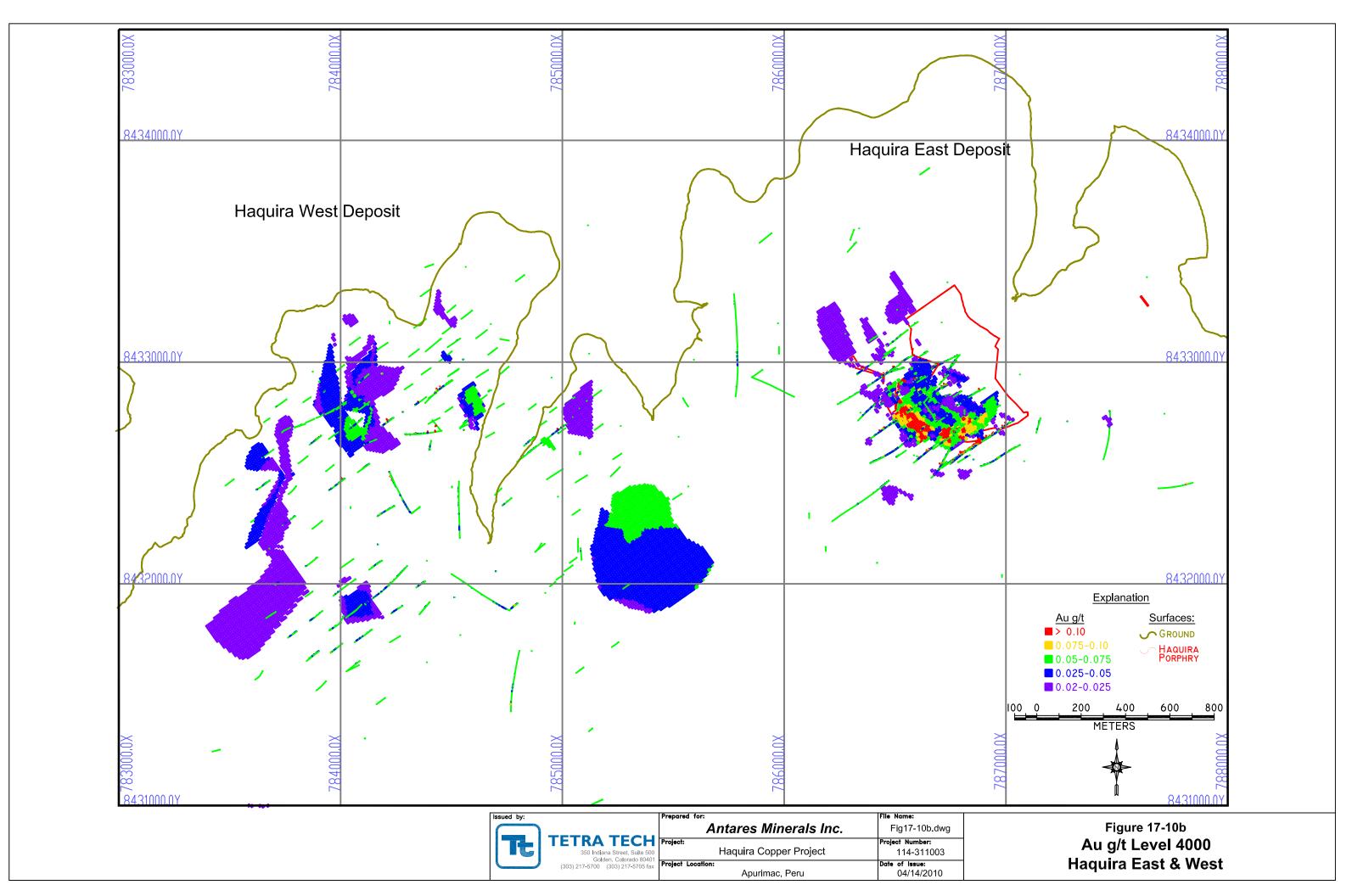


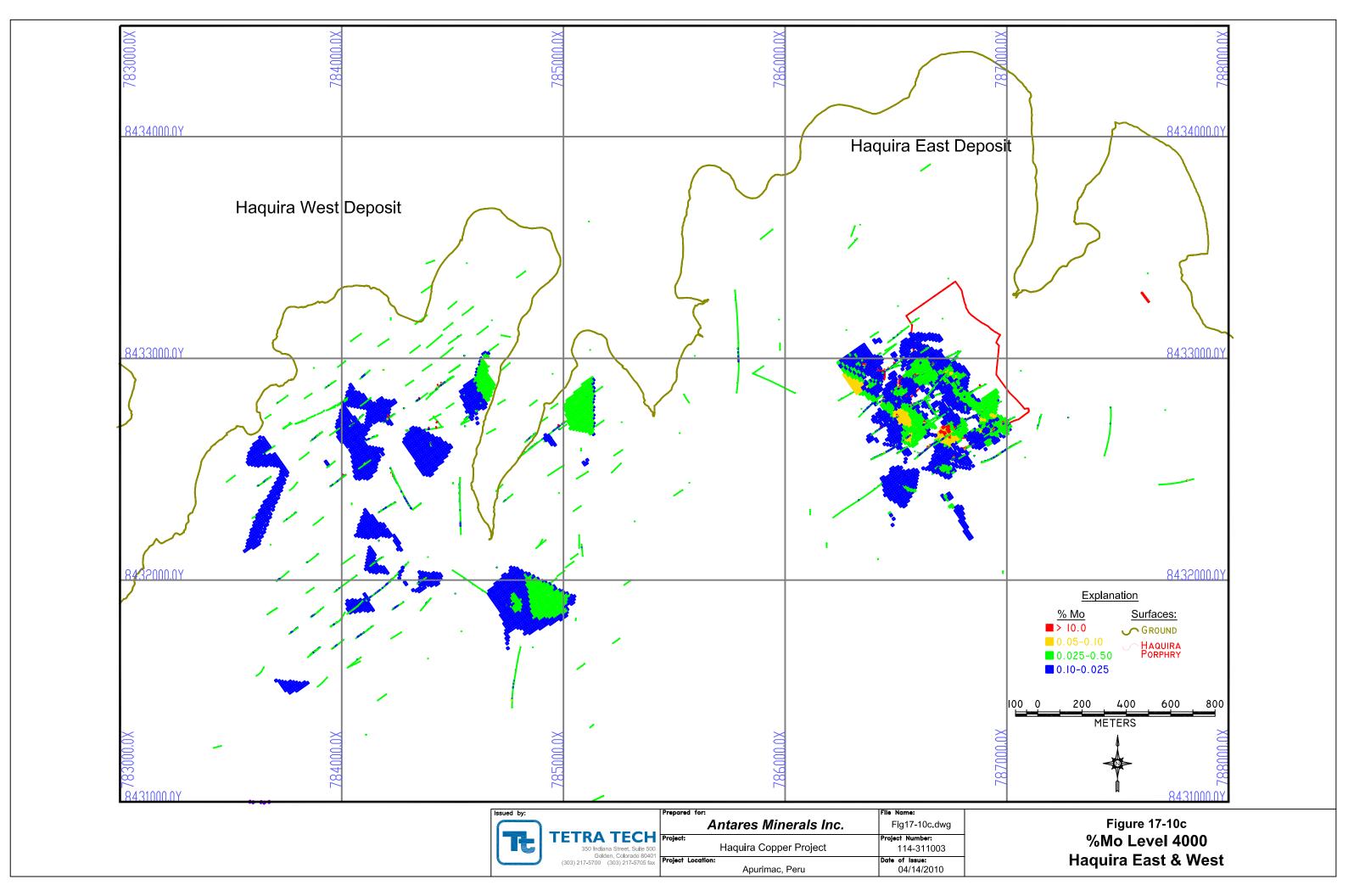












17.4 Haquira East Resource Estimation

This section describes the methodology in developing the mineral resource estimate for contained copper, gold, silver and molybdenum resources in the Haquira East deposit. FIGURE 17-1 shows the location west deposit of the Haquira Copper Project. The Haquira East resource is based on rock codes that only use the mineral zone codes listed in Table 17-11

This study updates the eastern half of the resource originally developed by CAM in an NI 43-101 Technical Report (CAM, 2008). Recent drilling on the eastern half of the Haquira property; which further defines a significant amount of copper, silver, gold and molybdenum mineralization, coupled with updated geologic and mineral zone interpretations provides the basis for an updated mineral resource estimate. FIGURE 17-2 details the drillholes used in the re-estimation of the Haquira East deposit.

The Haquira East mineral resource estimate was prepared in the following manner:

- The drillhole database (up to drillhole AHAD_174) was provided by Antares which contained more than 40 elements in addition to density, lithology and mineral zone codes;
- Sequential copper analyses (acid and cyanide leach assays) were included in the database;
- Antares provided cross sections with interpreted geology, mineral zones and grade envelopes that were digitized by Tt and converted into three-dimensional wireframe models which were assigned "rock codes" that took into account copper mineral zones and lithology;
- These rock codes were defined both by geologic interpretation in section (wireframes) and drillhole data;
- The density of each mineral zone is also listed in TABLE 17-11
- Drillhole samples and composites were coded when their position was within a block.

Deposit	Detailed Rock Code	Block Grade Estimate	Consolidated Rock Code	SG
East	1000	No	1000	2.21
East	5000,5100,5125,5145,5150,5200,5300,5310,5320,5330, 5355	Yes	5000	2.42
East	6000,6002,6100,6102,6103,6107,6125,6135,6140,6142, 6143,6147,6150,6152,6153,6157,6200,6202,6203,6207, 6300,6302,6303,6307,6325,6330,6332,6333,6337,6500	Yes	6000	2.62
East	8000	No	8000	2.04
East	9152,9202,9300,9302,9303,9307,9330,9332,9333,9337, 9645	No	9000	2.5
East	9999	No	9999	2.5

TABLE 17-11: Statistics for Kriged Block Values - Cyanide Soluble Copper

TABLE 17-12 shows the statistics for each of the sample data broken out by mineral zone code. The combined codes (5000) and detailed codes (5100-5355) of the secondary mineralization and primary mineralization (6000-6337) are both tabulated. The mean grades for the combined 5000 and 6000 rock are 0.381% and 0.465% respectively. The coefficient of variation is 1.1. Note that there is a 5000 copper grade of 6.8%. The histogram for samples has a left skewed distributional shape.

TABLE 17-13 shows the statistics for each of the 5m composites both as combined and detailed codes. The average grade for combined 5000 rock is 0.344% and for 6000 rock 0.451%. The coefficient of variation is 1.0. The previous maximum has been reduced to a copper grade of 3.54%. No maximum cut is required. Note that the histogram for composites is again left skewed.

FIGURES 17-11 and 17-12 show sets of two variograms for total copper in the east deposit. The first set's top panel (A) is the 5000 rock %TCu relative horizontal variogram looking east. The ultimate range is 400 meters. The bottom panel (B) is the 5000 rock %TCu vertical variogram with a much shorter range of approximately 100 meters.

The second set is FIGURE 17-12. The top panel (A) is the 6000 rock lateral to the main primary HP zone. The %TCu variogram dipping SW is modeled with a nugget and three spherical models having an ultimate range of 600-m. The bottom panel (B) shows the %TCu vertical variogram within the main primary HP zone. The ultimate range is up to 1200m.

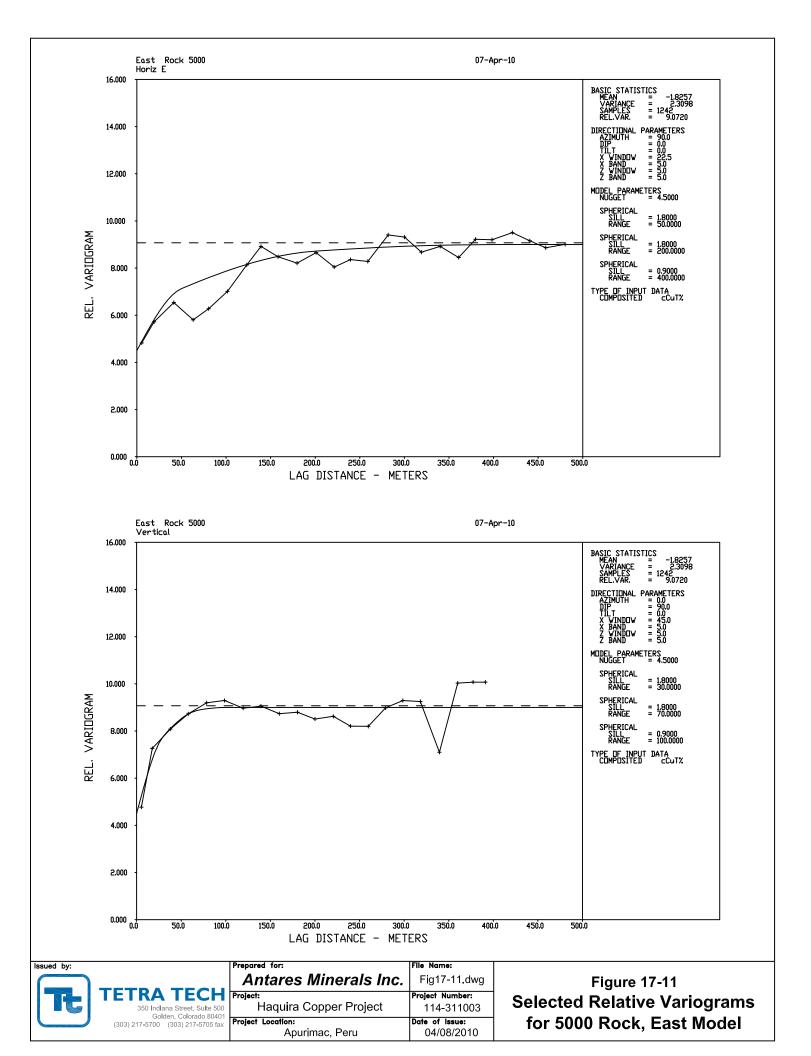
The other metals and sulfur all show variograms with complimentary ranges to total copper. Print listings of these additional variograms are in the Appendix.

TABLE 17-12: %TCu Sample Statistics for the Haquira East Deposit

	CURRENT LABE ned Codes	L : (CuT%												
								ISTICS							
CK PEII		OW . TS L	ABOVE IMITS	INSIDE LIMITS	MINIMUM	MAXIMUM	MEAN	VARIANCE	STD. DEV.	COEF. OF VAR	LOG MEAN	LOG VAR.	LOG STD.DEV	ME AN	COEF. OF VAR.
000	20	0	0	1074	0.000100	2.1800	0.03738	0.01673	0.12934	3.4600	-4.2976	1.5703	1.2531	0.0298	1.9514
00	44	0	0	12884	0.000500	6.8200	0.46542	0.23840 0.17526	0.41864	0.8995	-1.3063	1.8665	1.3662	0.6886	3.4111 2.3378
00	78	0	0	840	0.000700	1.4600	0.02390	0.00585	0.07647	3.1993	-4.5799	1.1408	1.0681		1.4592 101.9326
99	1	0	0	225	0.000640	0.55200	0.01806	0.00585 0.12876 0.00200	0.04477	2.4798	-4.9328	1.5553	1.2471		1.9330
LL	179					6.8200	0.39624	0.18614	0.43143	1.0888	-1.8222	3.1666	1.7795	0.7875	4.7671
	led Codes														
CK						NTRANSFOR	MED STAT	ISTICS			LOG-TH LOG	RANSFORMEI LOG	D STATS LOG		COEF.
	MISSING LIMI								DEV.	OF VAR	MEAN	VAR.	STD.DEV	ME AN	OF VAR.
00		0	0		0.000100			0.01670 0.18143							1.9501 2.0411
00	0	ō	Ō	50	0.06200	2.1800	0.61853	0.23724	0.48707	0.7875	-0.7902	0.6848	0.8276	0.63905	0.9917
25 45	1 6	0	0	128 793	0.00310 0.00200			0.50116 0.17959						0.6326	3.5874 2.8088
50	o	0	0		0.05660			0.20711							
00	9	0	0		0.00160	3.7200	0.21641	0.15611	0.39511	1.8258	-2.6413	2.3616	1.5367	0.2321	3.0996
00 10	17 0	0 0	0					0.23168 0.17761							
20	0	0	ō					0.22638							
30	0	0	0	93	0.000600	4.1100	0.39937	0.45875	0.67731	1.6960	-2.6886	6.3369	2.5173	1.6159	23.7501
55		0	0		0.000500			0.13047 0.02156							
.00	-	õ	ō					0.01533							
02		0	0		0.00120			0.02636							1.1656
.03 .07		0 0	0		0.02710			0.05106 0.36635							0.6928 0.7833
35		ō	ō		0.00120			0.34542							4.5780
40	1	0	0		0.000200			0.08549						0.3294	
42 43	1	0	0		0.00820 0.03760			0.04838					0.9061	0.2193 0.3310	1.1282 0.8153
43 47		ō	0		0.06930			0.18254 0.12915							1.2344
50	2	0	0		0.00180	1.9900	0.12008	0.04915	0.22171	1.8464	-2.9892	1.9967	1.4130	0.1366	2.5228
.52 .53		0	0		0.00910 0.05270			0.01753							
.55	0	0	0		0.03270			0.15610 0.07869							0.8947
00	5	ō	ō		0.000300			0.01696							3.0522
02 03		0	0		0.00460 0.01660			0.08708 0.13560							1.1982
07	-	ō	0		0.01000			0.13380							
00	0	0	0		0.00200	1.6400	0.14547	0.01862	0.13647	0.9382	-2.1495	0.5191	0.7205		0.8249
02	3	0	0		0.00580			0.03132						0.2282	
03 07	2 3	0	0		0.000500			0.19945							
25		0	0	136	0.000600	3.0100	0.49850	0.16476	0.40591	0.8143	-1.1731	1.7143	1.3093	0.7291	2.1337
30 32		0 0	0		0.000700	1.4800	0.36102	0.23210 0.02103	0.48177	1.3345	-2.7244	7.0877	2.6623		34.5847 14.4389
33		0	0		0.00110			0.02103							5.5755
37	0	0	ō	49	0.000400	2.5400	0.47647	0.25309	0.50308	1.0558	-1.9960	5.9098	2.4310	2.6087	19.1733
00		0	0		0.000700			0.00585							
00 02	0	0	0		0.000500			0.00932 0.11895							
30	ō	0	ō	111	0.000400	1.7000	0.35093	0.19139	0.43749	1.2466	-3.7395	10.9925	3.3155	5.7934	243.7764
32		0	0					0.01820							
33		0 0	0		0.000400			0.06353 0.17504							113.0271 82.4104
99	2	ō	ō					0.00200					1.2471		1.9330
LL	180	0	0	18765	0.000100	6.8200	0.39620	0.18612	0.43142	1.0889	-1.8223	3.1666	1.7795	0.7874	4.7672
L	OWER BOUND >=	UPPI	ER BOUI			1000		2000	250						
	0.0001		0.0												
	0.0002		0.0	003 005 **											
	0.0005			091***											
	0.0009		0.00	016 ×**											
	0.0016 0.0028			028 *** 049 ***											
	0.0049				* * * * * * * *										
	0.0086				* * * * * * * * * * *										
	0.0150 0.0261				* * * * * * * * * * * *										
	0.0281				* * * * * * * * * * *										
	0.0795				* * * * * * * * * *										
	0.1387 0.2419							* * * * * * * * * * * *		* * * * * * * *	****				
	0.2419 0.4221							********				*******	* * * * * * *		
	0.7363		1.28	346 ***	* * * * * * * * * *	******		* * * * * * * * * *							
	1.2846				* * * * * * * * * *										
	2.2410			096 ** 207											
	3.9096		0.0	2071											

TABLE 17-13: %TCu Composite Statistics for the Haquira East Deposit

	COMPOSI		COUNT		l C	NTRANSFOR	MED STAT:	ISTICS				RANSFORMED			
OCK YPE M	BEI ISSING LIM		ABOVE LIMITS			MAXIMUM	MEAN	VARIANCE	STD. DEV.	COEF. OF VAR		LOG VAR.	LOG STD.DEV	MEAN	COEF. OF VAR.
 000		 n	 0		0.000354			0.00948							1.7089
000	13	0	0		0.000354			0.14720						0.4805	2.8534
000	33	0	0		0.000357			0.13596						0.6856	
000	68 1	0	0		0.00143	1.0277	0.02248	0.00420	0.06484	2.8844	-4.5491	1.0254	1.0126	0.0177	1.3372
999	7	ō	0		0.000400	0.17038	0.01858	0.09470	0.02567	1.3814	-4.6927	0.4355	1.2197	0.0093	1.8513
	129		 0											0 7500	5 1000
					0.000354								1.0242	0.7509	5.1036
etail	ed Codes														
	COMPOS: BEI					NTRANSFOR	MED STAT:	ISTICS	STD.	COEF.		ANSFORMED	STATS LOG	LOG-DI	COEF.
	ISSING LIM	ITS 1	LIMITS	LIMITS	MINIMUM	MAXIMUM	MEAN	VARIANCE					STD.DEV	ME AN	OF VAR.
000	9	0	 0	509	0.000354	1.4788	0.03337	0.00946	n.n9729	2.9152	-4.2172	1.3668	1.1691	0.0292	1.7096
00	0	0	0	203	0.00186	2.0174	0.19049	0.06094	0.24686	1.2960	-2.1822	1.1436	1.0694	0.1998	1.4622
.00	0	0	0	17 53				0.17097					0.7616 1.5471	0.61397	0.8867
.25	3	0	0		0.00629			0.32165				2.3934		0.32393	2.2588
.50	ŏ	ō	ō	9				0.10576				0.1698			0.4303
00	4	ō	0	279	0.00232	2.1470	0.19178	0.08499	0.29154	1.5202	-2.5435	2.0513	1.4322	0.2192	2.6034
00	6	0	0		0.01171	2.7083	0.60549	0.16954					0.9758		1.2615
10	0	0	0		0.34212			0.	0.	0.0000	-1.0726		0.0000	0.3421	
20 30	0	0	0	37	0.09879	0.92098	0.38528	0.21558 0.19011	0.46431	1.2051	-1.4639		0.9856	0.3760	1.2814
55	0	0	0		0.000643	1.2619	0.29806	0.08929	0.29882	1.0026	-2.0895	3.1485	1.7744	0.5974	
00	7	ō	0		0.000520									0.1211	
.00	1	ō	ō	92	0.000933	0.47489	0.08190	0.00849	0.09215	1.1251	-3.3347	2.7060	1.6450	0.1378	3.7376
02	0	0	0	61	0.03078	0.54139	0.20090	0.01409	0.11870	0.5909	-1.7977	0.4294	0.6553	0.2054	
03	2	0	0		0.03600								0.4702		
07	0	0	0	75 43	0.27165			0.19091		0.5292	-0.3154		0.4919 1.7597		0.5233
35 40	0	0	0		0.00271		0.36898	0.23041	0.48001		-1.9997 -2.2285		1.7597	0.6367	4.5954
42	0	0	0		0.02696	0.87615					-1.8789		0.7288	0.1992	0.8372
43	ŏ	õ	ő	36				0.05175			-1.2459		0.5225	0.3297	0.5603
47	0	0	0	4	0.16244			0.02977			-0.9840		0.4878	0.42106	0.5183
50	0	0	0	74				0.01412				1.6415		0.1381	2.0404
52	0	0	0	53				0.01189				0.2603	0.5102	0.1907	0.5452
53 57	0	0	0	26 14	0.09383 0.19916			0.04843					0.5560 0.4891	0.3543	0.6019
57 00	2	0	0		0.19916			0.05749 0.00753			-0.7266		0.4891 1.4920	0.54499	2.8744
02	1	0	0		0.00915			0.02726						0.1849	0.9592
03	2	ō	0	107	0.03257	1.5787	0.36622	0.06667	0.25820	0.7050	-1.2451	0.5325	0.7297	0.3758	0.8386
07	0	0	0		0.09010			0.12775							
00	3	0	0		0.00182			0.01545							0.7590
02 03	2	0	0		0.01713			0.01825 0.04172						0.2266	0.6999
03	5	ō	0		0.000600			0.14138					0.9808		1.0885
25	ŏ	ō	ŏ		0.00882			0.09707		0.6421	-1.0832		1.0846	0.6095	1.4975
30	0	ō	ō	4	0.000791	0.90749	0.29315	0.17373	0.41680	1.4218	-2.8727	6.8674	2.6206	1.7524	30.9752
32	0	0	0		0.000747			0.01340		0.9020	-3.4803		2.4961		22.5168
33	0	0	0		0.00400			0.07363				3.4758		1.0188	5.5968
37 00	0 70	0	0	19	0.00180 0.00143			0.18449				6.4292 1.0254		2.0861 0.0177	24.8727
00	-70	0	0					0.00420				1.0254		0.0177	1.3372
02	0	ō	ō		0.22910										0.3485
30	ō	ō	ō	51	0.000456	1.5993	0.27661	0.15438	0.39291	1.4204	-4.1869	10.3784	3.2215	2.7245	179.3183
32	0	0	0		0.000410	0.76609	0.04132	0.01580	0.12569	3.0415	-5.7991	3.8557	1.9636	0.0208	6.8015
33	1	0	0		0.000400			0.05371							156.9300
37 99	0 10	0	0		0.000692			0.14124				9.1223 1.4878			95.6894 1.8513
 LL	136	 0			0.000354									0 7504	5.1818
LO	WER BOUND >=	UPI	PER BOUI <		200 +	400 +	600 +-	800 ++			200 +	1400 +	1600	1800 +	2000
	0.0004			06 **											
	0.0006			2091***											
	0.0009		0.00	014 *** 022 ***											
	0.0022		0.00	3351 * * *	* * *										
	0.0035		0.00		* * * * * * *										
	0.0056				* * * * * * * * *										
	0.0089				* * * * * * * * * *										
	0.0141				**********										
	0.0224				**********										
	0.0354				**********										
	0.0890		0.00	410 ***	*********	******	***								
	0.1410		0.22	235 ***	* * * * * * * * * *	******	******	***							
	0.2235		0.35	542 ***	* * * * * * * * * *	* * * * * * * * *	******	*******							
			0.5	6131 * * *	********	******	******	*******	* * * * * * * * *	* * * * * * * *	* * *				
	0.3542		0.0	0101											
	0.3542 0.5613		0.88	395 ***	* * * * * * * * * *	* * * * * * * * *		********	******	******	****				
	0.3542 0.5613 0.8895		0.88	395 *** 398 ***	* * * * * * * * * * *	* * * * * * * * *		********	*******	* * * * * * * *	****				
	0.3542 0.5613		0.88 1.40 2.23	395 ***	* * * * * * * * * * *	* * * * * * * * *		*******	******	******	****				



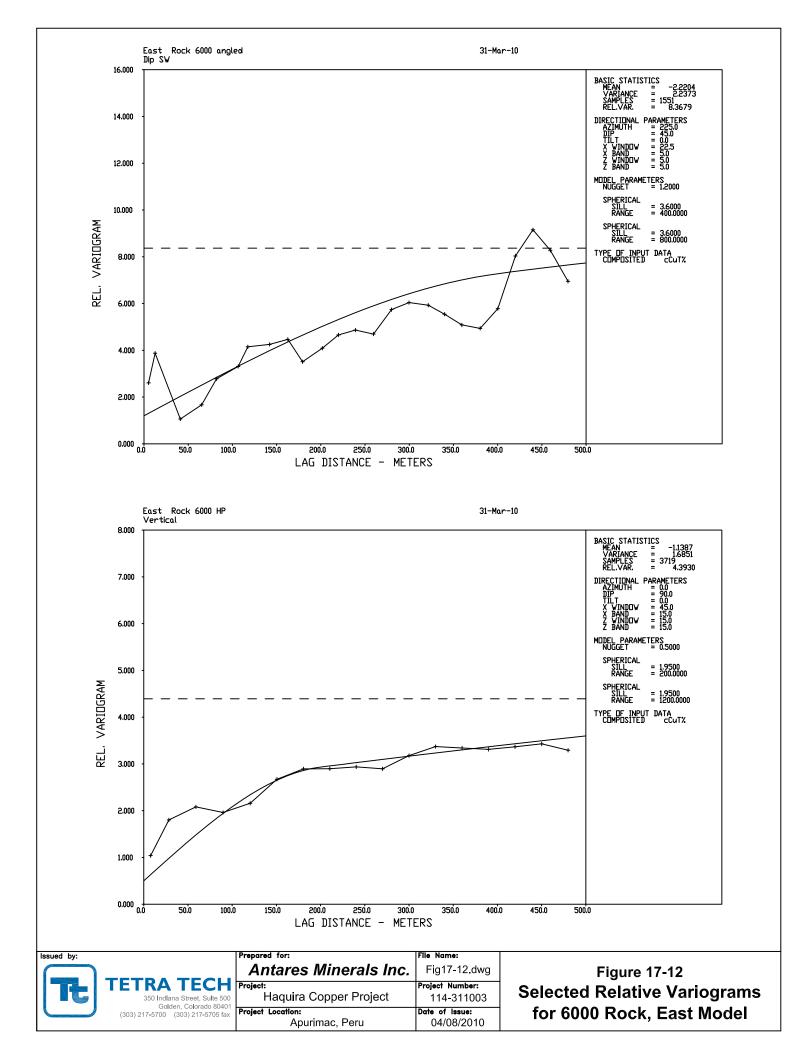


Table 17-14 shows the kriging search and variogram parameters for the Haquira East deposit. Ordinary kriging using a unitized general relative variogram model was utilized for resource estimation. The estimation consisted of 27 separate estimations runs that utilized matching composite and block codes. These 27 estimations are repeated three times at increasing search ranges to develop estimate classes of measured, indicated and inferred. For example, within the primary material (6000), Sediments (100), Stratigraphy Ks4 (40), and within the geologist's interpreted 0.2% copper shell composites and blocks will have a code (6102). A detailed statistical study showed that more than just a 6102 composite should be used in an estimation. The matching codes of composites used to estimate a 6102 block are the codes (6102, 6142, 6162, 6202, 6302). TABLE 17-15 shows the statistics for %TCu for the 10x10x5-m blocks. The average 5000 rock copper grade is 0.2.33 % and for 6000 rock, 3.12%. The coefficient of variation is 1.25. The additional metal grades were kriged using the total copper search ranges and variography parameters.

Codes Splock Codes				Anisot				MIF S	earch R	anges			Va	riogra	am Par	amete	ers	
Codes e->block		value	composi	ted to 5	m, no to	op cut)									-		
General Codes composite->block MM Answer Set	MM Answer Set Numbers	20ne Name	Axis	Anisotropy Axis Length (m)	Anisotropy Rotation	Type ³	Resource Class ⁴	Resource Code ²	Maximum Search Range	Number Closest Pts Max Pts Single Drillhole	Min Pts Required to Estimate	Rotation	Length	Nugget ¹	Nested	Model Type ⁴	Sill	Range (m)
- 10			Primary	300	200	Az	М	1	50	8/4	4	200	100		1	Sph	0.2	50
5355	3	ndary aled)	Second	150	30	Dip	1	2	125	8/4	4	30	100	0.5	2	Sph	0.2	200
D ~"			Tertiary	100	0	Tilt	F	3	400	8/4	4	0	40		3	Sph	0.1	400
- 10			Primary	300	200	Az	М	1	50	8/4	4	200	100		1	Sph	0.2	100
- 900 0	25	nary gled)	Second	150	30	Dip	1	2	125	8/4	4	30	100	0.1	2	Sph	0.2	400
<u> </u>			Tertiary	100	0	Tilt	F	3	400	8/4	4	0	40		3	Sph	0.5	600
	Pri	nary	Primary	300	0	Az				8/4	4	0	100		1	Sph	0.3	50
2 2		Pre-	Second	150	90	Dip	D	4	600	8/4	4	90	100	0.1	2	Sph	0.2	200
-	F	ill)	Tertiary	100	0	Tilt				8/4	4	0	40		3	Sph	0.1	1200
4 N	Pri	nary	Primary	300	0	Az	М	1	50	8/4	4	0	100		1	Sph	0.2	100
2 2330		IP	Second	150	90	Dip	1	2	125	8/4	4	90	100	0.1	2	Sph	0.2	400
	(Ove	erlay)	Tertiary	100	0	Tilt	F	3	400	8/4	4	0	40		3	Sph	0.1	600

TABLE 17-14:	Haquira Search and Kriging Parameters for Haquira East
--------------	--

As a validation of the estimated results, FIGURE 17-13 shows the log-probability plots for samples, composites and blocks. In general the fits are a straight line with differing slopes representing the successive lowering of the variance as one proceeds from samples to blocks. Panel A is the plot of %TCu for 5000 rock. Panel B is the plot of %TCu for 6000 rock. The presentation of these plots indicates that the 5000 rock of samples to composites to blocks is

statistically valid. The 6000 rock is more problematic in that the higher grades are plotting on top of each other. The additional constraints of staying within grade envelopes appear to simulate a "nearest" neighbor estimate on grades above 0.2% copper.

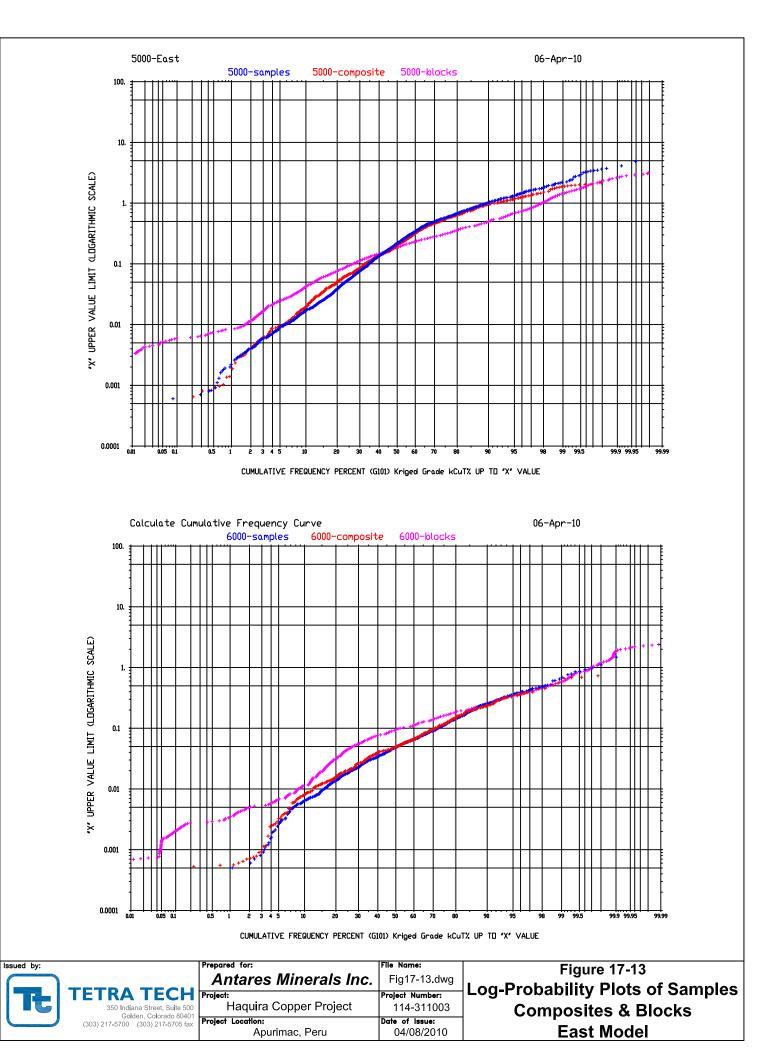
FIGURES 17-14 and 17-15 are representative cross sections through the Haquira East model area that illustrate the kriged grade distributions of %TCu, %AsCu, %CnCu, Ag g/t, Au g/t, and % Mo.

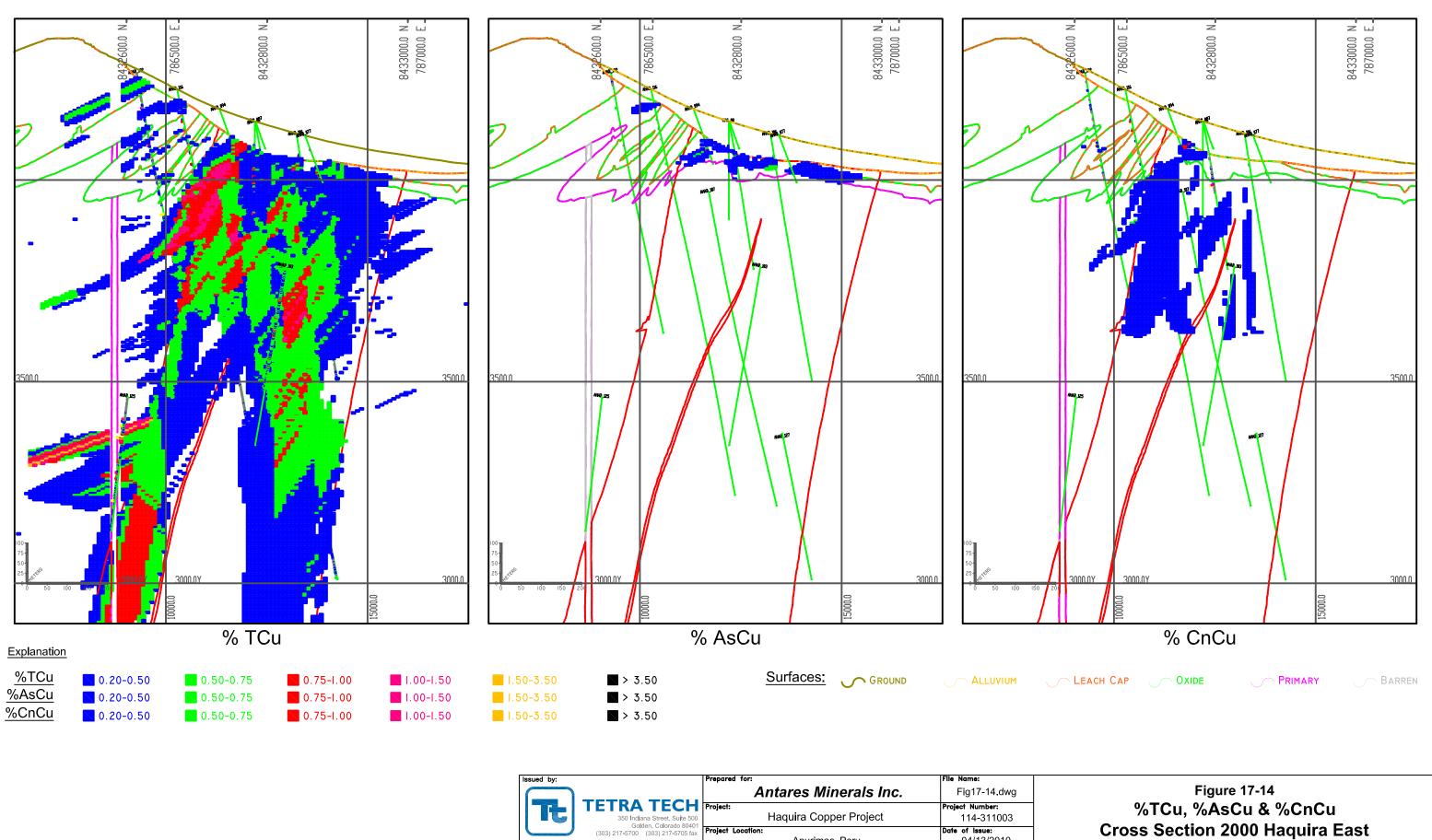
Block Statistics for Total Copper in the East Deposit TABLE 17-15:

RUNTIME TITLE : Calculate Statistics - East Combined Rock Code PROJECT TITLE : Haquira 2010 E &W (Holes to &H&D-175 5 MIFGD (10x10x5 blocks) CURRENT L&BEL : (G101) Kriged Grade kCuT% Combined Codes

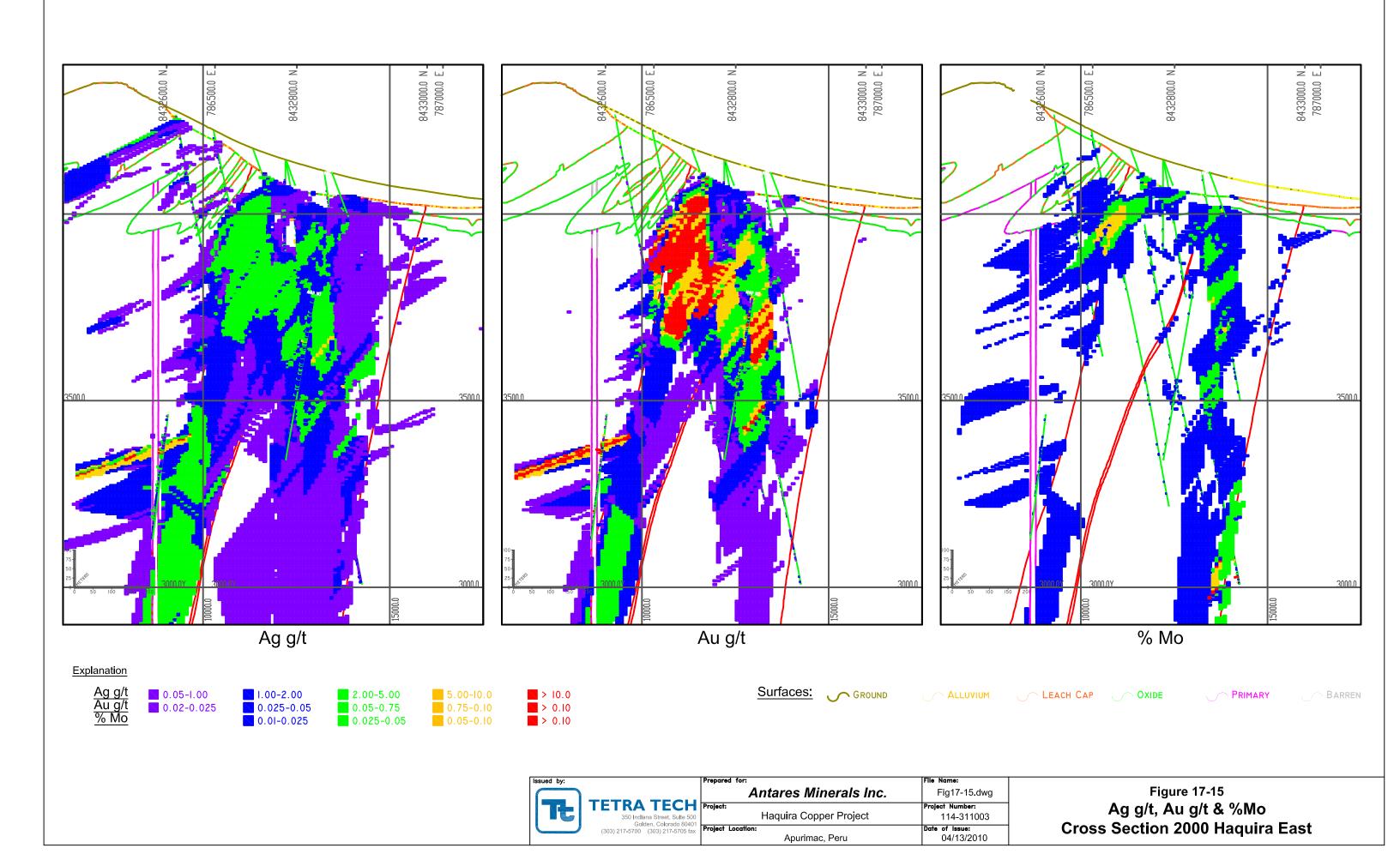
1		BLOCK COUNT	r	T	INTRANSFOR	MED STAT	ISTICS		1	LOG-TR.	ANSFORME	D STATS	LOG-DE	RIVED
ROCK		BELOW	ABOVE	INSIDE				STD.	COEF.	LOG	LOG	LOG		COEF.
TYPE	MISSING	LIMITS	LIMITS	LIMITS MINIMUM	MAXIMUM	ME AN	VARIANCE	DEV.	OF VAR	ME AN	VAR.	STD.DEV	ME AN	OF VAR.
5000	18987	0	0	320991 0.000644	2.3340	0.21902	0.06230	0.24960	1.1396	-2.1219	1.4233	1.1930	0.2441	1.7750
5000	5893862	0	0	2278025 0.000376	3.1195	0.23720	0.08893	0.29821	1.2572	-2.2073	2.0461	1.4304	0.3060	2.5958
ALL	13187320	0	0	2599016 0.000376	3.1195	0.23496	0.08568	0.29270	1.2458	-2.1975	1.9592	1.3997	0.2959	2.4685

I DICT (000000000000000000000000000000000000	 ROCK		BLOCK COUNT BELOW	1 DOLLD	TRUCTOR	τ	INTRANSFOR	MED STAT	151105	STD.	COEF.	LOG-IR LOG	LOG	LOG I	LOG-DE	COEF.
LOVER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 32000 36000 >= < ++ + + + + + + + + + + + + + + +	TYPE	MISSING	LIMITS	LIMITS	LIMITS	MINIMUM	MAXIMUM	ME AN	VARIANCE	DEV.	OF VAR	MEAN	VAR.	STD.DEV	ME AN	OF VAR
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5000	6993	0	0	106195	0.000796	1.4795	0.17186	0.03475	0.18641	1.0846	-2.1761	0.9049	0.9513	0.1784	1.21
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5100	0	0	0	3640	0.000802	1.5510	0.31458	0.08320	0.28845	0.9169	-1.8124	2.4147	1.5539	0.5460	3.19
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5145	4664	0	0	56458	0.000807	2.2931	0.16701	0.06079	0.20424	0.9140	-1.9186	1.1837	1.0880	0.1541	1.50
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	5150	0	ŏ	ŏ	1194	0.08180	1.4818	0.79230	0.12118	0.34811	0.4394	-0.3746	0.3640	0.6033	0.82480	0.66
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5200	3626	Ō	ō	86213	0.000781	2.3154	0.18274	0.04829	0.21974	1.2025	-2.3907	1.6095	1.2687	0.2048	2.00
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5300	225	0	0	27247	0.00846	2.3340	0.50168	0.10230	0.31984	0.6375	-0.9606	0.6959	0.8342	0.54188	1.00
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5310	0	0	0	1	0.41807	0.41807	0.41807	ο.	0.	0.0000	-0.8721	0.0000	0.0000	0.41807	0.00
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5320	60	0	0	806	0.000885	1.5542	0.16381	0.09229	0.30379	1.8546	-2.8126	2.3829	1.5437	0.1977	3.13
LOVER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >= <	533U	0	U	0	1290	0.000644	1.3901	0.31368	0.10220	0.31969	1.0192	-2.5556	6.2748	2.5050	1.7893	23.02
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5355	3307062	0	0	3210	0.000748	0 67049	0.28364	0.05859	0.24206	0.8534	-1.7523	1.6774	1.2951	0.4011	2.08
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5100	87483	0	Ő	166009	0.000552	0.62003	0.07205	0.00612	0.07822	1.0856	-3.4003	2.2801	1.5100	0.1043	2.96
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	5102	295	ŏ	ŏ	18168	0.01490	0.54722	0.19478	0.00659	0.08115	0.4166	-1.7338	0.2147	0.4633	0.1966	0.48
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5103	59	0	0	22799	0.000500	1.1084	0.34099	0.01241	0.11138	0.3266	-1.1697	0.4331	0.6581	0.3855	0.73
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5107	0	0	0	8147	0.00397	1.9104	0.78041	0.06804	0.26084	0.3342	-0.3208	0.2013	0.4486	0.80234	0.47
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	6135	188446	0	0	48044	0.00328	1.8522	0.23501	0.09723	0.31182	1.3269	-2.2762	1.9322	1.3901	0.2698	2.430
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	6140	450061	0	0	80540	0.000462	0.58155	0.14809	0.01268	0.11260	0.7603	-2.5878	2.4495	1.5651	0.2559	3.25
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5142	2452	0	0	13631	0.03248	0.64919	0.22699	0.00971	0.09852	0.4340	-1.5916	0.2508	0.5008	0.2308	0.53
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	5143	2763	0	0	19330	0.000832	2.4005	0.53256	0.17373	0.41681	0.7827	-0.8489	0.4499	0.6708	0.53585	0.75
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	5147	36	U	U	7532	0.000925	3.0560	0.92536	0.53364	0.73051	0.7894	-0.4162	1 7228	1 2165	0.94672	1.02
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	6152	746	0	0	10042	0.00333	0.47900	0.10409	0.00777	0.08013	0.0403	-2.0333	0.2016	0.5307	0.1372	0.57
LOVER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 32000 36000 >= < ++ + + + + + + + + + + + + + + +	6153	497	0	ő	10982	0.07288	1.7893	0.49528	0.12129	0.34827	0.7032	-0.8906	0.3509	0.5924	0.48912	0.648
LOVER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 32000 36000 >= < ++ + + + + + + + + + + + + + + +	6157	0	ŏ	ŏ	2101	0.12989	1.7922	0.73890	0.18257	0.42728	0.5783	-0.4433	0.2655	0.5153	0.73305	0.55
LOWER BOUND UPPER BOUND 40000 80000 12000 160000 20000 240000 280000 32000 36000 >=	6200	1554128	0	ō	266247	0.000376	0.41534	0.07137	0.00301	0.05483	0.7683	-3.1133	1.4749	1.2145	0.0929	1.835
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	6202	25791	0	0	66664	0.01385	0.99383	0.21538	0.00853	0.09235	0.4288	-1.6485	0.2834	0.5323	0.2216	0.572
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5203	25112	0	0	60874	0.05592	1.7197	0.36181	0.02478	0.15742	0.4351	-1.1098	0.1996	0.4467	0.3642	0.47
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 320000 36000 >=	5207	941	0	0	16845	0.04898	3.0396	0.96829	0.31632	0.56242	0.5808	-0.1819	0.3014	0.5490	0.96933	0.59
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >= +	6300	17273	0	0	70514	0.00573	1.1758	0.14352	0.00202	0.04491	0.3129	-1.9887	0.1062	0.3259	0.1443	0.334
LOVER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 32000 36000 >= < ++ + + + + + + + + + + + + + + +	6302	5997	0	0	59687	0.01843	0.95974	0.23642	0.00824	0.09076	0.3839	-1.5160	0.1584	0.3979	0.2377	0.414
LOVER BOUND UPPER BOUND 40000 80000 120000 160000 20000 240000 280000 32000 36000 >= < ++ + + + + + + + + + + + + + + +	6303 6307	32202	0	0	246367	0.000500	2.1085	0.39577	0.02939	0.17144	0.4332	-1.1115	0.8135	0.9020	0.4942	1.120
LOWER BOUND UPPER BOUND 40000 80000 12000 160000 20000 240000 280000 32000 36000 >=	6325	11667	ů N	ů N	13119	0.000610	1.0888	0.37742	0.05580	0.23623	0.6259	-1.3371	1.1333	1.0645	0.4628	1.45
LOWER BOUND UPPER BOUND 40000 80000 12000 160000 20000 240000 280000 32000 36000 >=	6330	467	ō	ō	2384	0.000673	1.0869	0.32930	0.02048	0.14311	0.4346	-1.2575	0.5599	0.7482	0.3762	0.866
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >=	6332	438	0	0	756	0.000605	1.0894	0.33171	0.05392	0.23220	0.7000	-1.7127	3.0042	1.7333	0.8101	4.378
LOWER BOUND UPPER BOUND 40000 80000 120000 160000 200000 240000 280000 320000 36000 >=	6333	368	0	0	2489	0.000558	1.0866	0.31120	0.03620	0.19026	0.6114	-1.8286	3.5072	1.8728	0.9278	5.688
LOWER BOUND UPPER BOUND 40000 80000 12000 160000 20000 240000 280000 32000 36000 >=	6337	238	0	0	1609	0.000565	0.67811	0.30465	0.03126	0.17679	0.5803	-1.8653	3.6603	1.9132	0.9655	6.154
>= +++++++++++++++++++++	ALL	18614408	0	0	2599202	0.000376	3.1195	0.23495	0.08567	0.29270	1.2458	-2.1975	1.9592	1.3997	0.2958	2.468
0.0004 0.0006 * 0.0009 0.0015 ******* 0.0009 0.0015 ******* 0.0015 0.0023 ** 0.0023 0.0036 ******* 0.0026 0.0056 ******* 0.0056 0.0059 ****** 0.0059 0.0139 ******* 0.0139 0.0218 ******* 0.0139 0.0218 ******** 0.0218 0.0343 ***********************************	L															
0.0006 0.0009 0.0015 0.0023 0.0015 0.0023 0.0023 0.0036 0.0023 0.0036 0.0036 0.0056 0.0039 0.0056 0.0050 0.0056 0.0050 0.0051******* 0.0056 0.0059 0.0059 0.0139 0.0050 0.0051 0.0051 0.0056 0.0050 0.0051 0.0051 0.0051 0.0050 0.0051 0.0051 ************************************						+	-+	+	+	+	+	+-		+	-+	
0.0009 0.0015 *** 0.0015 0.0023 ** 0.0023 0.0036 ******* 0.0036 0.0056 ******* 0.0036 0.0089 ****** 0.0089 0.0139 ****** 0.0089 0.0139 ****** 0.0139 0.0218 ************************************																
0.0015 0.0023 ** 0.0023 0.0036 ******* 0.0036 0.0056 ******* 0.0056 0.0089 ****** 0.0089 0.0139 ******* 0.0139 0.0218 ************************************																
0.0036 0.0056 ***********************************		0.0015														
0.0056 0.0089 ****** 0.0089 0.0139 ******* 0.0139 0.0218 ************************************																
0.0089 0.0139 0.0139 0.0218 0.0218 0.0343 0.0218 0.0343 0.0218 0.0343 0.0343 0.0538 0.0343 0.0538 0.0845 0.1326 0.1326 0.2083 0.2083 0.3270 0.5134 0.8061 1.2656 1.2656 1.9871 3.1199					*											
0.0139 0.0218 ************************************			0.0089	*****												
0.0218 0.0343 ***********************************			0.0139	********	*******	********										
0.0343 0.0538 ************************************																
0.0538 0.0845 ************************************								******	*********	*******	****					
0.0845 0.1326 0.2083 ************************************																
0.1326 0.2083 ************************************												******	* * * *			
0.2083 0.3270 ************************************			0.2083	*******	*******	*******	*******	******	* * * * * * * * * *	*******	******			* * * * *		
0.5134 0.8061 ************************************		0.2083														
0.8061 1.2656 ***********************************											****					
1.2656 1.9871 ******* 1.9871 3.1199 **							******	******	* * * * * * * * * * *	* * *						
1.9871 3.1199 **			1.2656	******	*******	* * * * *										
			1.9871	******												
+++++++		1.9871			·	+	-+	+	+	+	+	+-		+	-+	
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17.5 Haquira West and East Mineral Resource Classification

A two-pass protocol was used to determine whether an estimated block fell within a measured, indicated, inferred and a class beyond inferred, a so called inferred-geo.

The first pass utilized jackknifing of composite values. Jackknifing or model validation is a computer technique that removes samples one at a time and then predicts what its value is using samples that utilize the search and variogram parameters being investigated. The estimate is then compared to the real value. FIGURE 17-16 shows a plotted original composite %TCu values versus the estimated value base on estimates using a 50m search radius. Note that if the estimate were perfect, then points would fall on the 45-degree line The jackknife estimation has a of correlation of 0.90. the figure also has a reference ellipse which contains 80% of the points falling adjacent to the 45-degree line. This jackknifing technique has been done at successively larger search ranges. Each study produces a scatter plot and a correlation coefficient listed in TABLE 17-16

Search Range	Search Criteria Max. composites per DH / Min Required	Correlation	Initial Class Index	Initial Class Designation
0-50m	4/4	.9	1	measured
50-125m	4/4	.7	2	indicated
125-400m	4/4	.4	3	inferred
400-600m	4/4	.2	4	Inferred-geo

 TABLE 17-16:
 Resource Classification – First Pass

The second pass uses kriging error Kriging generates an estimation error (kriging error), which is a measure of reliability. FIGURE 17-17 uses a probability plot to explore the kriging errors for the %TCu estimates. At the kriging error of 1.35 a break in the plot occurs. Any block with an error greater than this value is adjusted to the next higher class index (lower confidence). For example, a block that has an initial classified with index of 2 with an kriging error of 1.36 will be given a class index of 3.

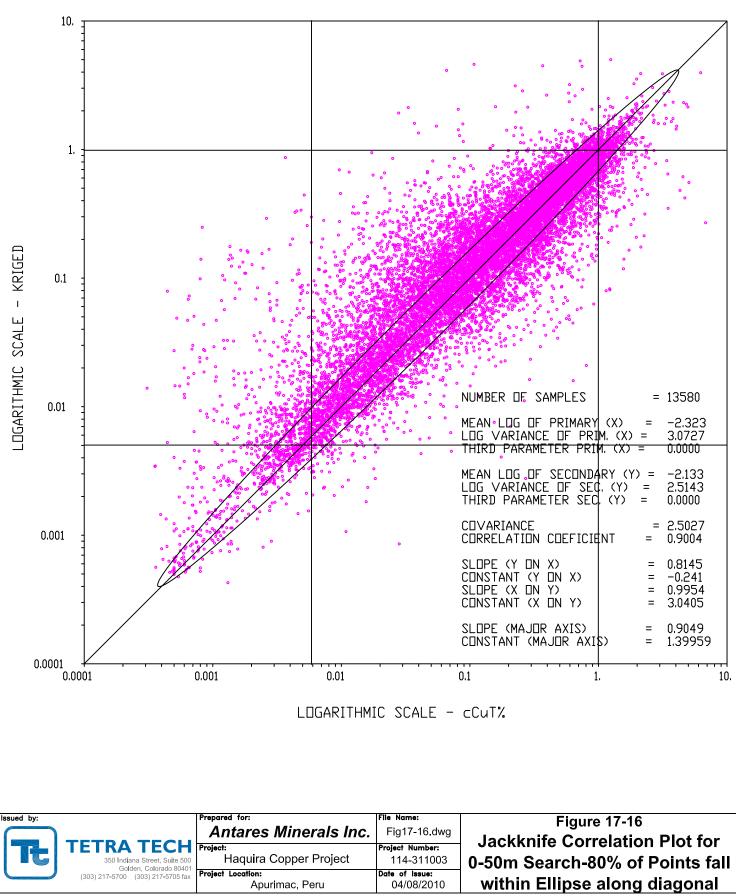
An additional adjustment is done on inferred blocks with a kriging error greater than 1.46. These blocks are given a non-classified status.

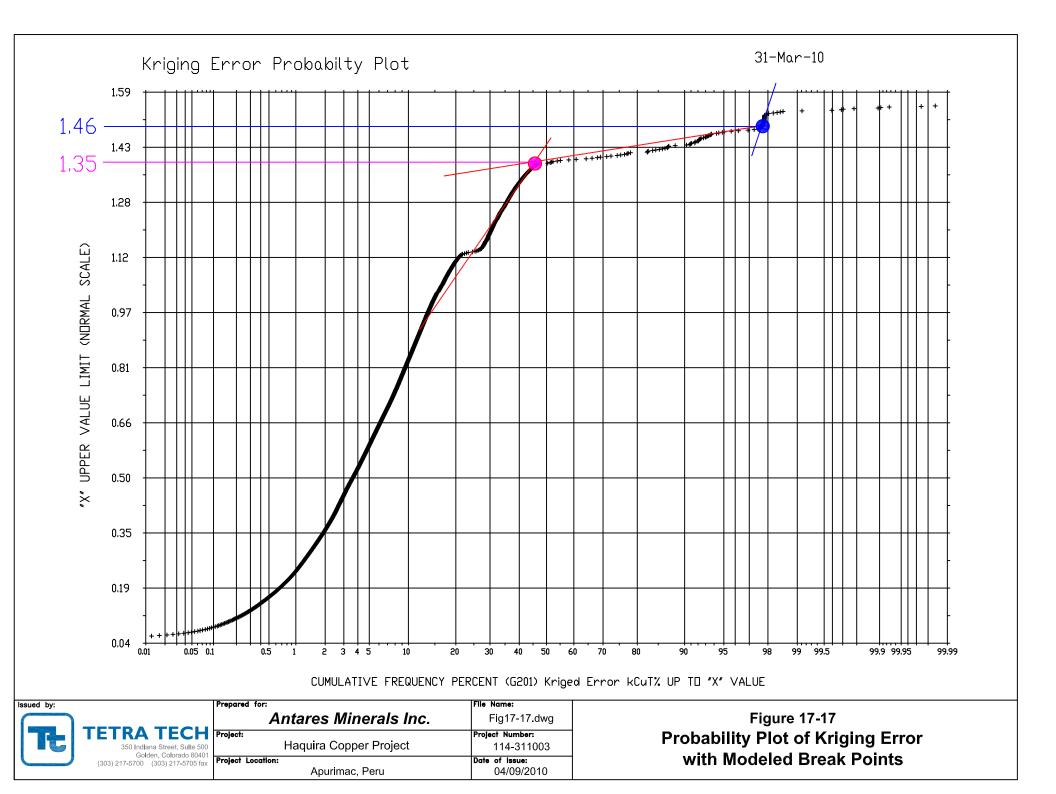
FIGURE 17-18 graphically shows the two-pass method in a single illustration. The top portion of the figure shows the variogram being used to establish the first pass search ranges. The middle portion shows the results of four jackknife studies at the increasing ranges. And finally, the bottom part shows the chosen kriging error break-points.

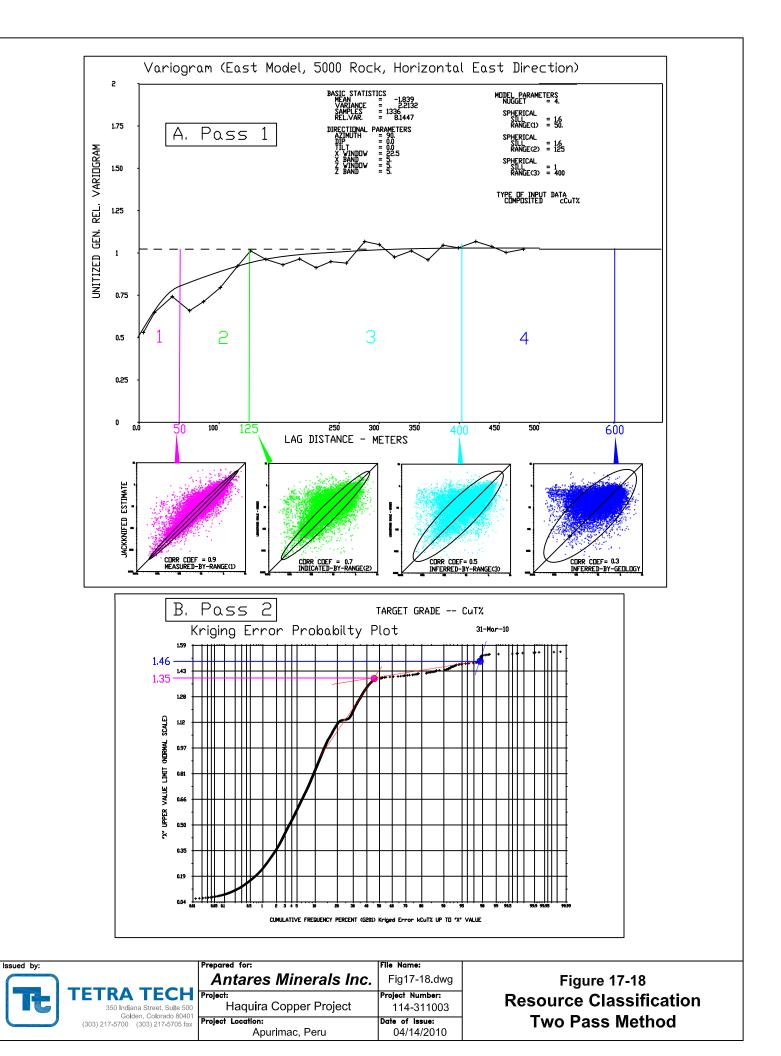
FIGURES 17-19 is a representative cross section through the Haquira East Model that illustrates the classification of the %TCu estimated resources into measured, indicated, and inferred classes. FIGURE 17-209 is a representative level map of the Haquira East and West Model areas that illustrates the classification of %TCu estimated resources into measured, indicated, and inferred %TCu classes.

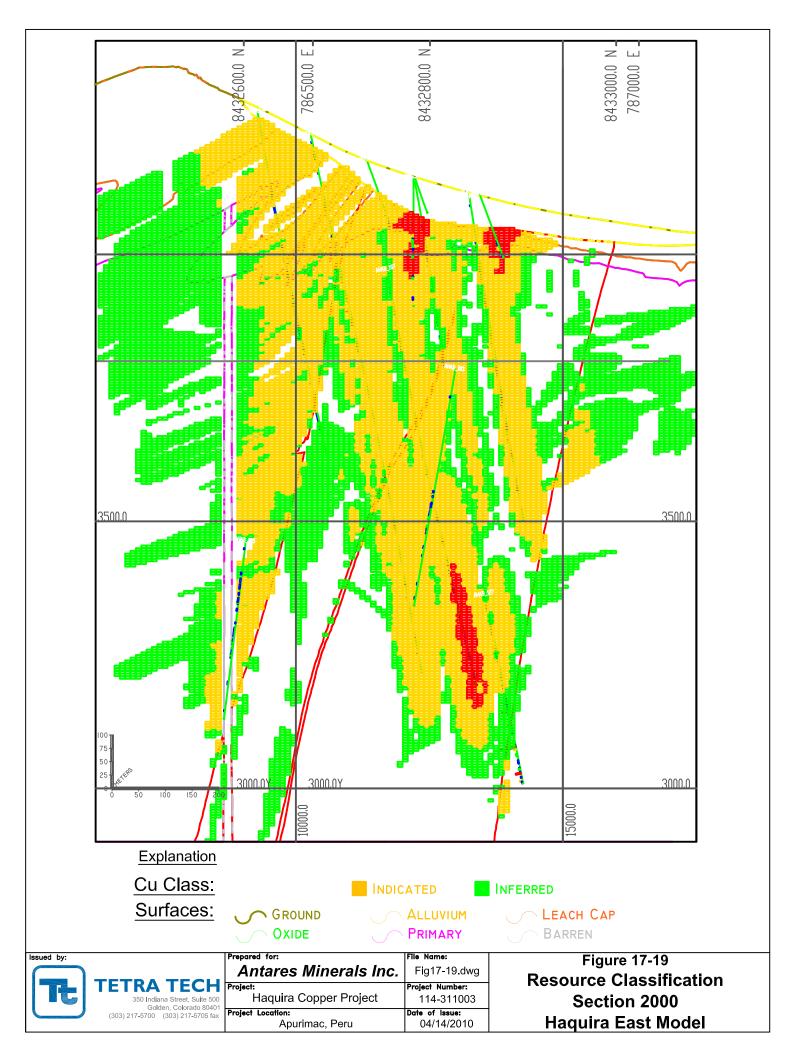
Measured search 0-50m

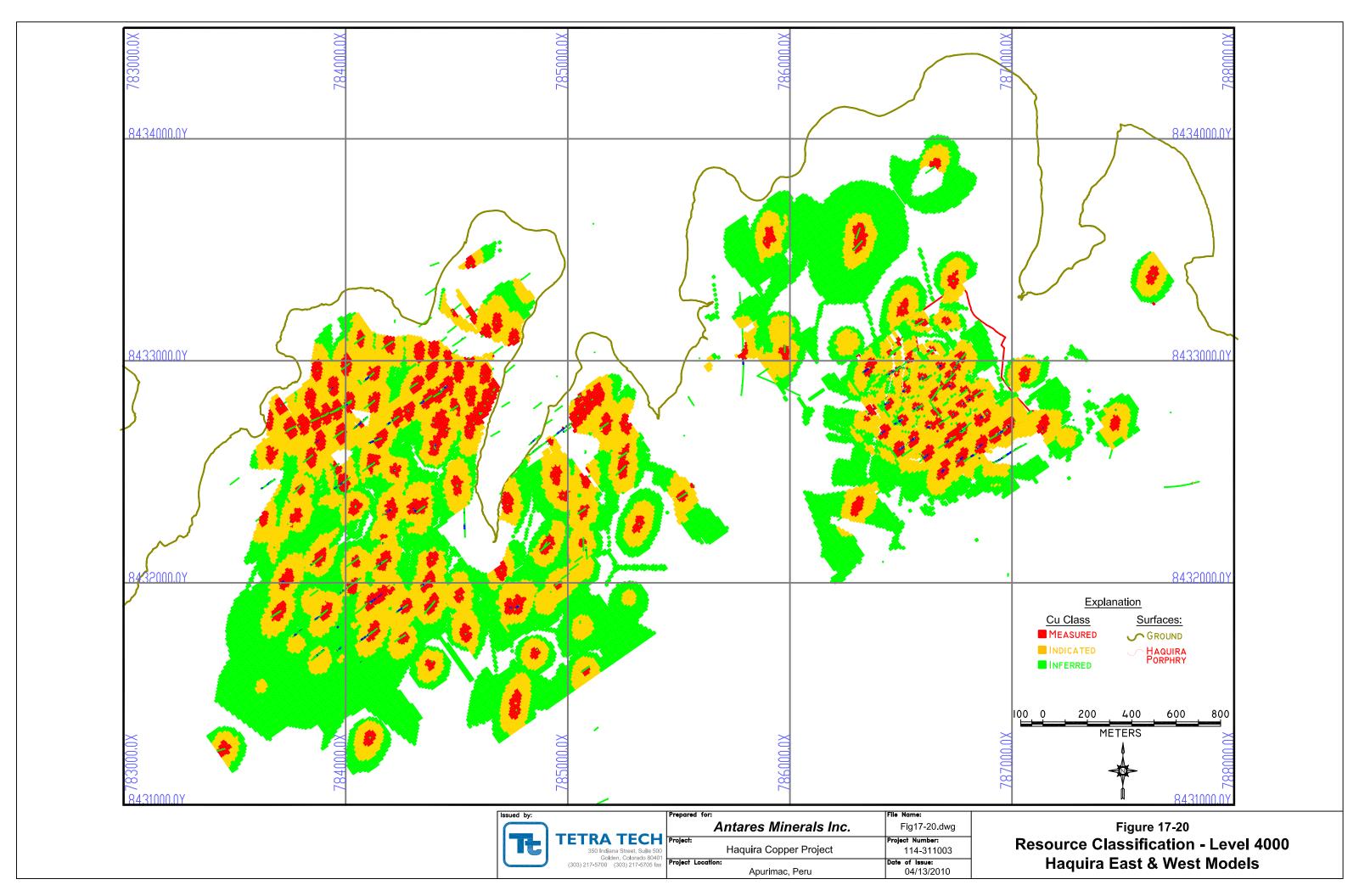
31-Mar-10











17.6 Mineral Resource Estimate

TABLE 17-11 shows how the block codes used in the block model have been simplified for reporting the mineral resources. No economic test has been applied to the mineral resources defined herein. Thus, no mineral reserve estimates have been made.

A summary of the West Haquira mineral resources are shown in TABLE 17-17 broken out by combined measured and indicated in a subtotaled and inferred in an additional subtotal. The West Haquira is limited to a depth of 300 meters below surface.

A summary of the East Haquira Mineral Resources are shown in TABLE 17-18 for measured plus indicated subtotaled and inferred. subtotaled resources are broken out into two subtotals; blocks above 700 meters and those below. The base case cutoff grade for the reportable resources is 0.20%TCu.

17.7 Mineral Reserve Estimate

As of the date of this report, the Haquira Copper Property does not have any CIM definable mineral reserves.

MEASURED + INDICATED RESOURCES											
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	7,385	1.49	0.67	0.64	0.023	3.24	67.3	0.011	1.36
	5000	0.80	11,792	1.26	0.55	0.55	0.022	3.04	74.8	0.011	1.27
	5000	0.70	16,050	1.12	0.48	0.50	0.021	2.96	78.2	0.011	1.21
	5000	0.60	21,763	1.00	0.42	0.46	0.021	2.78	80.7	0.010	1.16
MEAS. + INDICATED	5000	0.50	31,123	0.86	0.35	0.40	0.020	2.62	84.0	0.010	1.07
ENRICHED (SECONDARY)	5000	0.40	46,408	0.73	0.29	0.34	0.019	2.31	76.1	0.009	1.01
(< 300M DEEP)	5000	0.30	74,433	0.58	0.23	0.27	0.017	2.00	67.2	0.008	0.92
	5000	0.25	100,426	0.50	0.19	0.24	0.016	1.84	62.2	0.007	0.88
	5000	0.20	130,429	0.44	0.17	0.21	0.015	1.72	59.5	0.007	0.83
	5000	0.10	199,772	0.34	0.13	0.16	0.014	1.54	54.8	0.006	0.78
	6000	1.00	3,782	1.47	0.07	0.13	0.028	2.54	142.2	0.012	1.74
	6000	0.80	8,143	1.15	0.06	0.13	0.026	2.64	124.0	0.010	1.66
	6000	0.70	11,073	1.05	0.05	0.12	0.026	2.75	117.4	0.010	1.69
	6000	0.60	14,544	0.95	0.05	0.12	0.026	2.77	121.7	0.010	1.69
MEAS. + INDICATED	6000	0.50	22,156	0.81	0.05	0.11	0.024	2.56	107.1	0.010	1.60
PRIMARY	6000	0.40	33,012	0.69	0.04	0.10	0.023	2.24	89.9	0.009	1.52
(< 300M DEEP)	6000	0.30	54,743	0.55	0.03	0.08	0.021	1.83	75.0	0.009	1.45
	6000	0.25	78,192	0.47	0.03	0.07	0.019	1.70	68.6	0.008	1.37
	6000	0.20	117,388	0.39	0.03	0.06	0.018	1.58	63.3	0.007	1.31
	6000	0.10	288,869	0.24	0.02	0.05	0.015	1.29	54.4	0.006	1.18
	ALL	1.00	11,167	1.48	0.47	0.47	0.025	3.00	92.7	0.012	1.49
	ALL	0.80	19,935	1.22	0.35	0.38	0.024	2.88	94.9	0.011	1.43
	ALL	0.70	27,124	1.09	0.30	0.35	0.023	2.87	94.2	0.011	1.41
	ALL	0.60	36,307	0.98	0.27	0.32	0.023	2.78	97.1	0.010	1.37
TOTAL MEAS. + INDICATED	ALL	0.50	53,279	0.84	0.22	0.28	0.022	2.60	93.6	0.010	1.29
ENRICHED + PRIMARY	ALL	0.40	79,420	0.71	0.19	0.24	0.020	2.28	81.8	0.009	1.22
(< 300M DEEP)	ALL	0.30	129,176	0.57	0.15	0.19	0.018	1.93	70.5	0.008	1.14
	ALL	0.25	178,618	0.49	0.12	0.16	0.017	1.78	65.0	0.008	1.09
	ALL	0.20	247,816	0.41	0.10	0.14	0.016	1.65	61.3	0.007	1.06
	ALL	0.10	488,641	0.28	0.07	0.09	0.014	1.39	54.5	0.006	1.02

TABLE 17-17: Haqu

Haquira West – Classified Mineral Resources

INFERRED RESOURCES											
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	321	1.47	0.71	0.68	0.024	5.45	61.7	0.008	1.18
	5000	0.80	486	1.27	0.59	0.58	0.022	4.47	59.8	0.007	1.15
	5000	0.70	816	1.05	0.53	0.43	0.018	3.44	52.7	0.008	0.92
	5000	0.60	1,788	0.83	0.39	0.33	0.017	2.85	62.9	0.009	0.80
INFERRED	5000	0.50	3,301	0.70	0.33	0.28	0.014	2.61	55.9	0.009	0.74
ENRICHED (SECONDARY)	5000	0.40	6,574	0.57	0.25	0.23	0.012	1.91	41.7	0.007	0.66
(< 300M DEEP)	5000	0.30	15,835	0.44	0.18	0.18	0.009	1.35	34.5	0.005	0.54
	5000	0.25	24,511	0.38	0.15	0.16	0.010	1.34	33.4	0.005	0.54
	5000	0.20	35,648	0.33	0.13	0.14	0.010	1.23	35.7	0.005	0.52
	5000	0.10	71,847	0.24	0.10	0.10	0.010	1.08	41.8	0.004	0.51
	6000	1.00	2,037	1.39	0.02	0.04	0.016	1.62	57.2	0.005	1.00
	6000	0.80	3,627	1.17	0.03	0.07	0.018	1.85	66.6	0.006	1.10
	6000	0.70	4,928	1.06	0.03	0.07	0.019	1.87	65.8	0.007	1.30
	6000	0.60	8,810	0.87	0.03	0.07	0.019	1.92	71.4	0.007	1.36
INFERRED	6000	0.50	15,793	0.73	0.03	0.07	0.017	1.87	62.1	0.007	1.25
PRIMARY	6000	0.40	25,345	0.62	0.02	0.06	0.016	1.60	51.6	0.006	1.13
(< 300M DEEP)	6000	0.30	68,091	0.44	0.02	0.04	0.012	1.02	32.3	0.005	0.92
	6000	0.25	101,246	0.39	0.01	0.04	0.012	0.97	35.3	0.005	0.91
	6000	0.20	155,358	0.33	0.01	0.03	0.012	0.97	33.2	0.005	0.93
	6000	0.10	473,249	0.20	0.01	0.03	0.011	0.93	41.0	0.004	0.96
	ALL	1.00	2,358	1.40	0.11	0.12	0.017	2.15	57.8	0.006	1.02
	ALL	0.80	4,113	1.18	0.10	0.13	0.019	2.16	65.8	0.006	1.10
	ALL	0.70	5,745	1.06	0.10	0.12	0.019	2.09	64.0	0.007	1.25
	ALL	0.60	10,598	0.87	0.09	0.11	0.019	2.08	70.0	0.007	1.27
INFERRED	ALL	0.50	19,094	0.73	0.08	0.10	0.017	2.00	61.0	0.007	1.16
ENRICHED + PRIMARY	ALL	0.40	31,919	0.61	0.07	0.10	0.015	1.66	49.5	0.006	1.03
(< 300M DEEP)	ALL	0.30	83,926	0.44	0.05	0.07	0.011	1.08	32.7	0.005	0.85
	ALL	0.25	125,758	0.38	0.04	0.06	0.011	1.04	34.9	0.005	0.84
	ALL	0.20	191,006	0.33	0.03	0.05	0.011	1.02	33.7	0.005	0.85
	ALL	0.10	545,095	0.21	0.02	0.04	0.011	0.95	41.1	0.004	0.90

	MEASURED + INDICATED RESOURCES												
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)		
	5000	1.00	6,252	1.19	0.30	0.47	0.053	2.21	44.4	0.040	0.65		
	5000	0.80	11,202	1.06	0.29	0.41	0.045	1.95	38.5	0.035	0.63		
	5000	0.70	17,018	0.95	0.28	0.36	0.040	1.71	38.7	0.030	0.61		
	5000	0.60	24,617	0.86	0.27	0.32	0.036	1.58	33.1	0.025	0.58		
MEAS. + INDICATED	5000	0.50	34,982	0.77	0.25	0.28	0.031	1.62	28.7	0.021	0.57		
ENRICHED (SECONDARY)	5000	0.40	47,229	0.68	0.23	0.25	0.027	1.51	25.2	0.018	0.53		
(< 700M DEEP)	5000	0.30	61,464	0.61	0.20	0.23	0.023	1.40	22.1	0.016	0.54		
	5000	0.25	71,274	0.56	0.19	0.21	0.022	1.40	20.5	0.014	0.52		
	5000	0.20	84,539	0.51	0.17	0.19	0.020	1.28	18.9	0.013	0.51		
	5000	0.10	132,540	0.38	0.13	0.15	0.015	0.99	16.0	0.010	0.45		
	6000	1.00	20,403	1.18	0.02	0.17	0.095	3.22	22.5	0.032	1.09		
	6000	0.80	50,711	1.01	0.02	0.16	0.086	2.81	14.6	0.027	0.95		
	6000	0.70	76,217	0.92	0.02	0.16	0.079	2.59	15.3	0.024	0.88		
	6000	0.60	105,929	0.85	0.02	0.14	0.071	2.36	17.5	0.022	0.84		
MEAS. + INDICATED	6000	0.50	143,401	0.77	0.02	0.13	0.063	2.12	19.0	0.020	0.81		
PRIMARY	6000	0.40	181,518	0.70	0.02	0.12	0.055	1.90	16.6	0.018	0.80		
(< 700M DEEP)	6000	0.30	222,078	0.64	0.02	0.11	0.049	1.73	15.2	0.017	0.79		
	6000	0.25	247,832	0.60	0.02	0.10	0.046	1.64	14.4	0.016	0.79		
	6000	0.20	276,066	0.56	0.02	0.10	0.042	1.54	14.2	0.015	0.80		
	6000	0.10	360,933	0.46	0.02	0.08	0.035	1.30	13.9	0.012	0.85		
		4.00	00.055	4.40	0.00		0.005			0.004			
	ALL	1.00	26,655	1.18	0.09	0.24	0.085	2.98	27.6	0.034	0.99		
	ALL	0.80	61,913	1.02	0.07	0.21	0.079	2.65	18.9	0.029	0.89		
	ALL	0.70	93,235	0.93	0.07	0.19	0.072	2.43	19.5	0.025	0.83		
	ALL	0.60	130,546	0.85	0.07	0.18	0.064	2.21	20.5	0.022	0.79		
TOTAL MEAS. + INDICATED	ALL	0.50	178,383	0.77	0.07	0.16	0.057	2.02	20.9	0.020	0.76		
	ALL	0.40	228,747	0.70	0.07	0.15	0.050	1.82	18.4	0.018	0.74		
(< 700M DEEP)	ALL	0.30	283,542	0.63	0.06	0.14	0.043	1.66	16.7	0.016	0.74		
	ALL	0.25	319,106	0.59	0.06	0.13	0.040	1.58	15.8 15.3	0.016	0.73		
	ALL	0.20	360,606	0.55	0.06	0.12	0.037	1.48		0.014	0.73		
	ALL	0.10	493,473	0.44	0.05	0.10	0.030	1.21	14.4	0.012	0.74		

TABLE 17-18:

Haquira East – Classified Mineral Resources

MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	6000	1.00	8,665	1.54	0.01	0.03	0.151	5.45	797.5	0.015	1.27
	6000	0.80	15,540	1.25	0.01	0.02	0.111	4.20	470.2	0.015	1.17
	6000	0.70	23,120	1.09	0.01	0.02	0.092	3.55	337.0	0.013	1.11
	6000	0.60	30,811	0.98	0.01	0.02	0.079	3.10	265.2	0.013	1.05
TOTAL MEAS. + INDICATED	6000	0.50	45,500	0.84	0.00	0.02	0.063	2.54	189.7	0.013	0.99
PRIMARY	6000	0.40	62,791	0.73	0.00	0.01	0.052	2.15	140.8	0.012	0.92
(>= 700M DEEP)	6000	0.30	77,818	0.66	0.00	0.01	0.047	1.93	115.8	0.011	0.87
	6000	0.25	87,022	0.62	0.00	0.01	0.044	1.82	104.5	0.011	0.85
	6000	0.20	95,286	0.58	0.00	0.01	0.042	1.72	96.9	0.010	0.84
	6000	0.10	115,315	0.51	0.00	0.01	0.036	1.51	81.3	0.009	0.80

				INFE	RRED RESOU	RCES (<=700M D	EEP)				
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	5000	1.00	2,050	1.13	0.40	0.58	0.016	1.47	101.3	0.004	0.68
	5000	0.80	3,576	1.04	0.38	0.50	0.017	1.88	79.4	0.004	0.62
INFERRED	5000	0.70	4,815	0.96	0.34	0.46	0.016	1.61	89.2	0.005	0.71
ENRICHED (SECONDARY)	5000	0.60	10,594	0.79	0.31	0.31	0.014	1.24	56.3	0.005	0.67
(< 700M DEEP)	5000	0.50	16,489	0.71	0.28	0.27	0.013	1.21	44.8	0.005	0.65
	5000	0.40	19,845	0.67	0.26	0.25	0.013	1.16	41.7	0.005	0.63
	5000	0.30	24,701	0.61	0.23	0.24	0.013	1.07	36.2	0.005	0.69
	5000	0.25	28,423	0.56	0.21	0.22	0.012	0.99	33.1	0.005	0.67
	5000	0.20	36,514	0.49	0.18	0.19	0.011	0.87	27.3	0.005	0.64
	5000	0.10	90,885	0.28	0.10	0.11	0.009	0.64	20.3	0.003	0.48
	6000	1.00	3,204	1.18	0.02	0.15	0.096	3.20	36.8	0.030	1.13
	6000	0.80	10,273	0.98	0.02	0.14	0.082	2.67	17.7	0.021	0.96
INFERRED	6000	0.70	16,449	0.89	0.02	0.14	0.077	2.49	18.1	0.019	0.89
PRIMARY	6000	0.60	25,076	0.81	0.02	0.13	0.067	2.22	20.8	0.018	0.85
(< 700M DEEP)	6000	0.50	38,147	0.72	0.02	0.11	0.054	1.89	23.1	0.016	0.86
	6000	0.40	73,621	0.59	0.02	0.09	0.037	1.41	16.7	0.012	0.92
	6000	0.30	123,065	0.49	0.02	0.08	0.028	1.17	14.0	0.011	0.89
	6000	0.25	177,569	0.43	0.02	0.07	0.024	0.99	12.3	0.009	0.89
	6000	0.20	242,889	0.37	0.02	0.06	0.020	0.86	11.6	0.008	0.87
	6000	0.10	587,927	0.23	0.01	0.04	0.013	0.57	12.2	0.005	0.86
	ALL	1.00	5,254	1.16	0.17	0.32	0.065	2.52	61.9	0.020	0.96
INFERRED	ALL	0.80	13,848	1.00	0.11	0.23	0.065	2.46	33.6	0.017	0.87
ENRICHED + PRIMARY	ALL	0.70	21,264	0.91	0.09	0.21	0.063	2.29	34.2	0.016	0.85
(< 700M DEEP)	ALL	0.60	35,670	0.81	0.11	0.18	0.051	1.93	31.3	0.014	0.80
	ALL	0.50	54,636	0.72	0.10	0.16	0.042	1.69	29.6	0.013	0.80
	ALL	0.40	93,466	0.61	0.07	0.12	0.032	1.35	22.0	0.011	0.86
	ALL	0.30	147,766	0.51	0.06	0.10	0.026	1.15	17.7	0.010	0.86
	ALL	0.25	205,992	0.44	0.05	0.09	0.022	0.99	15.1	0.009	0.86
	ALL	0.20	279,404	0.39	0.04	0.08	0.019	0.86	13.6	0.008	0.84
	ALL	0.10	678,811	0.24	0.02	0.05	0.012	0.58	13.3	0.005	0.81

	INFERRED RESOURCES (>= 700M DEEP)										
MINERALIZATION TYPE	ROCK TYPE	CUTOFF GRADE (%TCu)	TONNES (x1000)	AVG. COPPER GRADE (%TCu)	ACID SOL Cu GRADE (%AsCu)	CYANIDE SOL Cu GRADE (%CnCu)	GOLD GRADE (g/t)	SILVER GRADE (g/t)	ARSENIC GRADE (ppm)	MOLY GRADE (%)	SULPHUR GRADE (ppm)
	6000	1.00	12,571	1.59	0.00	0.01	0.178	6.24	654.8	0.012	1.18
	6000	0.80	19,310	1.35	0.00	0.01	0.140	5.16	453.2	0.012	1.17
	6000	0.70	26,514	1.19	0.00	0.01	0.117	4.39	358.8	0.011	1.11
	6000	0.60	50,735	0.93	0.00	0.01	0.082	3.26	256.3	0.010	1.04
INFERRED	6000	0.50	79,729	0.78	0.00	0.01	0.065	2.66	182.5	0.009	1.02
PRIMARY	6000	0.40	121,788	0.66	0.00	0.01	0.050	2.16	128.5	0.009	0.97
(>= 700M DEEP)	6000	0.30	142,516	0.62	0.00	0.01	0.046	1.99	112.4	0.010	0.97
	6000	0.25	169,990	0.56	0.00	0.01	0.041	1.81	96.4	0.009	0.92
	6000	0.20	213,460	0.49	0.00	0.01	0.035	1.57	80.5	0.008	0.88
	6000	0.10	317,109	0.38	0.00	0.01	0.026	1.19	57.5	0.007	0.81

18.0 DEVELOPMENT OF OPEN PIT SHAPES

The Haquira Copper Project contains no mineral reserves as defined by CIMM standards. This study is preliminary in nature and has used Measured (M), Indicated (IND), and Inferred (INF) resources in the determination of the inpit resources. The reader is cautioned that inferred resources are considered too speculative geologically to have economics applied and there is no certainty that the economic results can be achieved. All categories have been used in developing production schedules and preliminary cash flow analyses.

The inpit resources are presented in this SECTION and are based on the 3D grade and geologic block models developed by Tt as described in SECTION 17. These resources represent the potentially economically recoverable "subset" of the total resource estimates in SECTION 17 of this report.

Tt's review of these resources includes assessment of a potential development of a 47.4 million tonne-per-year operation.

18.1 Whittle Pit Design Parameters

To guide design of an ultimate pit and to determine the best extraction sequence, Tt utilized the Whittle algorithm to establish guides to mineable shapes within the mineral resource block model. The ordinary kriging estimate of total copper in the model was imported to Gemcom's[®] Whittle[®] mine optimization software. No other metal values were used as inputs to the algoritm. Estimates for mine and processing costs were prepared from a comparison of actual and handbook costs for similar operations.

For the Haquira Copper Project the potential operation involves creating a SX-EW (Leach) copper cathode product along with a bulk sulfide flotation concentrate that is shipped to off-shore for smelting. TABLE 18-1 lists the input parameters used for the Whittle LG runs for the potential development scenario. No additional constraints such as property boundaries or existing infrastructure locations were applied to the preliminary Whittle[®] mine optimization run. The average achievable pit slope was estimated at 45°. The copper price used for the Whittle runs was \$2.25/lb.

TABLE 18-1: Whittle [®] Mine Optimization parameters – SX and Flotation Scenario ANTARES MINERALS INC. – HAQUIRA COPPER PROJECT September 2010							
Parameter Units Value							
Average Pit Slopes	Degrees	45					
Metal Price							
Copper	US\$/lbs	2.25					
Metal Recovered							
Copper (SXEW cathode)	%	78					
Copper (concentrate)	%	89.3					
Mining Cost	\$US/tonne mined	1.24					
Processing Cost (SX-EW)	\$US/tonne processed	3.29					
Processing Cost (Flotation)	\$US/tonne processed	4.35					
Freight & Refining (Cathode)	\$US/lb Copper	0.009					
Freight & Refining (Concentrate)	\$US/lb Copper	0.22					
General & Administrative Costs	\$US/tonne processed	0.13					
Environmental & regulatory Costs	US\$/tonne processed	0.10					

18.2 Inpit Resources, Underground Resources, and Production Scheduling

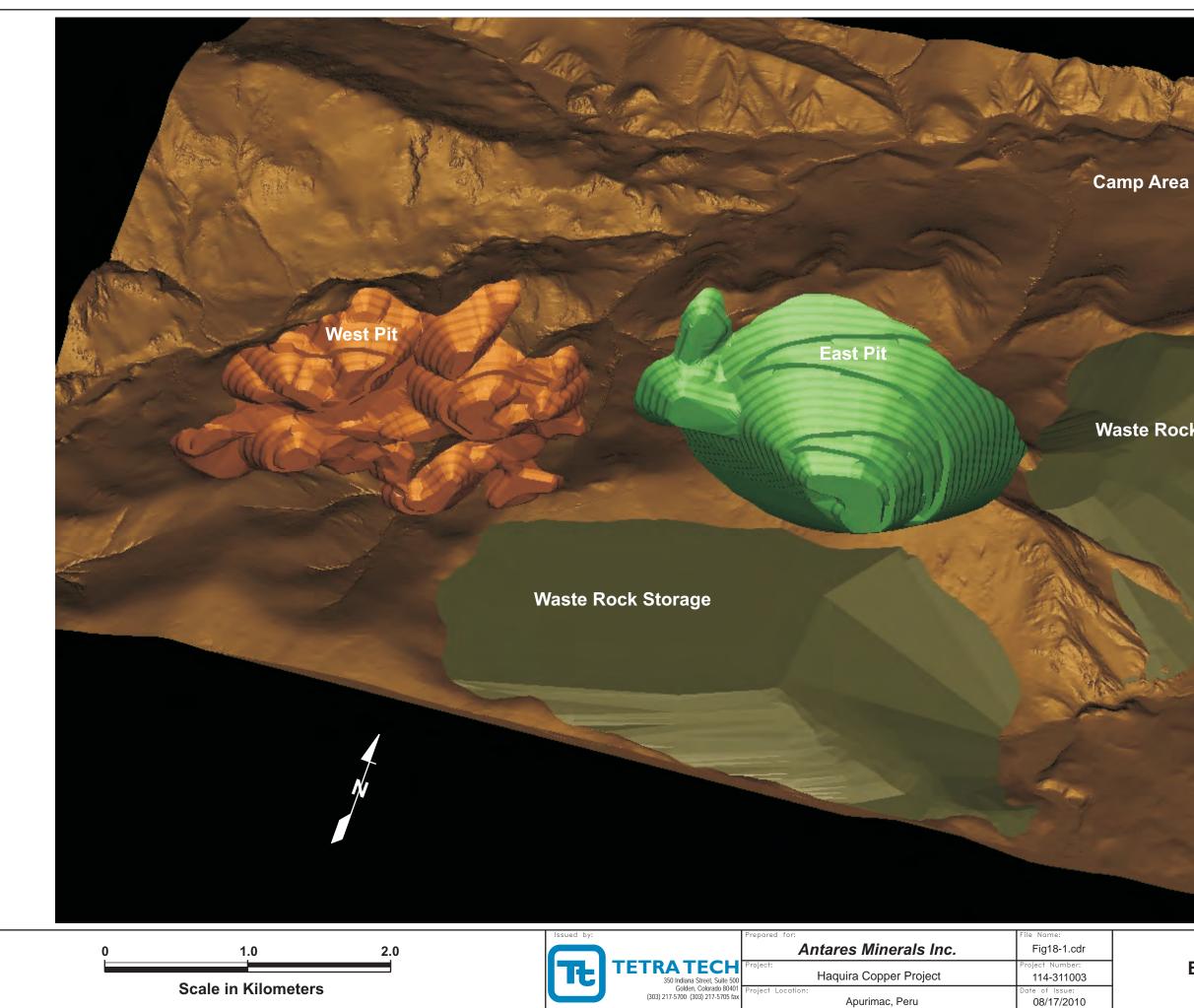
TABLE 18-2 summarizes the results of the pits designed using the Whittle[®] mine optimization outlines as a guide. TABLE 18-3 summarizes the results of the Underground Mining scenario. FIGURE 18-1 and 18-2 show the pit designs for the Haquira East and Haquira West Pits. FIGURE 18-3 shows the underground development planned. For this PEA, the production rate was set at 10,900,000 processable tonnes per year (approximately 30,000 tpd) for the SX-EW plant and 36,500,000 processable tonnes per year (approximately 100,000 tpd) for the flotation plant for a total processing capability of 47,400,000 tonnes per year (approximately 130,000 tpd). A one and a half year pre-strip and development period is expected with an average yearly waste movement of 86,500,000 tonnes per year through year 19. Year 20 (final year of waste movement) will see a total waste movement of 18,199,000 tonnes.

Year One SX ore processing is expected at a full 10,900,000 tonnes of Leach material and Year One flotation production set at 18,250,000 tonnes. Subsequent years will continue to process 10,900,000 tonnes per year of SX leach material, the Flotation plant will produce 36,500,000 tonnes per year through year 19. Year 20 the SX production will drop to approximately 1,800,000 tonnes and the Flotation production will drop to 26,383,000 tonnes in year 20 (final year of production). Flotation material will be initially produced solely from InPit resources until year 5 when underground production would commence at a rate of approximately 10,000 tonnes per day (Underground material would be extracted by means of long-hole stoping with paste fill to allow simultaneous operation of the underground and open pit operations). The 10,000 tonnes per day of underground production would displace a similar tonnage of sulfide material from the open pit to maintain a constant 100,000 tonnes per day feed rate to the flotation concentration plant. The net result will be an increase in head grade due to the higher grades from the underground production.

Underground ore production is expected to continue at 3,650,000 tonnes per year until year 16 when the production rate will decrease to 1,700,000 tonnes for the year and then the underground mine will cease production at the end of year 16. InPit production will again increase to maintain the constant 100,000 tonnes per day flotation feed rate through Year 19. Year 20 will have 26,383,000 tonnes of flotation feed the last year of planned production.

TABLE 18-2: InPit Resources – SX and Flotation Scenario ANTARES MINERALS INC. – HAQUIRA COPPER PROJECT September 2010								
		ļ ,	Avg. Meta	Total Tonnes	Strippi ng Ratio			
Resource Class	Tonnes ('000)	Cu (%)	Au (g/t)	Ag (g/t)	Мо (%)	('000)	('000)	
Measured	128,830	0.512	0.023	1.082	0.010	N/A	N/A	N/A
Indicated	432,106	0.477	0.036	1.644	0.010	N/A	N/A	N/A
Measured + Indicated	560,936	0.485	0.033	1.155	0.010	N/A	N/A	N/A
Inferred	307,781	0.372	0.022	1.154	0.007	N/A	N/A	N/A
Total	868,717	0.445	0.029	1.387	0.009	1,791,449	2,660,166	2.06

ТА	TABLE 18-3: Underground Resources – SX and Flotation Scenario ANTARES MINERALS INC. – HAQUIRA COPPER PROJECT September 2010							
			Avg. Met	al Grades				
Resource Class	Tonnes ('000)	Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)			
Measured	3,752	1.056	0.088	3.424	0.013			
Indicated	17,271	1.020	0.085	3.342	0.013			
Measured + Indicated	21,023	1.026	0.086	3.357	0.013			
Inferred	20,827	1.103	0.104	4.026	0.011			
Total	41,850	1.070	0.096	3.740	0.012			



Waste Rock Storage

Figure 18-1 East & West Final Design Pits and Waste Rock Storage

19.0 OTHER RELEVANT DATA AND INFORMATION

The Haquira Copper Project is a mid-to-advanced stage exploration project. It has been explored to a sufficient degree to allow the completion of a Preliminary Economic Assessment. This study is preliminary in nature and has used Measured (M), Indicated (IND), and Inferred (INF) resources in the determination of the inpit resources, potential development schedule, and cashflow analysis. The reader is cautioned that inferred resources are considered too speculative geologically to have economics applied and there is no certainty that the economic results can be achieved.

19.1 Base Case Mining Operation

The Haquira Copper Project Open Pit will be mined using conventional open pit methods utilizing off-highway trucks and hydraulic shovels. The mine pit designs were based on the Lerch-Grossman (LG) algorithm using Gemcom's[®] Whittle[®] mine optimization software. Figure 19-1 illustrates the preliminary site layout for the project.

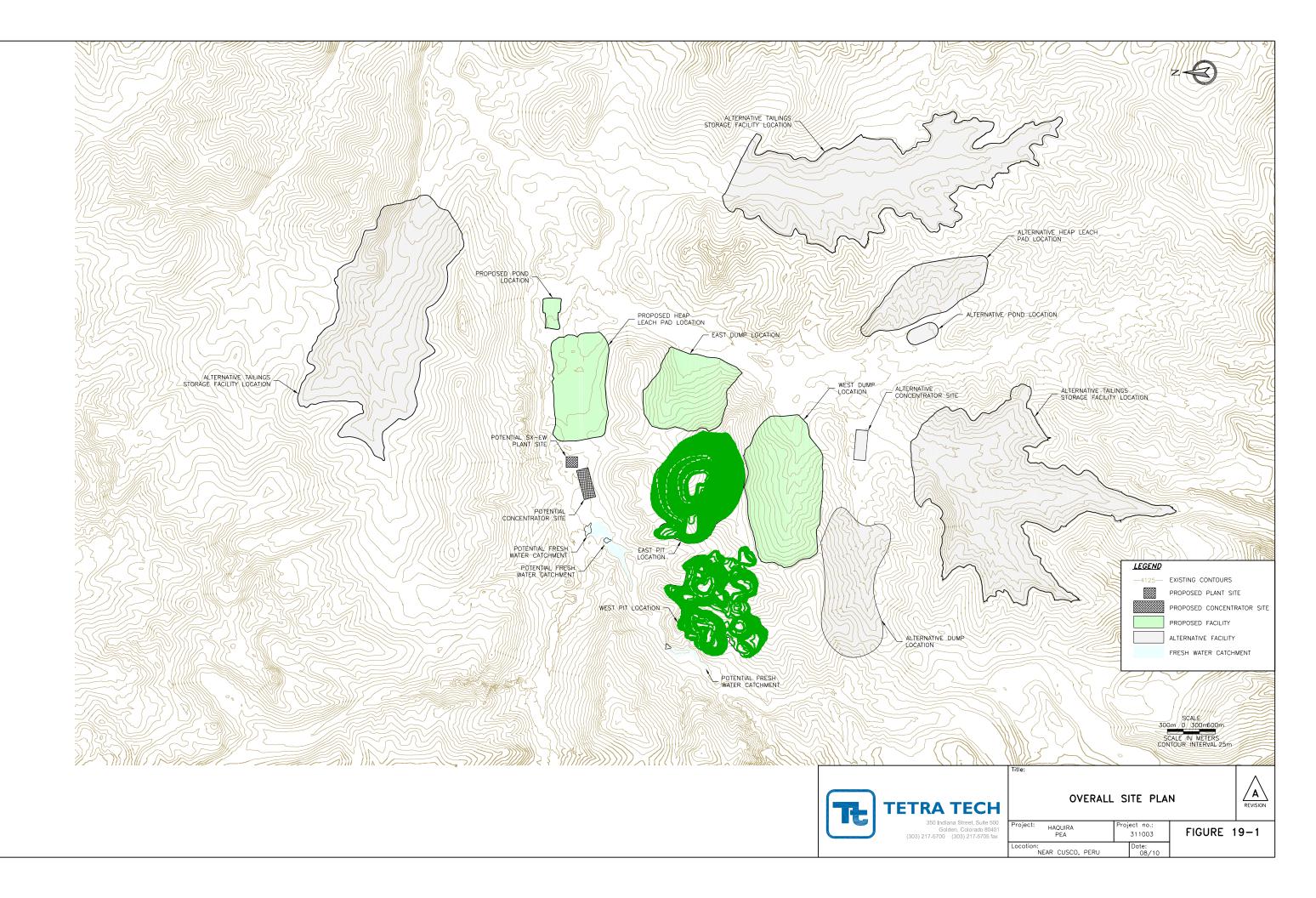
Mining at Haquira will utilize conventional open pit practices, encompassing the drill, blast, load, and haul functions to remove both overburden waste and mineralized material. Waste is to be hauled from the pit to an outside disposal site which will have been previously prepared to accept the barren tonnage. Economic tests have been performed on the deposit to gauge the largest expected pit, and from this the waste location has been sited beyond the hypothetical pit rim. Ground pressure from stacking the waste is not expected to impact pit wall stability.

Overburden removal (along with any occasional processable material uncovered) is planned to begin in Year -2, the two years prior to start-up. Ore material will be taken to a stockpile area near the processing facility staged for later processing. By Year 1 (the initial year of production) a full complement of mining equipment and related facilities will be in place as the production of mineralized material will approach its maximum for the project.

Open Pit material movement (ore and waste) levels are scheduled to be 133.9 million tonnes annually as a maximum, with 47.4 million tonnes of processable material delivered to the heap leach or Flotation plant each year. Waste production is scheduled to be uniform through Year 19 of operations at approximately 86.5 million tonnes per year, at which point the waste movement declines to 18.2 million tonnes in the final year of production. The mine life of 22 years includes a 2 year pre-production period. Material quantities handled during the mining phase of the open pits total approximately 868.7 million processable tonnes, and just under 1.8 billion waste tonnes, for an overall 2.06:1 stripping ratio. TABLE 19-1 presents the annual quantities of material mined from the pit.

Pit Parameters and Design

Material quantities were developed for the pre-production year, and the following productions years. Truck speeds and round trip travel times for the haulers were estimated using an average haulage profile for each pit so that an assessment could be made for projecting equipment hours, the number of units required, and both capital and operating costs.



Equipment Requirements

This schedule of material quantities served as the base starting point from which to calculate the primary equipment requirements. Primary equipment represents those units which are dependent upon production, as opposed to secondary items that are subordinate to the production equipment and are estimated based on historical practice.

The drills for Haquira are scheduled to operate around the clock, and thereby need four crews to cover all shifts. Different production rates have been incorporated because of varying parameters between the processable material and waste rock, and allowances have been provided to account for employee breaks during each shift, travel time between hole locations, mechanical availability, and utilization of the equipment. TABLE 19-2 presents the summary data on drill requirements.

	TABLE 19-1: Open Pit Production Schedule ANTARES MINERALS INC. – HAQUIRA COPPER PROJECT							
	September 2010							
Year	Open Pit Ore Tonnes	Waste Tonnes	W:O Ratio	SX-EW Cu Grade (%)	FLOT Cu Grade (%)	FLOT Au Grade (g/t)	FLOT Ag Grade (g/t)	FLOT Mo Grade (%)
		OPEN PIT	PRODU	ICTION SC	HEDULE	i	i	
-2	-	43,250,000	N/A	N/A	N/A	N/A	N/A	N/A
-1	-	86,500,000	N/A	N/A	N/A	N/A	N/A	N/A
1	29,150,000	86,500,000	2.97	0.442	0.564	0.037	1.601	0.015
2	47,400,000	86,500,000	1.82	0.442	0.564	0.037	1.601	0.015
3	47,400,000	86,500,000	1.82	0.442	0.564	0.037	1.601	0.015
4	47,400,000	86,500,000	1.82	0.442	0.564	0.037	1.601	0.015
5	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
6	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
7	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
8	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
9	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
10	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
11	43,750,000	86,500,000	1.98	0.442	0.564	0.037	1.601	0.015
12	43,750,000	86,500,000	1.98	0.442	0.381	0.022	1.197	0.008
13	43,750,000	86,500,000	1.98	0.442	0.314	0.017	1.05	0.006
14	43,750,000	86,500,000	1.98	0.442	0.314	0.017	1.05	0.006
15	43,750,000	86,500,000	1.98	0.442	0.314	0.017	1.05	0.006
16	45,700,000	86,500,000	1.89	0.442	0.314	0.017	1.05	0.006
17	47,400,000	86,500,000	1.82	0.442	0.314	0.017	1.05	0.006
18	47,400,000	86,500,000	1.82	0.442	0.314	0.017	1.05	0.006
19	47,400,000	86,500,000	1.82	0.442	0.314	0.017	1.05	0.006
20	28,217,000	18,199,000	0.64	0.442	0.314	0.017	1.05	0.006
Total	868,717,000	1,791,449,000	2.06	0.442	0.453	0.028	1.356	0.011

Table 19-2 Drilling Requirments

WASTE

ORE

RIMARY DRILL	Atlas Copco PV-351	\$ 3,620,000 Capital Cost each	PRIMARY DRILL Atl	as Copco PV-351	\$ 3,620,000 Capital Cost eac
Expected Annual Tonr	nage =	47,000,000 tonnes	Expected Annual Tonnage	=	127,500,000 tonnes
In Situ Density	=	2.5 dry tonnes/cu m	In Situ Density	=	2.5 dry tonnes/cu m
Powder Factor	=	0.23 kg/tonne	Powder Factor	=	0.17 kg/tonne
Annual Powder Requi	rements =	10,763,000 kg	Annual Powder Requirements	=	21,802,500 kg
Drill Bit Diameter	=	381 mm	Drill Bit Diameter	=	<mark>381</mark> mm
Powder Density (ANF	O) =	<mark>800</mark> kg/cu m	Powder Density (ANFO)	=	<mark>800</mark> kg/cu m
Volume of Hole Requi	red =	13,454 cu m	Volume of Hole Required	=	27,253 cu m
Length of Hole Requir	ed, Loaded =	118,066 m	Length of Hole Required, Loaded	=	239,164 m
Bench Height	=	17.50 m	Bench Height	=	17.5 m
Bench Height + Subgr	ade =	19.50 m	Bench Height + Subgrade	=	19.5 m
Powder Column in Ho	le =	12.75 m	Powder Column in Hole	=	12.75 m
Annual No. of Holes	=	9,260	Annual No. of Holes	=	18,758
Drillhole Pattern	=	10.8 m square	Drillhole Pattern	=	12.5 m square
Length of Hole Requir	ed, Drilled =	180,571 m	Length of Hole Required, Drilled	=	365,781 m
Scheduled Days/Year	=	364	Scheduled Days/Year	=	364
Scheduled Hours/Day	=	24	Scheduled Hours/Day	=	24
Scheduled Hours/Yea	r =	8,736 hours	Scheduled Hours/Year	=	8,736 hours
No. of 8-hour Shifts	=	1,092 shifts	No. of 8-hour Shifts	=	1,092 shifts
Penetration Rate, Inst	antaneous =	16 m/hour	Penetration Rate, Instantaneous	=	<mark>16</mark> m/hour
Drill Rig Move Time	=	10 %	Drill Rig Move Time	=	10 %
Altitude Derate Factor	=	<mark>85</mark> %	Altitude Derate Factor	=	<mark>85</mark> %
Mechanical availability		<mark>90</mark> %	Mechanical availability	=	90 %
Maximum Use of Avai		<mark>84</mark> %	Maximum Use of Available Time*	=	<mark>84</mark> %
Effective Drilling Time		363 minutes	Effective Drilling Time/Shift	=	363 minutes
Length of Hole Drilled/		82 m	Length of Hole Drilled/Operating S	Shift =	82 m
Total Drilling Shifts Ne		2,195 shifts	Total Drilling Shifts Needed/Year	=	4,447 shifts
Drill Hours Needed pe		0.000374	Drill Hours Needed per Ore Tonne		0.000279
Total Operating Shifts	Needed per Year =	2,439 shifts	Total Operating Shifts Needed pe	r Year =	4,941 shifts
Number of Drills Requ	ired =	2.23	Number of Drills Required	=	4.52

* Allows for 15 minutes at each end of the shift plus one 15-minute break, plus a 30-minute lunch period, •

* Allows for 15 minutes at each end of the shift plus one 15-minute break, plus a 30-minute lunch period,

Table 19-3: Truck and Shovel Requirments

Leach Ore

Leach Or	3				
Shovel	(Hitachi EX2500)				TRUCK (Hitachi 35
	Maximum Annual Tonnage	=	10,900,000	tonnes	Max
	In Situ Density	=		dry tonnes/cu m	In S
	Moisture Content In Situ Volume	=	2.5 4,360,000		Moi: In S
	Swell Factor	=	4,300,000		Swe
	Broken Volume	=	5,450,000	cu m	Brol
	Bucket Capacity	=	16.0	cu m	Buc
	Bucket Fill Factor	=	95		Buc
	Nominal Bucket Capacity	=		cu m dry tonnes	Non
		=	29.0	ury tonnes	
	Nominal Truck Size	=		tonnes	Nor
	Truck Fill Factor Expected Truck Capacity	=	100 168.00	% tonnes	Tru Exp
	Number of Passes/Truck	=		passes	Nun
	Loader Cycle Time	=	30	seconds/pass	Loa
	Spot Time/Load	=		seconds	Spo
	Total Loading Time	=	3.75	minutes	Tota
	Scheduled Days/Year	=	364	days	Dun Hau
	Scheduled Hours/Day	=	24	hours/day	Ave
	Scheduled Hours/Year Shift Length, Hours	=		hours/year hours	Tota Tota
	No. of Annual Shifts	=		shifts/year	104
	Total Time/Shift	=	480	minutes	Sch
	Max Tonnage/Shovel Operating Shift	=	21,504	tonnes/shift	Sch Sch
	Max Tonnage/Shovel Operating Year	=	23,482,368	tonnes/year	Shif
	Altitude Derate Factor	=	0.85		No. Effe
	Mechanical Availability	=	90%	•	Altit
	Maximum Use of Available Time*	=	84%		Max
	Effective Loading Time/Shift Expected Tonnage/Year/Shovel	=	403 16,766,411	minutes tonnes	Max
	Tonnage/Scheduled Hour	=	1,919	tonnes/scheduled hour	
	Number of Shovels Required Number of Shovels on Site	=		shovels shovels	Mec Max
	Total Shovel Op Hours Needed	=		shovel operating hours	Effe
					Exp
	* Allows for 15 minutes at	each end of the shift plus plus a 30-minute lunch period,			Ton Nun
		nus a cominate fanon perioa,			Nun
	Total Loaders Require Purchase:	d:	0.7	Hitachi 2500	Tota
	i urchase.				
	Total Trucks Required Purchase:	:	3.8	Hitachi EH 3500	
	Fuicilase.		4	nitacini Eri 3300	
Flotation (Ore - Haul to In-Pit Crusher				
Shovel	(Hitachi EX5500)				TRUCK (Komatsu S
	· · · · · · · · · · · · · · · · · · ·				
	Maximum Annual Tonnage In Situ Density	=	29,100,000	tonnes dry tonnes/cu m	Max In S
	Moisture Content	=	2.5	5	Moi
	In Situ Volume Swell Factor	=	11,640,000 25		In S Swe
	Broken Volume	=	14,550,000		Brol
	Bucket Capacity Bucket Fill Factor	=	29.0	cu m %	Buc Buc
	Nominal Bucket Capacity	=		cu m	Non
		=	53.7	dry tonnes	
	Nominal Truck Size	=	292	tonnes	Non
	Truck Fill Factor	=	100		True
	Expected Truck Capacity Number of Passes/Truck	=		tonnes passes	Exp Nun
	Loader Cycle Time Spot Time/Load	=		seconds/pass seconds	Loa Spo
	Total Loading Time	=		minutes	Tota
	Schodulad Dave/Vear		264	davs	Dun Hau
	Scheduled Days/Year Scheduled Hours/Day	=		hours/day	Ave
	Scheduled Hours/Year	=	8,736	hours/year	Tota
	Shift Length, Hours No. of Annual Shifts	=		hours shifts/year	Tota
	Total Time/Shift	=		minutes	Sch
	Max Tonnage/Shovel Operating Shift	_	20 225	tonnes/shift	Sch Sch
	Max Tonnage/Shovel Operating Shift Max Tonnage/Shovel Operating Year	=		tonnes/year	Shif
					No.
	Altitude Derate Factor Mechanical Availability	=	0.85 90%		Effe
	Maximum Use of Available Time*	=	84%		Мах
	Effective Loading Time/Shift Expected Tonnage/Year/Shovel	=	403 29,803,928	minutes	Max
	Tonnage/Scheduled Hour	=		tonnes/scheduled hour	
	Number of Shovels Required	=		shovels	Mec
	Number of Shovels on Site Total Shovel Op Hours Needed	=		shovels shovel operating hours	Max Effe
		_	0,000	cherer operaning houre	Exp
	* Allows for 15 minutes at	each end of the shift plus plus a 30-minute lunch period,			Ton Nun
	one 15-minute break, p	nus a so-minute functi penou,			Nun
	Total Loaders Require	d:	1.1		Tota
	Purchase:		2	Hitachi 5500	
	Total Trucks Required	:	6.7		
	Purchase:		7	Komatsu 930	
WASTE					
-	(Hitachi EX5500)				
Shovel	(Hitachi EX5500)				TRUCK (Komatsu S
	Maximum Annual Tonnage	=	127,415,500		Max
	In Situ Density Moisture Content	=	2.50 2.5	dry tonnes/cu m %	In S Moi
	In Situ Volume	=	50,966,200		In S
	Swell Factor	=	25		Swe
	Broken Volume	=	63,707,750	cu m	Brol

liments			
uchi 3500)			
Maximum Annual Tonnage	=	10,900,000	tonnes
In Situ Density	=		dry tonnes/cu m
Moisture Content	=	2.50	
In Situ Volume Swell Factor	=	4,360,000 30	
Broken Volume	=	5,668,000	
Bucket Capacity	=	16.0	cu m
Bucket Fill Factor	=	95	
Nominal Bucket Capacity	=		cu m dry tonnes
	-		
Nominal Truck Size Truck Fill Factor	=	168 100	tonnes
Expected Truck Capacity	=		tonnes
Number of Passes/Truck	=	6.0	passes
Loader Cycle Time	=	30	seconds/pass
Spot Time/Load	=		seconds
Total Loading Time Dump Time	=		minutes minutes
Haul Distance, one-way	=	2.7	kilometers
Average Travel Speed Total Travel Time	=		kilometers/hour minutes
Total Truck Cycle Time	=		minutes
Schoolulad Dovo/Voor		264	dava
Scheduled Days/Year Scheduled Hours/Day	=		days hours/day
Scheduled Hours/Year	=		hours/year
Shift Length, Hours No. of Annual Shifts	=		hours shifts/year
Effective Time/Shift*	=	480	minutes
Altitude Derate Factor Max Tonnage/Truck Operating Shift	=	0.85	tonnes/shift
Max Tonnage/Truck Operating Shift	=		tonnes/year
Mechanical Availability	=	90%	
Maximum Use of Available Time*	=	84%	
Effective Hauling Time/Shift Expected Tonnage/Year/Truck	=		minutes tonnes/year
	=	364	tonnes/scheduled hour
Tonnage/Scheduled Hour			
Number of Trucks Required	=	3.8	
	= = =	4	truck operating hours
Number of Trucks Required Number of Trucks on Site	=	4	truck operating hours
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours	=	4	
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density	=	4 29,978 29,100,000 2.50	tonnes dry tonnes/cu m
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage	=	4 29,978 29,100,000	tonnes dry tonnes/cu m %
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor	= = = = = =	4 29,978 29,100,000 2.50 2.50 11,640,000 31,640,000	tonnes dry tonnes/cu m % cu m %
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume	=	4 29,978 29,100,000 2.50 2.50 11,640,000	tonnes dry tonnes/cu m % cu m %
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity	= = = = = =	4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 29.0	tonnes dry tonnes/cu m % cu m cu m cu m
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor	= = = = = = =	4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 29,0 95	tonnes dry tonnes/cu m % cu m % cu m cu m
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity		4 29,978 29,100,000 2.50 11,640,000 30 15,132,000 95 27.6	tonnes dry tonnes/cu m % cu m cu m cu m
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Bucket Capacity		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 29,0 95 27,6 53,7	tonnes dry tonnes/cu m % cu m % cu m % cu m % cu m dry tonnes
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 29.0 95 27.6 53.7 292 100	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes %
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292	tonnes dry tonnes/cu m % cu m cu m cu m cu m cu m dry tonnes tonnes % tonnes
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes %
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 0292 5.0 35	tonnes dry tonnes/cu m % cu m cu m cu m cu m dry tonnes tonnes % tonnes passes seconds/pass
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45	tonnes dry tonnes/cu m % cu m % cu m cu m dry tonnes tonnes % tonnes passes
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0	tonnes dry tonnes/cu m % cu m cu m cu m cu m dry tonnes tonnes passes seconds/pass seconds/pass seconds/pass minutes minutes
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 2.4	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes % tonnes passes seconds/pass seconds minutes minutes kilometers
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 10,000 2.20 2.20 2.20 2.50 2.50 2.50 2.50 2	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes passes seconds/pass seconds/pass seconds/pass seconds/pass kilometers kilometers/hour minutes
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 45 35 10,000 2.20 2.20 2.20 2.50 2.50 2.50 2.50 2	tonnes dry tonnes/cu m % cu m % cu m cu m dry tonnes tonnes % tonnes passes seconds/pass seconds/pass seconds/pass kilometers kilometers kilometers/hour
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 50 35 35 45 3.7 1.0 2.4 4 16.0 18.0 22.7	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes passes seconds/pass seconds/pass seconds/pass seconds/pass kilometers kilometers/hour minutes
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Truck Size Truck Fill Factor Nominal Bucket Capacity Nominal Bucket Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Haul Distance, one-way Average Travel Speed Total Truck Time Total Truck Time Scheduled Days/Year Scheduled Hours/Day		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 24 16.0 18.0 0,22.7 364 24	tonnes dry tonnes/cu m % cu m cu m cu m cu m dry tonnes tonnes tonnes passes seconds/pass
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 2.44 16.0 18.0 22.7 364 45 3.7	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes passes seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass minutes minutes kilometers/hour minutes minutes minutes days
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 2.4 16.0 18.0 0 22.7 364 24 8,736 8,1092	tonnes dry tonnes/cu m % cu m % cu m cu m cu m % cu m dry tonnes tonnes passes seconds/pass
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours National Truck Operating Hours Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Bucket Capacity Nominal Bucket Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Dump Time Haul Distance, one-way Average Travel Speed Total Truck Cycle Time Scheduled Days/Year Scheduled Hours/Vear Scheduled Hours/Vear Shift Length, Hours No. of Annual Shifts Effective Time/Shift*		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 2.4 16.0 18.0 0 22.7 364 24 8,736 8,1092	tonnes dry tonnes/cu m % cu m % cu m cu m cu m dry tonnes tonnes passes seconds/pass seconds/pass seconds/pass seconds/bas
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Bucket Capacity Nominal Truck Size Truck Fill Factor Expected Truck Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Dump Time Haul Distance, one-way Average Travel Speed Total Travel Time Total Truck Vyear Scheduled Hours/Vear Scheduled Hours/Vear Scheduled Hours/Vear No. of Annual Shifts Effective Time/Shift* Altitude Derate Factor Max Tonnage/Truck Operating Shift		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 292 5.0 35 45 3.7 1.0 292 5.0 35 45 3.7 1.0 2,4 16.0 18.0 22.7 364 24 8,736 8 8 1,092 480 0.854	tonnes dry tonnes/cu m % cu m % cu m cu m cu m % cu m dry tonnes tonnes tonnes passes seconds/pass
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 292 5.0 35 45 3.7 1.0 292 5.0 35 45 3.7 1.0 2,4 16.0 18.0 22.7 364 24 8,736 8 8 1,092 480 0.854	tonnes dry tonnes/cu m % cu m % cu m cu m % cu m dry tonnes tonnes % tonnes passes seconds/pass seconds/pass seconds/pass seconds/bass
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Bucket Capacity Nominal Bucket Capacity Nominal Bucket Capacity Nominal Truck Size Truck Fill Factor Expected Truck Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Haul Distance, one-way Average Travel Speed Total Travel Time Total Truck Cycle Time Scheduled Hours/Day Scheduled Hours/Vear Scheduled Hours/Vear Shift Length, Hours No. of Annual Shifts Effective Time/Shift* Altitude Derate Factor Max Tonnage/Truck Operating Shift Max Tonnage/Truck Operating Year		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 2,4 16.0 2,27 364 2,4 16.0 2,87 4,5 3,7 1.0 2,4 16.0 2,87 4,5 3,7 1,0 2,4 4,5 6,752,414	tonnes dry tonnes/cu m % cu m % cu m cu m cu m % cu m cu m dry tonnes tonnes passes tonnes passes seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass seconds/pass shitutes minutes kilometers/hour minutes hours/day hours/day hours/year tonnes/shift tonnes/year
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours natsu 930) Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Bucket Capacity Nominal Truck Size Truck Fill Factor Expected Truck Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Dump Time Haul Distance, one-way Average Travel Speed Total Travel Time Total Truck Vyear Scheduled Hours/Vear Scheduled Hours/Vear Scheduled Hours/Vear No. of Annual Shifts Effective Time/Shift* Altitude Derate Factor Max Tonnage/Truck Operating Shift		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 292 5.0 35 45 3.7 1.0 292 5.0 35 45 3.7 1.0 2,4 16.0 18.0 22.7 364 24 8,736 8 8 1,092 480 0.854	tonnes dry tonnes/cu m % cu m % cu m cu m dry tonnes tonnes passes seconds/pass seconds/pass seconds/pass seconds/minutes minutes kilometers kilometers kilometers kilometers kilometers kilometers kilometers kilometers kilometers kilometers kilometers tonnes/shift tonnes/year
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours Maximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Truck Size Truck Fill Factor Nominal Bucket Capacity Nominal Truck Size Truck Fill Factor Expected Truck Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Dump Time Haul Distance, one-way Average Travel Speed Total Travel Time Total Truck Cycle Time Scheduled Hours/Day Scheduled Hours/Vear Scheduled Hours/Vear Shift Length, Hours No. of Annual Shifts Effective Time/Shift* Altitude Derate Factor Max Tonnage/Truck Operating Shift Max Tonnage/Truck Operating Shift MaxTonnage/Truck Operating Shift MaxInum Use of Availability Maximum Use of Availability		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 95 27.6 53.7 292 100 292 5.0 35 45 3.7 1.0 2.4 16.0 18.0 22.7 364 24 8,736 8 1,092 480 0.85 6,184 6,752,414 90% 84% 403	tonnes dry tonnes/cu m % cu m % cu m cu m % cu m cu m dry tonnes tonnes passes seconds/pass seco
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours National State S		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 29,0 95 27.6 53.7 292 100 292 5.0 35 45 3.7 100 244 16,0 12,7 364 48,736 8 1,092 480 0,85 6,184 6,752,414 90% 84% 403 4,821,224	tonnes dry tonnes/cu m % cu m % cu m cu m % cu m dry tonnes tonnes % tonnes passes seconds/pass seconds/pass seconds/pass seconds/minutes kilometers kilom
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 29.0 95 27.6 53.7 292 5.0 35 45 3.7 1.0 2.4 16.0 18.0 22.7 364 24 8,736 8 1,092 480 0.85 6,184 6,752,414 90% 84% 403 4,821,224 56.7 6,75	tonnes dry tonnes/cu m % cu m % cu m cu m % cu m cu m dry tonnes tonnes passes seconds/pass seco
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours Naximum Annual Tonnage In Situ Density Moisture Content In Situ Volume Swell Factor Broken Volume Bucket Capacity Bucket Fill Factor Nominal Bucket Capacity Number of Passes/Truck Loader Cycle Time Spot Time/Load Total Loading Time Dump Time Haul Distance, one-way Average Travel Speed Total Truck Cycle Time Scheduled Hours/Year Scheduled Hours/Year Scheduled Hours/Year Scheduled Hours/Year Scheduled Hours/Year Scheduled Hours/Year Scheduled Hours/Year Scheduled Hours/Year Shift Length, Hours No. of Annual Shifts Effective Time/Shift* Attitude Derate Factor Max Tonnage/Truck Operating Shift Max Tonnage/Truck Operating Shift Max Tonnage/Truck Operating Year		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 292 5.0 35 45 3.7 292 100 292 5.0 35 45 3.7 1.0 2.4 16.0 18.0 22.7 364 24 8,736 8 1,092 480 0.85 6,184 46,752,414 90% 84% 403 4,821,224 552 6,7 7,7 7,7 7,7 7,7 7,7 7,7 7,7	tonnes dry tonnes/cu m % cu m % cu m cu m dry tonnes tonnes passes seconds/pass sec
Number of Trucks Required Number of Trucks on Site Total Truck Operating Hours		4 29,978 29,100,000 2.50 2.50 11,640,000 30 15,132,000 292 5.0 35 45 3.7 292 100 292 5.0 35 45 3.7 1.0 2.4 16.0 18.0 22.7 364 24 8,736 8 1,092 480 0.85 6,184 46,752,414 90% 84% 403 4,821,224 552 6,7 7,7 7,7 7,7 7,7 7,7 7,7 7,7	tonnes dry tonnes/cu m % cu m % cu m cu m % cu m dry tonnes tonnes % tonnes passes seconds/pass seconds/pass seconds/pass seconds/minutes kilometers kilom

RUCK (Komatsu 930)

Maximum Annual Tonnage	=	127,415,500	tonnes
In Situ Density	=	2.50	dry tonnes/cu m
Moisture Content	=	2.50	%
In Situ Volume	=	50,966,200	cu m
Swell Factor	=	30	%
Broken Volume	=	66,256,060	cu m
		,,	
Bucket Capacity	=	29.0	cu m
Bucket Fill Factor	=	95	%
Nominal Bucket Capacity	=	27.6	cu m
. ,	=	53.7	dry tonnes
			,
Nominal Truck Size	=	292	tonnes
Truck Fill Factor	=	100	%
Expected Truck Capacity	=	292	tonnes
Number of Passes/Truck	=	5.0	passes
Loader Cycle Time	=	35	seconds/pass
Spot Time/Load	=	45	seconds
Total Loading Time	=	3.7	minutes
Dump Time	=	1.0	minutes
Haul Distance, one-way	=	2.3	kilometers
Average Travel Speed	=	18.4	kilometers/hour
Total Travel Time	=	15.0	minutes
Total Truck Cycle Time	=	19.7	minutes
2			
Scheduled Days/Year	=	364	days
Scheduled Hours/Day	=	24	hours/day
Scheduled Hours/Year	=	8,736	hours/year
Shift Length, Hours	=	8	hours
No. of Annual Shifts	=	1,092	shifts/year
Effective Time/Shift*	=	480	minutes
Altitude Derate Factor	=	0.85	
Max Tonnage/Truck Operating Shift	=	7,127	tonnes/shift
Max Tonnage/Truck Operating Year	=	7,782,443	tonnes/year
5 I 5			
Mechanical Availability	=	90%	
Maximum Use of Available Time*	=	84%	
Effective Hauling Time/Shift	=		minutes
Expected Tonnage/Year/Truck	=	5,556,665	tonnes/year
Tonnage/Scheduled Hour	=	636	tonnes/scheduled hour
Number of Trucks Required	=	25.5	
Number of Trucks on Site	=	26	
Total Truck Operating Hours	=	200,318	truck operating hours

Bucket Capacity		=		cu m
Bucket Fill Factor		=	95	
Nominal Bucket C	apacity	=		cu m
		=	53.7	dry tonnes
Nominal Truck Siz	e	=	292	tonnes
Truck Fill Factor		=	100	%
Expected Truck C	apacity	=	292.00	tonnes
Number of Passes	s/Truck	=	5.0	passes
Loader Cycle Tim	e	=	35	seconds/pass
Spot Time/Load		=		seconds
Total Loading Tim	e	=	3.67	minutes
Scheduled Days/\	(ear	=	364	davs
Scheduled Hours/		=		hours/day
Scheduled Hours/		=		hours/year
Shift Length, Hour	'S	=	8	hours
No. of Annual Shi	fts	=	1,092	shifts/year
Total Time/Shift		=	480	minutes
Max Tonnage/Sho	ovel Operating Shift	=	38,225	tonnes/shift
Max Tonnage/Sho	ovel Operating Year	=	41,742,196	tonnes/year
Altitude Derate Fa	ictor	=	0.85	
Mechanical Availa	bility	=	90%	
Maximum Use of	Available Time*	=	84%	
Effective Loading	Time/Shift	=	403	minutes
Expected Tonnag	ge/Year/Shovel	=	29,803,928	
Tonnage/Schedul		=	3,412	tonnes/scheduled hour
Number of Shove		=	4.75	shovels
Number of Shove		=		shovels
Total Shovel Op	Hours Needed	=	37,347	shovel operating hours
*	Allows for 15 minutes at each er	nd of the shift plus		
	one 15-minute break, plus a 30)-minute lunch period,		
	Total Loaders Required:		4.8	
	Purchase:		5	Hitachi 5500
	Total Trucks Required:		25.5	
	Purchase:		26	Komatsu 930

Blasting in this report is assumed to be performed by the owner, although many operations employ specific blasting contractors to conduct this activity. The powder factors of mill material and waste are somewhat different, and this consideration has been incorporated for projecting annual quantities and costs of explosives.

Loading and hauling are dependent activities which are best analyzed in concert with each other. Hauling typically accounts for 40 percent or more of mine operating costs, and significant attention is given to maximizing the utilization and life of the units. The trucks and shovels for Haquira are scheduled to operate around the clock, and thereby need four crews to cover all shifts. Different production rates have been incorporated because of varying hauls between the processable material and waste rock, and allowances have been provided to account for employee breaks during each shift, mechanical availability, and utilization of the equipment. TABLE 19-3 presents the summary data on truck and shovel requirements. A 60,000-hour truck life is believed attainable at Haquira. The shovels, along with the drills are expected to attain a 45,000-hour operating life.

Mine Equipment and Facilities Capital

Mine equipment requirements and capital over the project life is presented in TABLE 19-4. TABLE 19-5 shows the timing of equipment purchases. Specific manufacturers are identified, which may or may not be the ultimate equipment suppliers on the project. Costing data were obtained from Info Mine USA, Inc., and EquipmentWatch for 2009. Total equipment capital over the project life is projected at \$607.8 million.

Mine facilities include those structures specifically related to the mining function, such as the mine dry, explosives storage, shop/warehouse, and so forth. These items are estimated to cost \$52.0 million.

Mine Operating Costs

Unit operating costs for the mining equipment are given in TABLE 19-6; it will be noted that in addition to expected day-to-day field expenses, and allowance for overhaul parts has been included in the total hourly operating cost estimate. This information is then incorporated with expected annual equipment hours to arrive at an annual material and supply cost for the mining portion of the project. Labor charges for hourly and salaried personnel have been developed in TABLE 19-7, based on the scheduled operating hours for the various equipment classes, maintenance requirements, and the managerial personnel needed to oversee the operation.

General and Administrative Costs

Many of the typical G&A costs have been included in other areas expenses, the remaining G&A costs are estimated at \$0.03 per tonne ore processed.

	TABLE 19-4: 0	pen Pit Mine	Capital (Life of Mine)								
ļ		-	QUIRA COPPER PRO								
September 2010											
Item	Make	Number	Unit Cost (US\$)	Total Costs (US\$)							
	Primary Equipment										
Drills	Atlas Copco PV-351	19	3,620,000	68,780,000							
Shovels	Hitachi EX5500	18	9,250,000	166,500,000							
	Hitachi EX2500	3	4,500,000	13,500,000							
Trucks	Hitachi 3500	12	2,835,000	34,020,000							
	Komatsu 930	77	3,628,000	279,356,000							
Secondary Equipment											
Dozers	Cat D10T	15	1,040,000	15,600,000							
Graders	Cat 16M	9	630,000	5,670,000							
Loaders	Cat 992	6	1,807,000	10,842,000							
Water Trucks	Cat 777 w/40,000 gal	4	1,128,000	4,512,000							
		Other Equip	ment								
Skid Steer	Cat 246C	6	32,500	195,000							
Tool Carrier	Cat IT38H	3	159,700	479,000							
BH Loader	CAT 403E	6	249,000	1,494,000							
Light Plant	Onan - 30 ft. Tower	72	21,900	1,577,000							
Lube/Fuel Truck		6	55,400	332,000							
Service Truck		6	67,000	402,000							
Powder Truck		3	75,000	225,000							
Tire Truck		3	158,000	474,000							
Pickup		72	25,000	1,800,000							
TOTAL				607,848,000							

Note: Specific manufacturers are identified, which may or may not be the ultimate equipment suppliers on the project. Costing data were obtained from Info Mine USA, Inc., and EquipmentWatch for 2009.

						A			ERALS		HAQU	al Purcl IRA CO 0										
ltem	Yr -2	Yr -1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20
					1			1		Primary	Equipme											1
Drills	2	2	1	1			2	1	1	1		1	1	1	1				2	1	1	
Shovels – 16 cu.m	1									1								1				
Shovels – 29 cu.m	2	2		1			2	1	1		1		2	1		1		2	1	1		
Trucks – 170 tonnes			4							1	2	1						2	1	1		
Trucks – 290 tonnes	9	9	4	4				2	9	7	4	2	1	1		4	9	6	4	1	1	
									S	econdary	/ Equipn	nent										
Dozers	5							5							5							
Graders	3							3							3							
Loaders	2							2							2							
Water Trucks	2												2									
					1		1	1	1	Other E	quipmer	nt				r						.
Skid Steer	2							2							2							
Tool Carrier	1							1							1							
BH Loader	2							2							2							
Light Plant	12				12				12				12				12				12	
Lube/Fuel Truck	2							2							2							
Service Truck	2							2							2							
Powder Truck	1							1							1							
Tire Truck	1							1							1							
Pickup	12				12				12				12				12				12	

		TABLE	19-6:	Open Pit	Unit Ope	erating	Costs			
	ANT	ARES MIN		•	•	U		DJECT		
	1	i		Septemb	er 2010	i	1	1		
									Major	
				F	ield Repair	ł	i		Overhaul	TOTAL
	Manufacturer	Model	Parts	Elec/Fuel	Lube	Tires	GEC	<u>Subtotal</u>	Parts	<u>US\$</u>
Drills	_			÷			÷			
	Atlas Copco	PV-351	\$32.84	\$153.00	\$41.37	-	\$10.38	\$247.44	\$52.18	\$299.62
	Atlas Copco	PV-270	\$11.43	\$63.00	\$19.96	-	\$9.66	\$107.48	\$18.16	\$125.64
Excavators										
	Hitachi	EX5500-6	\$91.84	\$253.50	\$44.19	-	\$12.00	\$429.08	\$79.60	\$508.68
	Hitachi	EX2500-6	\$53.18	\$172.50	\$31.30	-	\$9.95	\$282.88	\$46.09	\$328.97
Loaders										
	Caterpillar	992G	\$13.02	\$72.30	\$13.62	\$39.85	\$1.08	\$143.78	\$9.11	\$152.89
Dozers					•	•		•		
	Caterpillar	D10T	\$10.10	\$66.90	\$9.69	-	\$17.82	\$107.54	\$8.76	\$116.30
Graders						•				-
	Caterpillar	16M	\$8.26	\$27.00	\$4.69	\$1.65	\$1.19	\$45.27	\$5.79	\$51.05
Water Trucks										
	Catamillan	777 w	фс. с г	¢co 20	¢40.77	¢04.00		¢404.05	¢4.05	¢400 70
	Caterpillar	40,000 gal	\$6.65	\$60.30	\$10.77	\$24.33	-	\$104.05	\$4.65	\$108.70
Light Plants	On an attack	00.00	\$0.00	¢4.50	CO 10	#0.04	İ	¢0.07	#0.00	* 0.00
<u> </u>	Onan, other	30-ft tower	\$0.29	\$1.50	\$0.18	\$0.01	-	\$2.07	\$0.20	\$2.26
Service Trucks	Í	İ	00 70	A7 5 0	* 0.05		İ		A O E (<u>.</u>
	Lube/Fuel		\$0.73	\$7.50	\$0.65	\$1.00	-	\$10.10	\$0.51	\$10.61
	Service		\$0.88	\$7.50	\$0.72	\$1.00	-	\$10.36	\$0.61	\$10.97
	Tire		\$1.07	\$7.50	\$1.24	\$1.00	-	\$11.13	\$1.48	\$12.61
	Caterpillar	IT38H	\$2.15	\$9.00	\$1.83	\$3.43	\$0.31	\$17.37	\$1.51	\$18.87
	Caterpillar	430E	\$3.01	\$12.00	\$1.92	\$0.52	\$1.77	\$20.12	\$2.61	\$22.74
	Caterpillar	246C	\$0.60	\$8.10	\$0.49	\$0.42	\$0.11	\$9.90	\$0.42	\$10.32
	Pickups		\$0.31	\$3.60	\$0.67	\$0.07	-	\$4.74	\$0.22	\$4.96

Note: Specific manufacturers are identified, which may or may not be the ultimate equipment suppliers on the project. Costing data were obtained from Info Mine USA, Inc., and EquipmentWatch for 2009.

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TABLE 19-7: Open Pit Labor Costs								
ANTARES MIN	ERALS INC. – H/ Septembe		ER PROJEC	T				
	-	Cos	t (US\$) per Y	ear				
Personnel	Number (Average)	Labor Rate (US\$)	Benefits (40%)	Total Rate (US\$)				
Drillers	22	18,200	7,280	25,480				
Drillers Helpers	11	15,400	6,160	21,560				
Blasters	11	18,300	7,320	25620				
Blasters Helpers	11	15,400	6,160	21,560				
Shovel Operators	22	18,700	7,480	26,180				
Truck Drivers	108	16,800	6,720	23,520				
Dozer Operators	20	18,700	7,480	26,180				
Loader Operators	8	18,300	7,320	25,620				
Grader Operators	12	18,300	7,320	25,620				
Water Truck Operator	4	16,800	6,720	23,520				
Misc. Hourly @ 15%	35	14,000	5,600	19,600				
Maintenance @ 35%	81	18,000	7,200	25,200				
Gen. Superintendent	1	150,750	60,300	211,050				
Mine Manager	1	125,000	50,000	175,000				
Maintenance Manager	1	125,000	50,000	175,000				
Mine Shift Boss	4	100,000	40,000	140,000				
Maintenance Shift Boss	4	100,000	40,000	140,000				
Mine Foreman	7	60,000	24,000	84,000				
Maintenance Foreman	7	60,000	24,000	84,000				
Chief Engineer	1	125,000	50,000	175,000				
Sr. Mine Engineer	2	100,000	40,000	140,000				
Mine Engineer	5	60,000	24,000	84,000				
Chief Geologist	1	100,000	40,000	140,000				
Geologist	5	60,000	24,000	84,000				
Surveyor	4	40,000	16,000	56,000				
Surveyor Assistant	4	20,000	8,000	28,000				
Technician	11	20,000	8,000	28,000				
Administrative Manager	1	60,000	24,000	84,000				
Administrative Assistant	11	20,000	8,000	28,000				
Security	8	15,000	6,000	21,000				
TOTAL	423	1,547,650	619,060	2,166,710				

19.2 Base Case Underground Mining

Mine Plan

The mine plan is to develop and operate a 10,000 ton per day underground mine that will extract 3,650,000 tons per year over a planned operating schedule of 365 days per year. The geologic analysis to date that includes drilling, sampling, and modeling has resulted in identifying a first target ore reserve having underground potential. The zone is called the East Underground and is immediately below the Haquira East Pit. To accomplish concurrent surface and underground mining, the underground requires a method that sustains structural integrity of the overall back and stress regime and does not create subsidence. This requirement is accomplished by using two mining methods; mechanized cut withpaste backfill and bulk longhole stoping with paste backfill.

Underground Ore

The underground ore resource exists beneath the planned Haquira East pit in a vertical mineralization flume approximately 70 m below the planned ultimate pit floor, and of undefined depth continuing downward. The underground mineralization vertically-oriented flume when subjected to a 0.65% Cu cutoff grade yield approximately 41.8 million tonnes of resource that are planned for underground extraction. These zones include: a lenticular shape located in SW quadrant in plan, a vertically oriented block/wedge in the SE quadrant in plan, and ore in-fill in the rest of the flume mineralized zone.

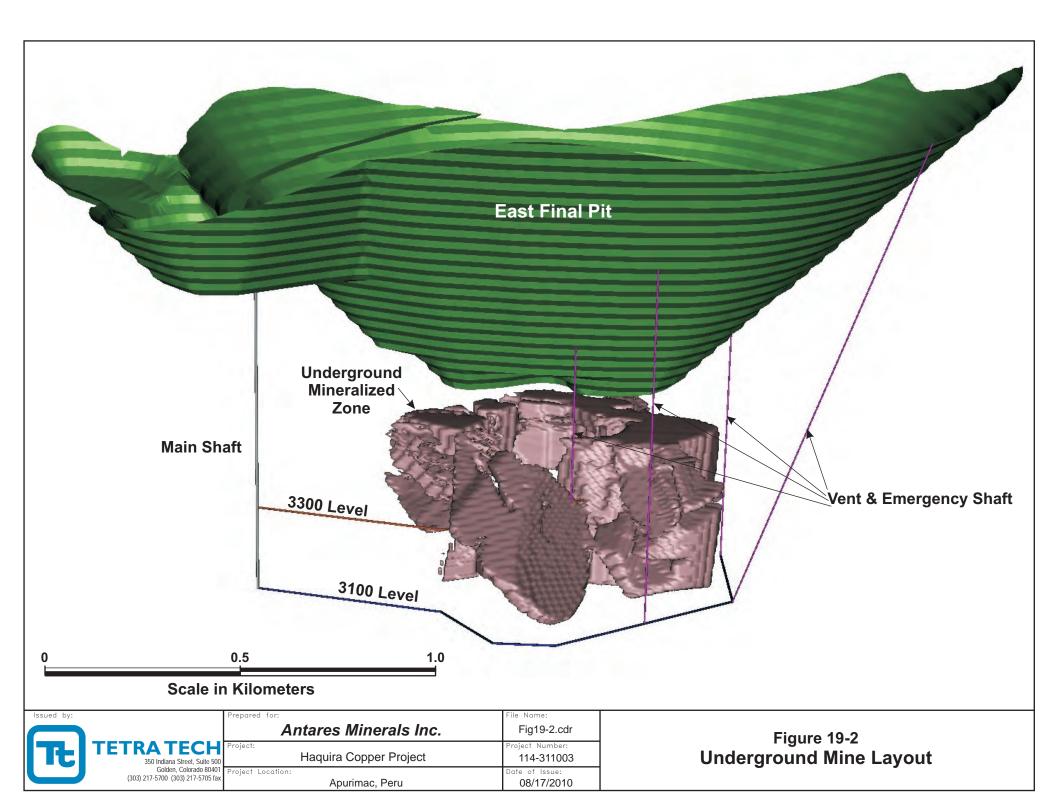
The underground mine plan balances production from the lenticular SW and the SE hi-grade ore in the initial underground project years. As these blocks are depleted, mining will extract the ore in the south and north quadrants (plan view) above the 3100 level. The underground mine will be extended in life by extraction below the 3100 level as new resource is verified by drilling.

Underground Access

Access tothe underground mine plan will be by a main shaft and a ventilation shaft that provide haulage, ventilation, and two ways out for escapement. The mine will be a trackless mine in all respects. The main shaft (approximately 750 m deep) is located on a surface mine bench in the west center of the planned pit that will be mined in the initial years of the surface production, and planned not to be disturbed for the remainder of the mine. The shaft will hoist ore in skips dumping in a surge pile on the surface. The underground ore will be hauled by truck to the combined surface and underground primary crusher and ore handling system.

The main ventilation shaft is inclined at 76° to allow the collar to be placed in an area that is outside the ultimate pit limits and in an area that is not planned for an overburden dump. Concurrent underground and surface mining is made possible by the location of the underground mine access and the use of paste backfill.

FIGURE 19.2 below shows the underground mine layout and access for the Haquira East underground.



Development of the Stope and Face Mining Plan

The underground mining strategy uses two mining methods; mechanized cut and paste backfill for the lenseatic SW zone, and bulk sub-level long hole stoping with cemented paste backfill for the SE high grade zone, followed for the remaining years by bulk long hole stoping mining method with cemented paste backfill in all other areas. This two-phase mining method allows for quick production using the mechanized cut and fill for the lense that is closest to the main shaft while the bulk mining method is being established in the SE high grade zone and additional areas.

These methods were chosen after considering a number of other approaches. The large tonnage, moderate grade and relatively continuous nature of the deposit suggest that a bulk extraction technique is favored over a more precise, and costly, mining method except for the lenseatic SW shape. Due to the width and vertical extent of this mineralization, multi-bench mechanized cut and fill was considered. This method is applicable for lenseatic shapes where vertical extent of the ore body precludes conventional room and pillar with pastefill.

The use of caving techniques were not pursued because the mining induced failure propagating to the surface mine above. The elimination of caving techniques leaves drift and fill and bulk long hole mining and mechanized cut and fill most cost effective extraction options for an orebody of these characteristics.

Grade and dilution control is considered for the underground mining method selection. The mineralization at Haquira is a porphyry-copper system generated by an Oligocene intrusive. This combination produced the flume shape and created the classic stacked mineralization of a copper oxide top with lateral blankets of sub-parallel enriched chalcocite, and basement sulfide-bearing stockworks.

Pastefill

The use of structural fill is critical to mining underground simultaneously to surface extraction. The use of pastefill will not only support the ground, but also allows for increased recovery, and pastefill stopes and rooms become the artificial pillars to allow for the remaining ore pillars to be extracted. All ore tonnes extracted are planned to be replaced by structural paste backfill. The increased recovery, along with the requirement of no subsidence justifies the capital and operating cost for the paste backfill. Preliminary analysis indicates that, at most, 70 percent of the orebody could be extracted without the use of cemented backfill. The use of cemented pastefill was chosen as the optimal filling method. Pastefill systems have now been in use worldwide for over 20 years and offer significant benefits over the use of hydraulic fill.

Stope Size

In the Haquira East underground zone sublevel intervals have been set at 33 m. The lenseatic SW zone will be mined without sublevels. Stope widths are fixed at 15 m for all zones. Stope lengths of 20 m have been used for the East Zone. An isometric representation of the typical East Zone stope size can be seen in Figure 19-3 below.

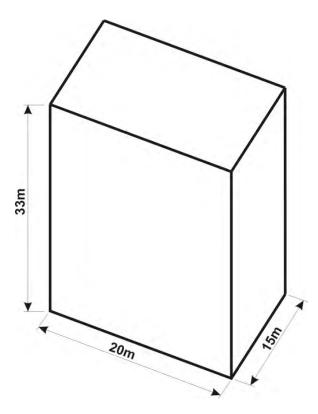


FIGURE 19-3: Typical Haquira East Zone Stope Size

Mining Sequence – Long Hole Stoping

Mining is planned using an overhand technique where stopes are mined first from the centre of each sublevel, and then working towards the outside of the deposit in a staggered echelon approach. This approach will aid in distribution of reasonable ground stress conditions about the mining area. A conceptual long section view of the mining approach for a generic block can be seen in Figure 19-3 below.

Mining Sequence – Mechanized Cut and Fill Lenseatic SW Zone

The mining method for the lenseatic SW zone will develop ore access as shown in Figure 19-4. This method can be used in areas of the ore body which have a varying height such as the lense. The variability of height is accommodated by upward in-stope or room long hole drilling. The long hole method has the potential for higher productivity and lower operating costs due to reduced drilling and powder factors, lower development costs and less support requirements.

Ore Handling

Production ore is planned to be mucked remotely from each of the mechanized cut and fill or long hole stopes into multiple ore passes in each zone. Grizzlies including fixed electric rockbreakers will be installed to eliminate oversize material plugging passes. The Haquira East ore passes will empty onto the 3100 main haulage level where the ore will be trammed to an underground jaw crusher located near the main shaft.

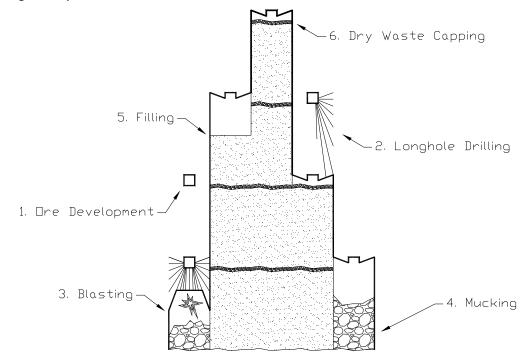


FIGURE 19-4: Simplified Long Section View of the Proposed Staggered Echelon Mining Sequence

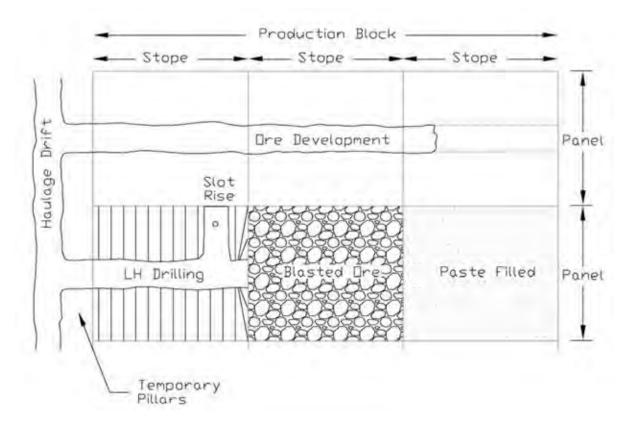


FIGURE 19-5: Mechanized Cut and Fill (plan view).

Mine Development

Current estimates indicate that three years is required to bring the underground mine to full production (10,000 tpd) from the time work begins on the main shaft at the east pit surface bench. Pre-production mine development has been assumed to be carried out by a mine contractor at unit rates for all lateral and raise development. Once in the ore zones, company development crews will be brought on line and the contractor gradually de-mobilized. A production schedule has been identified to ramp up to the mature mine size of 10,000 tpd as quickly as possible under constraints imposed by what work can be carried out efficiently in a relatively small area. It has been assumed that in year 5, 3,650,000 tons will be produced from the lenseatic SW zone while mine development is finished to the high grade SE zone. Cost and time allowances have been made for an increase in capital waste development by 20 percent to account for secondary mine openings such as shops, re-mucks and storage areas. The basic primary and secondary support has been assumed to be split set bolts and cable bolts in intersections or wide area. The capital expenditure listing also includes shotcrete equipment.

Main Haulage and Ventilation Shafts

The main haulage shaft is sized at a diameter of 7m to accommodate a 23 ton skip and adjacent man cage hoists. All ventilation raises are assumed to be excavated by raise bores at

a diameter of 4 m. This will allow efficient fan operation and provide for affordable expansion of the mine ventilation system if future mining takes place at deeper elevations.

Underground Mine Capital Costs

Underground mine capital costs were developed utilizing the Infomine Western Mine Engineering Cost Service, internal Tetra Tech files of similar projects, and vendor budgetary quotations. The total incremental capital to build and equip the underground mine is \$148,387,000 through production year 16. Mine equipment requirements and capital over the life of the underground operation is presented in TABLE 19-8.

		•	ne Capital (Life of Min UIRA COPPER PRO	•
A	NIARES WIINERA	September 2		
Item	Make	Number	Unit Cost (US\$)	Total Costs (US\$)
		Primary Equip	ment	
Scooptrams	185 hp, 6-yd	12	801,550	9,618,600
	277 hp, 8.5-yd	4	844,100	3,376,400
Trucks	30 t Truck	4	558,785	2,235,140
Drills	2 Boom jumbo	6	131,600	6,789,600
	4" Longhole	6	523,940	3,143,640
	Und	erground Service	Equipment	
ANFO Loader		6	408,250	2,449,500
Roof Bolter		6	680,800	4,084,800
Scissorlift		6	293,250	1,759,500
Shotcreter		2	485,875	971,750
Transmixer		2	296,700	593,400
Mantrips		8	230,000	1,840,000
		Other Equipn	nent	
Raise Climber		2	556,600	1,113,200
Boss buggies		30	28,750	862,500
Diamond Drill + Steel		1	517,500	517,500
Powder Bin		2	150,000	300,000
Raise Drill	2.5m	2	4,854,955	9,709,910
Scaler		2	471,500	943,000
Crane Truck		2	310,500	621,000
Mechanics Truck		6	310,500	1,863,000
Fuel & Lube Truck		2	310,500	621,000
U/G Road Grade		2	281,750	563,500
TOTAL				53,976,940

	E 19-9: Undergi ERALS INC. – H/ Septembe	AQUIRA COPPE		т		
			t (US\$) per Y	ear		
Personnel	Number	Labor Rate	Benefits	Total Rate		
	(Average)	(US\$)	(40%)	(US\$)		
Long Hole Drillers	7	18,200	7,280	25,480		
Powdermen	8	18,300	7,320	25,620		
LHD operators	11	18,300	7,320	25,620		
Utility/Ground Control	7	16,800	6,720	23,520		
Pastefill Operators	14	16,800	6,720	23,520		
30 t Truck Operators	15	16,800	6,720	23,520		
Drillers	15	18,300	7,320	25,620		
Powermen	14	18,300	7,320	25,620		
LHD Operators	14	16,800	6,720	23,520		
Roof Bolter Operators	15	18,300	7,320	25,620		
Utility	14	16,800	6,720	23,520		
Pumpman	9	16,800	6,720	23,520		
Ventilation	5	16,800	6,720	23,520		
Diamond Drillers	4	18,300	7,320	25,620		
Pipe/Pwr/Cable Hanger	9	15,400	6,160	21,560		
Roving Mechanics	16	18,300	7,320	25,620		
Roving Electricians	7	18,300	7,320	25,620		
U/G Shop	5	16,800	6,720	23,520		
Shaft Crews	29	16,800	6,720	23,520		
Hoistman	19	18,300	7,320	25,620		
General Mine/Maintenance	4	100.000	40.000	140.000		
Foremn	4	100,000	40,000	140,000		
Shift Foreman	10	60,000	4,000	84,000		
Shaft Foreman	<u> </u>	60,000	4,000	84,000		
Maintenance Planner	Ζ	40,000	16,000	56,000		
Underground Safety	0	40.000	16 000	EC 000		
Manager	2	40,000	16,000	56,000		
Safety Representatives	6	40,000	16,000	56,000		
Trainer Maintananaa Faraman	2	40,000	16,000	56,000		
Maintenance Foreman	10	60,000	24,000	84,000		
Shop Foreman	4	60,000	24,000	84,000		
Engineering / Geology	<u>4</u> 6	80,000	32,000	112,000		
Surveying		40,000	16,000	56,000		
Payroll Mine Clerk	2	20,000	8,000	28,000		
TOTAL	295	989,500	355,800	1,385,300		

Underground Mine Employees

Estimated employee needs can be found in TABLE 19-9 below. Mine hourly labor will be divided up into 4 crews working a 24 hour / 7 days a week schedule. Supervision and other salaried staff are assumed to work a regular work week.

Mine Operating Costs

Underground mine equipment operating costs were developed utilizing the Infomine Western Mine Engineering Cost Service, internal Tetra Tech files of similar projects, and vendor budgetary quotations. This preliminary economic analysis estimates underground mining costs at \$20.60 per ton ore mined (Table 19-10).

TABLE 19-10: Open Pit Unit Operating Costs ANTARES MINERALS INC. – HAQUIRA COPPER PROJECT September 2010									
				Field F				Major Overhaul	TOTAL
<u>Manufacturer</u>	Model	Parts	<u>Elec./</u> <u>Fuel</u>	Lube	Tires	GEC	<u>Subtotal</u>	Parts	<u>US\$</u>
Drills		ſ		r	Γ	Γ	1		1
Sandvik	2-boom	6.25	9.69	4.92	0.08	8.25	29.19	7.64	36.83
Sandvik	long hole	3.94	1.39	3.10	-	8.25	16.68	4.82	21.50
Sanvik	roof bolter	5.37	13.43	3.69	0.08	6.95	29.52	6.56	36.08
Scaling, Blasting									
Sandvik	anfo loader	4.35	14.67	2.23	0.16	0.20	21.61	2.34	23.95
Sandvik	scaler	5.19	27.57	2.90	0.16	0.40	36.22	2.79	39.01
Haul LHD, 30 T Truck									
Sandvik	6 yd	15.43	32.17	4.50	5.66	3.05	60.81	8.31	69.12
Sandvik	8.5 yd	16.25	48.16	5.08	7.16	3.14	79.79	8.75	88.54
Sandvik	30 t	6.37	46.49	3.89	5.12	0.20	62.07	3.43	65.50
Raise Drills		i		i	i	i	i i		i
Robbins	4 ft	22.81	8.10	4.8	0	14.04	49.75	24.79	74.54
Robbins	7 ft	35.99	13.89	8.29	0	19.08	77.25	41.23	118.48
Utility Machines							1		
Fuel & Lube		3.17	14.67	1.72	0.16	-	19.72	1.71	21.43
Sissor Lift		3.03	14.67	1.66	0.16	-	19.52	1.63	21.15
Mechanics		3.17	14.67	1.72	0.16	-	19.72	1.71	21.43
Mantrip		2.71	14.67	1.52	0.16	-	19.06	1.46	20.52
Crane Truck		2.74	14.67	1.53	0.16	-	19.10	1.47	20.57
Boss Buggy		0.60	4.67	0.49	0.06	-	5.82	0.32	6.14

							Г		
Getman Grader		8.26	14.58	4.69	1.65	1.19	30.37	4.45	34.82
Misc. Equipment									•
Shotcreter		3.59	37.60	3.13	0.47	-	44.79	4.39	49.18
Transmixer		3.92	25.98	2.05	1.22	-	33.17	2.11	35.28
Communications	100 units	1.00	0.00	-	-	0.10	1.10	-	1.10
Air compressor		3.72	15.50	1.14	-	-	20.36	4.56	24.92
Explosive Storage Bin		0.97	0.00	0.28	-	-	1.25	0.51	1.76
Dewatering System	3500 hp	20.00	259.00	-	-	2.00	281.00	3.00	284.00
High Votlage System		0.20	0.00	-	-	-	0.20	0.20	0.40
Aux.Vent Fan	6 units	-	44.40	-	-	-	44.40	0.10	44.50
Main Vent Fans, 1,500 hp		0.50	111.00	-	-	-	111.50	1.50	113.00
Shafts		5.95	0.00	-	-	-	5.95	-	5.95
Hoists, 2, 3500 hp		10.00	259.00	-	-	-	269.00	10.00	279.00
Underground Shop		20.00	2.59	-	-	-	22.59	-	22.59
Pastefill Plant	350 tph	105.00	59.20	-	-	2.00	166.20	-	166.20
Pastfill Delivery	350 tph	35.00	35.00	-	-	2.00	72.00	-	72.00

Note: Specific manufacturers are identified, which may or may not be the ultimate equipment suppliers on the project. Costing data were obtained from Info Mine USA, Inc., and EquipmentWatch for 2009.

19.3 Environmental Considerations — Reclamation and Closure

Post-mining reclamation and, to the extent possible, concurrent reclamation will be conducted in accordance with applicable regulations and industry standard practices. A reclamation and closure plan will be developed within a year of the ESIA approval and must be approved by Ministry of Energy and Mines (MEM) before operations can commence. The primary objectives of the plan will be to protect surface water and groundwater resources and ensure the physical and chemical stability of facilities remaining after closure. The primary reclamation elements will include:

- Regrading and contouring tailings, heap leach and waste rock facilities
- Facilities demolition
- Regrading facilities and roads
- Application of top soil or other suitable growth medium
- Revegetation

Post-mining reclamation and, to the extent possible, concurrent reclamation will be conducted in accordance with applicable Peruvian regulations. A US\$0.10 per tonne processed allowance has been allocated for environmental management and concurrent reclamation during the life of mine operations.

19.4 Cash Flow Analysis

The cash flow analysis developed for mining and processing the measured, indicated and inferred resources currently defined at Haquira includes the following input parameters:

- Base Case Metal prices:
 - Copper price of US\$2.25 per pound,
 - o gold price of US\$907 per ounce,
 - silver price of US\$14.85 per ounce and;
 - molybdenum price of US\$13.00 per pound.
- SX-EW copper recovery of 78 percent.
- Flotation process copper recoveryoft 89 percent, gold recovery of 72 percent, silver recovery of 72 percent, and molybdenum recovery of 57%.
- Open Pit Mine operating cost of \$3.79 per tonne of ore processed
- Underground Mine operating cost of \$20.60 per tonne of ore processed
- Process operating cost of \$3.19 per tonne of ore processed for the SX-EW plant and US\$4.11 per tonne of ore processed for the flotation plant.
- G & A at US\$0.03 per tonne of ore processed
- Concentrate transport and smelting costs were based on the following:
 - Cathode Truck Freight \$/tonne Cu shipped \$20.00
 - Concentrate Truck Freight (Mo Con) \$/tonne shipped \$200.00
 - Concentrate Slurry and Rail Transport Cost \$/tonne shipped \$37.54

- Concentrate Ocean Freight / Port Handling \$/tonne shipped \$58.
- o Concentrate Deduction(Cu) 1.0% of concentrate tonnes
- Concentrate Deduction (Au) 0.04 Oz from concentrate assay
- Concentrate Deduction (Ag) 1.00 Oz from concentrate assay
- Treatment Charge \$55.00/tonne of concentrate
- o Refining Charge Cu \$0.06/lb contained
- Refining Charge Mo \$1.00/lb contained
- Refining Charge Au \$5.00/oz contained
- Refining Charge Ag \$0.40/oz contained
- Payment Rates
 - 99.5% of Cu in cathode
 - 96.5% of Cu in concentrate
 - 99.0% of Mo in concentrate
 - 92.5% of Au in concentrate
 - 95.0% of Ag in concentrate

TABLE 19-11 provides a cash flow summary for the project. This cash flow indicates a before tax net present value (NPV) of US\$2.077 billion for the project at a 8 percent discount rate, and assumes a constant 2010 US dollar.

TABLE 19-12 summarizes the sensitivity of the Net Present Value ("NPV") of the projected cash flows at discount rates of 0%, 4%, 6%, 8%, 10%, 12%, 16%, and 20% for variation in Capex, Opex and copper price.

Table 19-11: Before Tax Cash Flow Summary Open Pit and Underground Mine Before Tax Cash Flow Haquira Copper Project

DUCTION SCHEDULE (000s tonnes	s)		Yr -2	Yr -1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17	Yr 18	Yr 19	Yr 20	Yr 21	Yr 22	Yr 23 Yr	24
Waste Moved	tonnes		43,250	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	86,500	18,199		-		
Ore Mined (SX) Ore Mined (OP Flot)	tonnes tonnes		-		10,900 18,250	10,900 36,500	10,900 36,500	10,900 36,500	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 32,850	10,900 34,800	10,900 36,500	10,900 36,500	10,900 36,500	1,834 26,383	-	-	-	
Ore Mined (UG Flot)	tonnes			-	-	-		-	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	1,700	-	-			-		-	
Total Material Mined	tonnes		43,250	86,500	115,650	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	133,900	46,416	-	•	-	
TOR SCHEDULE																												
ed	(000s tonnes)		-	-	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	10,900	1,834				
	Ore Grade, Cu% (SX) = SX Recovery % =	78%	0.000% 0%	0.000% 0%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	0.422% 78%	
Co	opper Cathode Produced (000s lbs) =	18%	-	-	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	13,309	-	-	-	
Feed (Pit)	(000s tonnes)				18,250	36.500	36.500	36,500	32,850	32,850	32.850	32,850	32.850	32,850	32.850	32,850	32,850	32,850	32.850	34.800	36,500	36,500	36,500	26,383				
Feed (UG)	(000s tonnes)					-	-	-	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	1,700			-					
C	Ore Grade, Cu% (Open Pit Flotation) =				0.564%	0.564%	0.564%	0.564%	0.564%	0.564%	0.564%	0.564%	0.564%	0.564%	0.564%	0.381%	0.314%	0.314%	0.314%	0.314%	0.314%	0.314%	0.314%	0.314%	0.314%	0.314%	0.314%	
	Ore Grade, Cu% (UG Flotation) = Flotation Recovery Cu% =	89%	89%	89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	1.060% 89%	
	Concentrate Grade Cu% =	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	
Onen Pit Cu	Cu Concentration Ratio = Concentrate Produce(000s tonnes)			-	50 328	50 657	50 657	50 657	46 591	46 591	46 591	46 591	46 591	46 591	46 591	62 399	72 329	72 329	72 329	80 348	89 366	89 366	89 366	89 264		-		
UG Cu	Concentrate Producec (000s tonnes)			-	-	-	-	-	123	123	123	123	123	123	123	123	123	123	123	57	-	-	-	-	-	-	-	
Total Tons of C	Concentrate Producec (000s tonnes)				328	657	657	657	714	714	714	714	714	714	714	523	452	452	452	406	366	366	366	264		-	-	
JCTION																												
	Copper Cathode Produced (000s lbs)			-	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	79,098	13,309	-	-	-	
	Copper (in Con) Produced - (000s lbs) Gold (in Con) Produced - (000s Oz.)				202,639 16	405,278 31	405,278	405,278 31	440,920 36	440,920 36	440,920 36	440,920 36	440,920 36	440,920 36	440,920 36	322,570 25	279,240 21	279,240 21	279,240 21	250,601 17	225,634 14	225,634 14	225,634 14	163,093 10		-		
	Silver (in Con) Produced - (000s Oz.)			-	676	1,353	1,353	1,353	1,533	1,533	1,533	1,533	1,533	1,533	1,533	1,226	1,114	1,114	1,114	993	887	887	887	641	-	-	-	
	Moly (in Con) Produced - (000s lbs)				3,440	6,880	6,880	6,880	6,742	6,742	6,742	6,742	6,742	6,742	6,742	3,853	3,027	3,027	3,027	2,880	2,752	2,752	2,752	1,989	-		-	
0s)																												
Trea	atment Charge - \$/tonne Concentrate =		(expressed in \$ 000s)				(35,748.95) \$ (30,748.95) (30,748.95)																	(14,386.17) \$	- \$	- \$	- \$	-
1	Peruvian Gov't Royalty = Refining Charge (Cu) - \$/lb contained=	1% - 3% \$ 0.060	(expressed in \$ 000s) (expressed in \$ 000s)				(30,713.99) \$ (3 (24,073.52) \$ (3													(19,860.88) \$ (14,885.68) \$			(18,257.97) \$ (13,402.64) \$	(9,752.28) \$ (9,687.72) \$	- \$	- \$	- - S	
Re	efining Charge (Au) - \$/Oz. contained =	\$ 5.00	(expressed in \$ 000s)	ŝ	(12.50) \$	(25.00) \$	(25.00) \$	(25.00) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(38.38) \$	(19.69) \$	(14.72) \$	(14.72) \$	(14.72) \$	(6.17) \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	
	efining Charge (Ag) - \$/Oz. contained = Refining Charge (Mo) - \$/Ib contained =		(expressed in \$ 000s) (expressed in \$ 000s)	S c	(139.24) \$ (3,440.00) \$	(278.48) \$ (6,880.01) \$	(278.48) \$ (6.880.01) \$	(278.48) \$ (6,880.01) \$	(327.67) \$ (6,742.41) \$	(327.67) \$ (6.742.41) \$			(327.67) \$ (6,742.41) \$	(327.67) \$ (6,742.41) \$	(327.67) \$ (6,742.41) \$	(281.48) \$ (3,852.80) \$	(264.84) \$ (3,027.20) \$	(264.84) \$ (3,027.20) \$	(264.84) \$ (3,027.20) \$	(234.83) \$ (2,880.18) \$	(208.66) \$ (2,752.00) \$	(208.66) \$ (2,752.00) \$	(208.66) \$ (2,752.00) \$	(150.83) \$ (1,989.21) \$	- \$ - \$	- \$	- \$ - \$	1
			(expressed in \$ 000s)	•		(0,000.01) \$			(3,172.71) Ø	(0,172.71) Ø	(0,172.41) Ø		(0,172.41) Ø				(0,021.20) Ø				(2,102.00) Ø				- 3		- 9	-
	contained Cu in Cathode) @ Cu price = 5% contained Cu in Con) @ Cu price = 1		(expressed in \$ 000s)	\$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	177,080 \$	29,795 \$	- \$	- \$	- \$	
	5% contained Cu in Con) @ Cu price = 5% contained Au) @ Au market price =		(expressed in \$ 000s) (expressed in \$ 000s)	\$ \$	435,580 \$ 2,099 \$	871,161 \$ 4,198 \$	871,161 \$ 4,198 \$	871,161 \$ 4,198 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	947,773 \$ 6,444 \$	693,376 \$ 3,306 \$	600,236 \$ 2,472 \$	600,236 \$ 2,472 \$	600,236 \$ 2,472 \$	538,676 \$ 1,036 \$	485,008 \$ - \$	485,008 \$ - \$	485,008 \$ - \$	350,574 \$ - \$	- S - S	- \$ - \$	- \$ - \$	
Payment (95	5% contained Ag) @ Ag market price =	\$ 14.85	(expressed in \$ 000s)	\$	4,911 \$	9,822 \$	9,822 \$	9,822 \$	11,557 \$	11,557 \$	11,557 \$	11,557 \$	11,557 \$	11,557 \$	11,557 \$	9,927 \$	9,341 \$	9,341 \$	9,341 \$	8,282 \$	7,359 \$	7,359 \$	7,359 \$	5,319 \$	- \$	- \$	- \$	-
Payment (99	% contained Mo) @ Mo market price = Total Revenue (\$ 000s)	\$ 13.00	(expressed in \$ 000s)	\$	44,273 \$ 613.327 \$	88,546 \$	88,546 \$ 1,053,086 \$	88,546 \$	86,775 \$	86,775 \$	86,775 \$	86,775 \$	86,775 \$	86,775 \$	86,775 \$	49,586 \$	38,960 \$	38,960 \$ 761,856 \$	38,960 \$	37,068 \$	35,418 \$	35,418 \$	35,418 \$ 650,341 \$	25,601 \$ 375 324 \$	- \$ - \$	- \$ - \$	- \$ - \$	
	(0003)	1.00		φ	010,021 Ø	.,000,000 Ø	.,000,000 φ	.,300,000 ψ	., ι_ ,υ,τ ψ	., 12 1,017 Q	., ι ., σ . τ . φ	.,τ _ ,σιτ ψ	.,121,014 ¥	.,. . ,	.,τ ε ησι τ ψ	000,002 ψ	101,000 Ø	701,000 ψ	. 01,000 ψ	, σ ε , τοσ φ	300,011 ¥			010,024 0	- Ŷ	. . .	Ŷ	
COSTS (\$000s) Mining - Surface	•	/tonne ore mined	3.79	¢	150.443 \$	173,294 \$	173,294 \$	173,294 \$	168.869 \$	168.869 \$	168.869 \$	168.869 \$	168.869 \$	168,869 \$	168.869 \$	168,869 \$	168.869 \$	168.869 \$	168.869 \$	171,298 \$	171.614 \$	171.614 \$	171,614 \$	76.883 \$				
Mining - Undergrou			10.60 \$ - \$	- \$	- \$	- \$	- \$	- \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	75,186 \$	35,018 \$	- \$	- \$	- \$	- \$	- \$	- \$	- 3	•
Processing	\$	/tonne ore mined	3.90 \$ - \$		112,644 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	184,732 \$	117,300 \$	- \$	- \$	- \$	-
Environmental, Clo Tails Handling			0.10 \$ - \$ 0.05 \$ - \$		2,915 \$ 879 \$	4,740 \$ 1.759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1,759 \$	4,740 \$ 1.759 \$	4,740 \$ 1,759 \$	2,822 \$ 1,271 \$	- \$ - \$	- \$ - \$	- \$ - \$	
Dewatering (WMC		/tonne ore mined	0.05 \$ - \$		1,458 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	2,370 \$	1,411 \$	- \$	- š	- \$	-
G&A		/tonne ore mined	0.03 \$ - \$ \$ - \$	- \$	875 \$ 269,214 \$	1,422 \$ 368,317 \$	1,422 \$ 368,317 \$	1,422 \$ 368,317 \$	1,422 \$ 439,078 \$	1,422 \$	1,422 \$ 439,078 \$	1,422 \$ 439,078 \$	1,422 \$ 439,078 \$	1,422 \$ 439,078 \$	1,422 \$ 439,078 \$	1,422 \$ 439,078 \$	1,422 \$	1,422 \$ 439,078 \$	1,422 \$ 439,078 \$	1,422 \$ 401,339 \$	1,422 \$ 366,637 \$	1,422 \$ 366,637 \$	1,422 \$ 366,637 \$	847 \$ 200,533 \$	- \$	- \$	- \$ - \$	-
	·	UTAL	ş - ş	- \$	209,214 \$	300,317 \$	300,317 \$	300,317 \$	439,078 \$	439,078 \$	435,078 \$	439,078 \$	435,078 \$	439,070 \$	439,070 \$	439,078 \$	439,070 \$	439,078 \$	439,078 \$	401,339 \$	300,037 \$	300,037 \$	300,037 \$	200,555 \$	- 2	- ,	- ,	•
T (\$000s)	oight f	/toppo Culphinpod	\$ \$ 00 C	¢	710 \$	710 \$	710 \$	719 \$	710 \$	719 \$	710 \$	719 \$	710 ¢	719 \$	710 \$	710 \$	710 \$	710 \$	710 \$	719 \$	710 €	710 \$	710 \$	101 €	e	e	e	
Cathode Truck Fre Concentrate Truck			D.00 \$ - \$ D.00 \$ - \$	- \$	719 \$ 657 \$	719 \$ 1,313 \$	719 \$ 1,313 \$	1,313 \$	719 \$ 1,429 \$	1,429 \$	719 \$ 1,429 \$	1,429 \$	719 \$ 1,429 \$	1,429 \$	719 \$ 1,429 \$	719 \$ 1,045 \$	719 \$ 905 \$	719 \$ 905 \$	719 \$ 905 \$	812 \$	719 \$ 731 \$	719 \$ 731 \$	719 \$ 731 \$	121 \$ 528 \$	- \$ - \$	- \$	- \$ - \$	-
Concentrate Slurry	y and Rail Transport Cost \$	/tonne con shipped \$ 3	7.54 \$ - \$	- \$	12,323 \$	24,647 \$	24,647 \$	24,647 \$	26,814 \$	26,814 \$	26,814 \$	26,814 \$	26,814 \$	26,814 \$	26,814 \$	19,617 \$	16,982 \$	16,982 \$	16,982 \$	15,240 \$	13,722 \$	13,722 \$	13,722 \$	9,918 \$	- \$	- \$	- \$	-
Concentrate Ocea	an Freight / Port Handling \$	/tonne con shipped \$ 5	3.00 \$ - \$ \$ - \$	- \$	19,040 \$ 32,739 \$	38,080 \$ 64,759 \$	38,080 \$	38,080 \$ 64,759 \$	41,429 \$	41,429 \$ 70 390 \$	41,429 \$ 70 390 \$	41,429 \$	41,429 \$	41,429 \$ 70,390 \$	41,429 \$	30,308 \$	26,237 \$ 44,843 \$	26,237 \$ 44,843 \$	26,237 \$	23,546 \$ 40,317 \$	21,200 \$ 36,372 \$	21,200 \$ 36,372 \$	21,200 \$ 36,372 \$	15,324 \$ 25,892 \$	- \$	- \$	- \$	-
			1.00	¥	02,100 \$	04,100 \$	04,700 \$	04,100 \$	10,000 \$	10,000 \$	10,000 \$	10,000 \$	10,000 \$	10,000 \$,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	01,000 \$	44,040 \$	44,040 \$	44,040 \$	40,011 \$	00,012 \$	00,012 \$	00,012 \$	20,002 \$	v	•	•	
TING COSTS (\$000s)			\$ - \$		301,953 \$	433.075	433.075 \$	433.075 \$	509.468 \$	509.468 \$	509.468 \$	509.468 \$	509.468 \$	509.468 \$	509.468 \$	490.768 \$	483.921 \$	483.921 \$	483.921 \$	441.656	403.009 \$	403.009 \$	403.009 \$	226.425 \$			- \$	
1110 CO313 (\$000s)			۰. »	- >	301,933 \$	433,0/3 \$	433,010 Q	433,073 \$	JU3,400 \$	JU3,400 \$	JUJ,400 \$	JU3,400 \$	JUJ,400 \$	JUJ,400 Q	JUJ,400 Q	430,100 \$	403,321 3	403,321 3	403,321 \$	441,000 \$	400,009 \$	403,009 \$	403,009 \$	220,423 \$	- >	- \$	- >	
G REVENUE (\$000s)			\$-\$	- \$	311,374 \$	620,010 \$	620,010 \$	620,010 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	615,045 \$	366,094 \$	277,935 \$	277,935 \$	277,935 \$	260,512 \$	247,332 \$	247,332 \$	247,332 \$	148,898 \$	- \$	- \$	- \$	-
SUMMARY (\$000s)																												
Access and Site P Surface Plant and			\$ 3,863 \$ \$ 32.013 \$		- S - S	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	- S - S	- \$ - \$	- S - S	- S - S	- \$ - \$	2
Underground Cons			\$ 32,013 \$			- 5	- 5 23,359 \$						3,375 \$		- \$ 598 \$			2,560 \$	- \$ 1,173 \$	- \$ 100 \$	- \$	- \$	- \$	- \$	- \$		- \$	-
Site Infrastructure			\$ 24,910 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	-
General Surface M Concentrator and			\$ 8,516 \$ \$ 504,557 \$	- \$ 506,057 \$	- \$ - \$	- \$ - \$	300 \$ - \$	- \$ - \$	- \$ - \$	8,216 \$ - \$	300 \$ 37,714 \$	- \$ - \$	- \$ - \$	- \$ 20,952 \$	300 \$ - \$	- \$ - \$	8,216 \$ - \$	- \$ 29,333 \$	300 \$ - \$	- \$ 25,142 \$	- \$ - \$	- \$ - \$	300 \$ 29,333 \$	- \$ - \$	- \$ - \$	- \$ - \$	- \$ - \$	1
Underground Minir	ng Equipment		\$-\$	- \$	- \$	- \$	- \$	20,844 \$	32,983 \$	150 \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	- \$	-
Open Pit Mine Dev Open Pit Mine Equ			\$ 68,353 \$ \$ 69,100 \$	132,679 \$ 58,392 \$	- \$ 29,472 \$	- \$ 29,472 \$	- \$ 263 \$	- \$ - \$	- \$ 25.740 \$	- \$ 23,815 \$	- \$ 45,785 \$	- \$ 36,351 \$	- \$ 29,432 \$	- \$ 13,711 \$	- \$ 28,267 \$	- \$ 16,498 \$	- \$ 7,309 \$	- \$ 23,762 \$	- \$ 32,915 \$	- \$ 41,188 \$	- \$ 43,087 \$	- \$ 19,333 \$	- \$ 7,511 \$	- \$	- S - S	- \$ - \$	- \$ - \$	-
Working Capital at	t 25% Yr 1 Op Cost			\$	75,488																		\$	(75,488)	- Q	· • •	Ŷ	
G&A, OH, Conting	gency	OTAL	\$ 194,783 \$ 1.00 \$ 906,094 \$		7,094 \$	7,094 \$	5,984 \$ 29,906 \$	10,618 \$	16,005 \$	8,526 \$	17,614 \$	8,165 \$	7,161 \$	7,603 \$	6,433 \$	4,085 \$	4,549 \$	11,731 \$	7,478 \$	13,646 \$	8,977 \$	4,227 \$	7,789 \$ 44,933 \$	360 \$	- \$	- \$	- \$	
	1	VIAL	1.00 \$ 300,034 \$	514,004 \$	112,000 \$	30,300 \$		00,101 \$																(75,128) \$	- \$	- \$	- \$	
SH FLOW (\$000s)		0	(\$906,094)	(\$914,884)	\$199,319	\$583,444		\$559,304														\$223,773	\$202,400	\$224,026	\$0	\$0	\$0	\$0
		Cumulative Payback te		(\$1,820,978) no	(\$1,621,659) no	(\$1,038,215) no	(\$448,111) no		\$633,209 \$	\$1,200,096 \$		\$2,281,510 \$	\$2,856,587 : no		\$4,008,460 : no	\$4,353,043 : no	\$4,606,686 \$		5,053,306 \$	5,233,742 s	5,429,010 : no	\$5,652,783 no	\$5,855,182 no	\$6,079,209 no	\$6,079,209 no	\$6,079,209 S	6,079,209 \$6,0 no n	79,209
		r dybabk le					-				-		-		-						-			-	-			
						CENCIE		VCEC II.		DED PROT	CT.																	
Time	4.80 years - for price scenario					SENSITI	VITY ANALY		-																			
	33,033 through yr 1 (includes Working	Capital) Net I	Present Value Ca		. ,		Net Present							ulations (\$0														
	75,488	-		per Price (\$/lb)					/ity, Cu@ \$2.2		I			ty, Cu @ \$2.25														
tal (\$000s) 8 Production)	91,275 20 years	Discoun 0%		\$2.25 \$6,079,209	\$2.70 \$9,554,941	Di				-20% \$7,876,628			+20% \$4,869,728		-20% \$7,068,784													
Froduction)	2.06	4%	\$1,303,634	\$3,560,940	\$5,818,246		4% \$	\$2,418,278	\$3,560,940 \$	\$4,703,602		4% \$	\$2,535,407	\$3,560,940	\$4,401,295													
		6% 8%	\$869,312 \$530,634	\$2,726,674 \$2,077,938	\$4,584,035 \$3,625,243					3,658,078 2,847,336					3,512,392 2,817,981													
			3030.634	\$2,011,938	\$3,023,243										52,817,981 52,269,079													
		10%		\$1,567.867	\$2,871,528		10%	\$924,431 \$	\$1,567,867 \$	52,211,303																		
		10% 12%	\$264,205 \$53,028	\$1,567,867 \$1,162,782	\$2,871,528 \$2,272,536		12%	\$618,577 \$	\$1,162,782 \$	\$2,211,303 \$1,706,986		12%	\$348,823	\$1,162,782	\$1,830,475													
		10%	\$264,205 \$53,028 (\$250,479)	\$1,162,782 \$575,900	\$2,272,536 \$1,402,279		12% 16%	\$618,577 \$ \$174,735	\$1,162,782 \$ \$575,900	\$1,706,986 \$977,065		12% 16%	\$348,823 (\$170,544)	\$1,162,782 \$ \$575,900 \$														
		10% 12% 16%	\$264,205 \$53,028	\$1,162,782	\$2,272,536		12% 16%	\$618,577 \$ \$174,735	\$1,162,782 \$	\$1,706,986		12% 16%	\$348,823 (\$170,544)	\$1,162,782 \$ \$575,900 \$	\$1,830,475 \$1,188,281													

IRR

12.6%

22.7%

30.8%

IRR

18.2%

22.7%

26.7%

IRR

14.5%

22.7%

35.1%

	ES MINERALS INC		•							
		ber 2010								
		Calculations (\$000s)								
Discount %	Base	Sensitivity CAPEX-20%	CAPEX+20%							
Discount /	Dase	CAFEA-20%	CAPEA+20 /0							
0	\$6,079,209	\$7,068,784	\$4,869,728							
4	\$3,560,940	\$4,401,295	\$2,535,407							
6	\$2,726,674	\$3,512,392	\$1,768,237							
8	\$2,077,938	\$2,817,981	\$1,175,487							
10	\$1,567,867	\$2,269,079	\$712,938							
12	\$1,162,782	\$1,830,475	\$348,823							
16	\$575,900	\$1,188,281	(\$170,544)							
20	\$187,759	\$755,863	(\$504,709)							
	Net Present Value	Calculations (\$000s)								
Cu Price Sensitivity, US\$/Ib										
Discount % 1.80 2.25 2.70										
0	\$2,603,477	\$6,079,209	\$9,554,941							
4	\$1,303,634	\$3,560,940	\$5,818,246							
6	\$869,312	\$2,726,674	\$4,584,035							
8	\$530,634	\$2,077,938	\$3,625,243							
10	\$264,205	\$1,567,867	\$2,871,528							
12	\$53,028	\$1,162,782	\$2,272,536							
16	(\$250,479)	\$575,900	\$1,402,279							
20	(\$446,963)	\$187,759	\$822,481							
		Calculations (\$000s)								
		ost Sensitivity								
Discount %	Base	Op Cost-20%	Op Cost+20%							
0	\$6,079,209	\$7,876,628	\$4,281,790							
4	\$3,560,940	\$4,703,602	\$2,418,278							
6	\$2,726,674	\$3,658,078	\$1,795,269							
8	\$2,077,938	\$2,847,336	\$1,308,540							
10	\$1,567,867	\$2,211,303	\$924,431							
12	\$1,162,782	\$1,706,986	\$618,577							
16	\$575,900	\$977,065	\$174,735							
20	\$187,759	\$493,799	(\$118,281)							

19.5 Capital Summary

The PEA estimates Initial Capital Costs of US\$ 1.86 billion during the 2.5 year construction period and the first year of partial production. The estimate assumes that the project will fund the full cost of all required infrastructure including a concentrate pipeline to the nearest rail head (200 km to Antapaccay mining complex and a new projected railhead), a power transmission

line, and other facilities. The project will simultaneously construct an SX-EW plant and sulfide concentrator with the SX-EW production ramping up only slightly ahead of the concentrator. With sustaining capital over the mine life and the construction of an underground mine commencing in year 4 of the project the total capital invested over the life of the project is \$2.82 billion. TABLE 19-13 summarizes the capital by cost center area. TABLE 19-14 summarizes the capital by expenditure type.

TABLE 19-13:Capital Summary (\$000s)ANTARES MINERALS INC. – HAQUIRA COPPER PROJECT September 2010										
Access and Site Prep	\$8,607									
Surface Plant and Facilities	\$52,013									
Site Infrastructure	\$24,910									
General Surface Mobile Equipment	\$26,447									
Open Pit Mine Development	\$201,033									
Open Pit Mine Equipment	\$581,402									
Processing Facilities and Tailings Disposal	\$1,153,088									
Underground Construction	\$94,410									
Underground Mining Equipment	\$53,977									
Working Capital (25% of Year 1 Op Costs)	\$75,488									
G&A, OH, Contingency	\$552,935									
TOTAL (Life Of Mine)	\$2,824,310									
TOTAL (less Working Capital)	\$2,748,822									

TABLE 19-14:Capital ExpendituANTARES MINERALS INC. – HAQUIRA COPI September 2010	
Initial Capital – Open Pit (Yr -2 thru Yr1)	\$1,857,545
Working Capital (25% of Year 1 Op Costs)	\$75,488
Initial Capital – Underground (Yr 3 thru Yr 5)	\$124,732
Total Initial and Working Capital	\$2,057,765
Sustaining Capital	\$766,545
TOTAL (Life Of Mine)	\$2,824,310
TOTAL (less Working Capital)	\$2,748,822

20.0 INTERPRETATION AND CONCLUSIONS

20.1 Interpretation

It is Tt's opinion that most of the past work and all of the current Antares work meets and/or exceeds the current standards and those areas that do not meet current standards have been identified within the body of this report. The work has been completed by well-qualified technical professionals, reputable mining companies, and independent third-party contractors and laboratories according to standards that meet most of today's requirements. The results of the 2005 through 2009 drilling, and assay geostatistical study provide strong support that the current geologic model and resource estimates are truly indicative of the mineralization at Haquira.

20.2 Conclusions

It is Tt's opinion that the data used in support of and for the estimation of the geologic resources quoted in this Preliminary Economic Assessment Report are compliant with CIMM definitions and that the geologic resources presented meet the requirements of measured, indicated, and inferred resources under current CIMM definitions. The capital and operating cost estimates are within the normal levels of accuracy for a Preliminary Economic Assessment (+/- 35 to 50 percent), with many of the costs exceeding these limits as Tt had access to data from other similar mines that are currently operating.

21.0 **RECOMMENDATIONS AND WORK PLAN**

21.1 Recommended Additional Investigations

Studies are anticipated in six key areas of investigation as follows:

Geology and Resources: additional drilling will be needed for:

- Final confirmation of the geology, mineralogy, and mineralized rock types
- Increasing the amount of measured and indicated resources for support of the planned prefeasibility study.
- Development of geotechnical parameters for pit slopes by a geotechnical drilling program
- Determination of the hydrology of the area around the planned open pits (on-going)
- Collection of additional metallurgical samples for testing
- Condemnation drilling for plant, dump and dam locations

Mine Planning: development of an updated mine plan based on current pricing and updated costs. This work would include:

- Trade off Studies: Mining Methods (UG bulk mining, UG non-subsidence mining), Sequencing, Equipment
- Refinement of cut off grade
- New pit designs with haulage access
- End-of-year period plans
- End of six month plans for the first two years
- End of year plans through Year 5
- End of five year plans for Year 10 and Year 15
- End of mine life plan
- Waste rock facilities for life of mine ultimate foot print
- Mine production schedule
- Mine equipment requirements
- Manpower requirements
- Capex and Opex

Metallurgical Testwork: RDi recommends the following metallurgical program for the Pre-Feasibility Study:

LEACH ORE

- Composite the drill core material to prepare samples of various lithologies.
- Perform comminution tests needed to obtain crushing and abrasion indices.

- Perform bottle roll and column tests to confirm copper recoveries and reagent consumption in open circuit tests.
- Perform locked cycle tests with the barren solution recycled after solvent extraction.
- Perform test to rinse the column leach residues to environmentally acceptable levels and determine the water requirements.
- Perform SX tests on pregnant solutions form column tests.

SULFIDE ORE

- Composite drill core samples to prepare master composite samples representing the major lithologies.
- A drilling program may be required to obtain samples for comminution testing.
- Comminution test program to be undertaken to generate data for the SAG milling and ball milling grinding tests. This will include rod mill and ball mill work indices, abrasion index, impact index and JK Drop Weight tests on each of the rock types.
- Flotation testwork to develop the process flowsheet for the recovery of copper, molybdenum, gold and silver values and to generate process design data for sizing the unit operations, namely flotation, thickening, filtration etc.
- Perform locked-cycle tests to determine the overall metallurgical balance for the copper and molybdenum circuits and production of concentrates for determination of concentrate quality including potentially deleterious components which might result in smelter penalties for the treatment of the concentrates.

Tailings, Ponds and Waste Rock Facility: Tailing Dam and pond design studies must be completed as part of future feasibility analysis. Key elements should include:

- Tailings Storage Facility designs
- Geotechnical site investigation and creation of a test-pit plan for the area of the tailing dam.
- Tailings Disposal trade-off studies
- Liner evaluation
- Large scale direct shear laboratory tests for slope stability and liner design system
- Clay borrow source site investigation
- Hydrologic study develop storm events using local weather stations (if more than one available) for use in the heap water balance, pond sizing, and stormwater control.
- Geochemical Investigations of clean waste rock, sub-grade waste rock, spent heap leach material, tailings, and potential underground pastefill and backfill (if necessary).

Infrastructure: Investigations should be completed to assess major infrastructure requirements including:

- Power supply
- Transportation trade-off study (trucking, rail, slurry)
- Water supply wells or wellfield including drilling, testing, construction, and pipeline distribution

- Potential camp locations and needs
- Potential labor considerations for construction through operation and closure
- Sanitary waste disposal facilities

Closure Studies: A reclamation and closure plan (to assure long-term environmental stability) will need to be developed for the following areas:

- Open pit mining areas
- Underground mining areas
- Overburden storage areas
- Stockpile areas
- Heap Leach areas
- Tailings Storage areas
- Structure demolition areas
- Camp

Environmental Permitting-related Studies: Satisfactory work is already in progress.

21.2 Work Plan

TABLE 21-1 details the anticipated work plan and major categories of expenditure for completion of the PFS (thru 2011).

TABLE 21-1: Proposed Budget for Plan of Work ANTARES MINERALS INC – HAQUIRA COPPER September 2010			
Task	Estimated Completion Date*	Estimated Cost (US\$) to Complete*	Notes
Development Drilling	2 nd Qtr 2011	\$8,000,000	(1)
Exploration Drilling	2 nd Qtr 2011	\$2,000,000	(2)
Update PEA Report	4 th Qtr 2010	\$100,000	
Geotechnical Drilling	4 th Qtr 2010	\$600,000	
Pit Slope Geotechnical Study	4 th qtr 2010	\$200,000	
Metallurgical Sample Drilling	1 st Qtr 2011	\$500,000	
Condemnation Drilling	2 nd Qtr 2011	\$225,000	
Hydrologic Study (incl drilling)	2 nd Qtr 2011	\$1,500,000	On-going
Resource Model Update	1 st Qtr 2011	\$300,000	
Mine Plan Study			
Open Pit	2 nd Qtr 2011	\$450,000	
Underground	2 nd Qtr 2011	\$200,000	
Metallurgical Testing	2 nd Qtr 2011	\$500,000	
Environmental Studies			On-going
Tailing, Ponds,Waste Rock Study	3 rd Qtr 2011	\$350,000	
Geochemical Characterization	3 rd Qtr 2011	\$300,000	
Reclamation/Closure Study	3 rd Qtr 2011	\$75,000	
EIS Baseline Studies	4 th Qtr 2011	\$100,000	On-going
Power Study	2 nd Qtr 2011	\$100,000	
Water Supply Study	2 nd Qtr 2011	\$300,000	
Transportation Study	2 nd Qtr 2011	\$450,000	
Camp/Sanitation Study	3 rd Qtr 2011	\$30,000	
Labor Study	2 nd Qtr 2011	\$10,000	
Plant Preliminary Design			
SX-EW Facility	3 rd Qtr 2011	\$550,000	
Flotation Facility	3 rd Qtr 2011	\$950,000	
Plant Site Layout	3 rd Qtr 2011	\$250,000	
Project G&A	Thru 2011	\$7,000,000	On-going
SubTotal		\$25,040,000	
Contingency (20%)		\$5,008,000	
Total – Overall Budget		\$30,048,000	

* Completion dates and expenditures represent the current development path for completion of the PFS.. Changes to the currently anticipated program may occur due to results from individual tradeoff studies, technical studies, new data, and /or changing economic conditions.

(1) The development drilling will be interior to the currently known deposit in order to increase the amount of measured and indicated resources to a point to support moving forward with the prefeasibility study.

(2) Exploration drilling will involve drilling for deposit extensions, support of other permitting requirements.

22.0 REFERENCES

- CAM, September 2005, Technical Report, Haquira Copper Project, Peru.
- CAM, March 2006, Technical Report, Haquira Copper Project, Peru.
- CAM, December 2007, Technical Report NI 43-101, Haquira Copper Project, Peru.
- CAM, May 2008, Technical Report NI 43-101, Preliminary Economic Assessment, Haquira Copper Project, Peru.
- Einaudi, M. T., 2008; Text to Accompany Cu, Mo, and Au Grade Cross Sections Haquira East Porphyry Cu-Mo-Au Prospect, Departamento de Apurimac, Peru, December 2008. Unpublished report to Antares Minerals Inc.
- Estudio Grau, 2007a, letter opinion regarding title to Haquira mining concessions, addressed to Antares Minerals Inc. from Estudio Grau Abogados, signed by Cecelia Gonzales Guerra, Parner, November 21, 2007
- Estudio Grau, 2007b, Exhibit E-1, the Haquira Property Obligations to keep the mineral concessions in good standing, 2007-2010, November 22, 2007 by Estudio Grau Abogados.
- Estudio Grau, 2007c, Exhibit E-2, the Haquira Property Obligations to keep the mineral concessions in good standing, 2011-2014, November 22, 2007 by Estudio Grau Abogados.
- Estudio Grau, 2007d, letter opinion regarding legality of Minera Antares Peru, S.A.C., addressed to Antares Minerals Inc. from Estudio Grau Abogados, signed by Cecelia Gonzales Guerra, Parner, November 21, 2007.
- Estudio Grau, 2009a, letter opinion regarding title to Haquira mining concessions, addressed to Tetra Tech from Estudio Grau Abogados, signed by Cecelia Gonzales Guerra, Partner, January 15, 2009
- METCON, October 2006, Haquira Project Bottle roll study on composite samples.
- METCON, August 2007, Haquira Project Extended time leach study on composite samples.
- Perello, J., et al., 2003, Porphyry-Style Alteration and Mineralization of the Middle Eocene to Early Oligocene Andahuaylas-Yauri Belt, Cuzco Region, Peru, *Economic Geology*, Vol. 98, pages 1575-1605.

Pepsa Tecsult, October 2008, Haquira Copper Leach Electrical Supply Study, #9430-5-001-0

Phelps Dodge, 2004, Haquira Copper Project, Peru, Executive Summary, internal company report prepared by Minera Phelps Dodge del Perú S.A.C.

Pratt, Warren, June 2006, The Haquira Cu Porphyry, Apurimac, Peru.

23.0 DATE AND SIGNATURE PAGE

Edwin C. Lips, P.E.

Tetra Tech 350 Indiana Street, Suite 500 Golden, Colorado 80401 USA Telephone: 303-217-5700 Email: ed.lips@tetratech.com

CERTIFICATE OF AUTHOR

- I, Edwin C. Lips, do hereby certify that:
- I am a Sr. Mining Engineer of: Tetra Tech
 350 Indiana Street, Suite 500
 Golden, Colorado 80401
 USA
- 2. This certificate relates to the "Haquira Copper Project Preliminary Economic Evaluation Update NI 43-101 Report " dated September 02, 2010.
- 3. I graduated from Montana Tech, Butte, Montana with a degree in Mining Engineering (BS) in 1982.
- 4. I am a registered Professional Engineer (Mining) in the State of Arizona (47670), and a member of the Society of Mining, Metallurgy, and Exploration (SME).
- 5. I have practiced my profession as a mining engineer continuously since graduation for a total of 28 years.
- 6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 7. I am responsible for and prepared, or contributed to, all sections of the report titled "Haquira Copper Project Preliminary Economic Evaluation Update NI 43-101 Report " dated September 02, 2010 ("the Preliminary Economic Assessment") relating to the Haquira Copper property. I visited the subject property from July 14 through 16, 2010 for 3 days.
- 8. I have not had prior involvement with the property that is the subject of the Technical Report.
- 9. To the best of my knowledge, information and belief, the Preliminary Economic Assessment contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

- 10. I am independent of the issuer applying all of the tests of Section 1.4 of National Instrument 43-101.
- 11. I have read National Instrument 43-101 and Form 43-101F1, and the Preliminary Economic Assessment has been prepared in compliance with that instrument and that form.
- 12. I consent to the filing of the Preliminary Economic Assessement with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Preliminary Economic Assessment.

Dated this 2nd Day of September 2010.

Signature of Qualified Person

<u>Edwin C. Lips</u> Print name of Qualified Person

John W. Rozelle, P.G.

Tetra Tech 350 Indiana Street, Suite 500 Golden, Colorado 80401 USA Telephone: 303-217-5700 Email: john.rozelle@tetratech.com

CERTIFICATE OF AUTHOR

I, John W. Rozelle, do hereby certify that:

- I am a Principal Geologist of: Tetra Tech
 350 Indiana Street, Suite 500
 Golden, Colorado 80401
 USA
- 2. This certificate relates to the "Haquira Copper Project Preliminary Economic Evaluation Update NI 43-101 Report " dated September 02, 2010.
- 3. I graduated from the State University of New York at Plattsburg, New York with a degree in Geology (BA) in 1976. In addition, I have obtained a Master of Science degree in Geochemistry from the Colorado School of Mines in 1978.
- 4. I am a Member of the American Institute of Professional Geologists (CPG-07216), a register Geologist in the State of Wyoming (PG-337, and a member of the Society of Mining, Metallurgy, and Exploration (SME)).
- 5. I have practiced my profession as a geologist continuously since graduation for a total of 30 years.
- 6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 7. I am responsible for and prepared, or contributed to, all sections of the report titled "Haquira Copper Project Preliminary Economic Evaluation Update NI 43-101 Report" dated September 02, 2010 ("the Preliminary Economic Assessment") relating to the Haquira Copper property. I visited the subject property from April 10 through 14, 2008 for 2 days.
- 8. I have not had prior involvement with the property that is the subject of the Technical Report.
- 9. To the best of my knowledge, information and belief, the Preliminary Economic Assessment contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

- 10. I am independent of the issuer applying all of the tests of Section 1.4 of National Instrument 43-101.
- 11. I have read National Instrument 43-101 and Form 43-101F1, and the Preliminary Economic Assessment has been prepared in compliance with that instrument and that form.
- 12. I consent to the filing of the Preliminary Economic Assessment with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Preliminary Economic Assessment.

Dated this 2nd Day of September 2010.

John whomelle

Signature of Qualified Person

<u>John W. Rozelle</u> Print name of Qualified Person

24.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

The Haquira project is at the advanced exploration stage and is not in development and/or an operating property, there are no data and/or information for disclosure in this section.

25.0 ILLUSTRATIONS

All illustrations are presented in the report in their respective sections.

APPENDIX A DRILLHOLE LISTING

			Table TA-1 Haquira Drillhole Drilling By Date	-			
	Excluded	PD Peru 01-03		Antares 07-08	Antares 08-09		
REC#	NAME	NORTHING	EASTING	ELEV.	BEAR.	PLUNGE	DEPTH
	1 AHAC_056	8432381	785498.8	4071.5	55	70	158
	2 AHAC_057	8432264	785321.7	4103	0	90	170
	3 AHAC_058	8432311	785045.4	4120.8	55	70	124
	4 AHAC_059	8431736	784222.1	4157.9	55	70	156
	5 AHAC_060	8432070	783998.5	4200.4	55	70	204
	6 AHAC_061	8432341	784045	4186.1	0	90	191
	7 AHAC_062	8432786	783981	4105	55	70	152
	8 AHAC_063	8433174	784221.1	4019.3	0	90	172
	9 AHAC_064	8433297	784360.7	3978.1	55	70	156
	10 AHAC_065	8431608	784030	4259.1	55	70	190
	11 AHAC_066	8431789	783950.6	4230.1	55	70	168
	12 AHAC_067	8432956	783874.4		0	90	194
	13 AHAC_068	8432764			235	60	40
	14 AHAC_069	8432764	784613.1	4014.5	235	60	176
-	15 AHAC_069T	8432759	784606.2	4014.8	235	60	128
	16 AHAC_070	8432868	786879.4		235	70	68
	17 AHAC_071	8432580	786836.4	4195	235	70	167
	18 AHAC_072	8432868	786871.9	4093.3	235	70	200
	19 AHAC_073	8432944	786331.4	4248.2	0	90	204
2	20 AHAC_074	8432747	786717.9	4141.3	235	70	170
2	21 AHAC_075	8432148	786187.3		0	90	222
2	22 AHAC_076	8432601	786549.1	4226.1	235	70	138
2	23 AHAC_077	8432093	786419	4294.5	0	90	170
2	24 AHAC_078	8431978	785273.9	4176.8	55	70	128
	25 AHAC_079	8432296	786112.6	4283.7	0	90	202
2	26 AHAC_080	8432933	785856.6	4064.4	55	70	140
2	27 AHAC_081	8432720			235	60	82
	28 AHAC_082	8432822	784639.1	4014.3	235	60	96
2	29 AHAC_083	8432851	784659	4011.9	235	60	106
3	30 AHAC_084	8432874	784670.8	4010.1	0	90	140
	31 AHAC_085	8432721	785019.8		55	70	112
	32 AHAC_086	8432791	785076.6	4042	55	70	114
	33 AHAC_087	8432706		4058.9	67	70	124
	34 AHAC_088	8432748		4073.2	67	70	118
3	35 AHAC_089	8432682			55	70	142
	36 AHAC_090	8432765			67	70	150
	37 AHAC_091	8432508			55	70	158
	38 AHAC_092	8432405			55	70	160
	39 AHAC_093	8431568			55	70	146
	40 AHAC_094	8431813			55	70	142
	41 AHAC_095	8431866			55	70	150
	42 AHAC_096	8431519			55	70	178
	43 AHAC_097	8432819			40	70	160
	44 AHAC_098	8432855			40	70	150
	45 AHAC_099	8432057			55	70	130
	46 AHAC_100	8431989		4144.1	55	70	134
	47 AHAC_101	8432144			50	70	168
4	48 AHAC_102	8432248	783871.9	4173.7	55	70	176

49 AHAC_103	8432319	784322.2	4077.8	50	70	142
50 AHAC_104	8433063	786495.4	4141.2	235	70	226
51 AHAC_105	8431862	784355.4	4134.1	40	70	202
52 AHAC_106	8431598	785061.9	4143.4	55	70	134
53 AHAC_107	8431715	785222.6	4201	55	70	118
54 AHAC_108	8433365	784790.1	4059.2	55	70	142
55 AHAC_109	8432800	785567.3	4019.8	325	70	136
56 AHAC_110	8431845	783664.1	4128.8	55	70	141
57 AHAD_024	8432471	784930.2	4057.7	55	70	240.9
58 AHAD_025	8431906	784112.8	4194.6	0	90	208
59 AHAD_026	8432628	784106.2	4154.9	55	70	189.6
60 AHAD_027	8433077	784040.5	4113.2	55	70	161.4
61 AHAD_028	8431942	783840.9	4165.7	55	70	137.1
62 AHAD_029	8431652	783846.9	4228.4	55	70	206.3
63 AHAD_030	8431605	784026	4259.1	55	70	201.1
64 AHAD_031	8432683	783735.2	4065.3	55	70	141.8
65 AHAD_032	8431302	784110.6	4245.1	0	90	253.1
66 AHAD_033	8433538	785889.1	4074	55	70	209.6
67 AHAD_034	8433846	786612.9	4127.7	55	70	174.3
68 AHAD_035	8432031	786982.1	4286.1	0	90	302.7
69 AHAD_036	8432798	784626.7	4014.2	213	60	111.4
70 AHAD_037	8432682	784986.7	4026.1	55	70	103.9
71 AHAD_038	8432752	785046.4	4037.6	55	70	134.4
72 AHAD_039	8432824	785108.1	4050.1	0	90	143.6
73 AHAD_040	8432727	783843.7	4061.4	67	70	125.7
74 AHAD_041	8432789	783979.2	4105.1	55	70	154.3
75 AHAD_042	8431847	784024.4	4241	55	70	185.4
76 AHAD_043	8432094	785032.5	4175.1	55	70	130.4
77 AHAD_044	8432899	786699.4	4113	40	70	162.8
78 AHAD_045	8432018	784972	4155.7	55	70	135.1
79 AHAD_046	8432587	785081.2	4069.9	0	90	171.5
80 AHAD_047	8432986	786750.6	4087.8	40	70	167.6
81 AHAD_048	8432704	783792.3	4059	67	70	162.2
82 AHAD_049	8432569	783645.9	4047.1	55	70	175.2
83 AHAD_050	8432443	783480.6	4067.1	55	70	142.3
84 AHAD_051	8431457	784161.8	4215.5	55	70	127
85 AHAD_052	8432279	783597.1	4089	55	70	187.3
86 AHAD_053	8432159	783678.9	4090.6	55	70	73.8
87 AHAD_054	8431845	783664.1	4128.8	55	70	160.4
88 AHAD_055	8432457	785059.6	4080.1	55	70	174.5
89 AHAD_056	8432562	785229	4103.7	55	70	131.1
90 AHAD_057	8432694	785145.2	4096.5	55	70	131.9
91 AHAD_058	8432786	784847.8	3978.9	55	70	124.6
92 AHAD_059	8432947	784720.6	3998.8	55	70	152
93 AHAD_060	8432819	783831.8	4047.8	55	70	115.6
94 AHAD_061	8432835	784552.5	4045	55	70	127.8
95 AHAD_062	8432931	784612.6	4039.3	55	70	171.9
96 AHAD_063	8432653	783946.5	4104.3	55	70	162.4
97 AHAD_064	8433003	784444.9	4047.1	55	70	214.1
98 AHAD_065	8432543	783809.4	4111.1	55	70	160.9
99 AHAD_066	8433108	784611.5	4055.8	55	70	180.2
100 AHAD_067	8433024	784307.9	4073.6	55	70	164
101 AHAD_068	8433128	784459.8	4038.6	55	70	154.2
102 AHAD_069	8433055	784164.4	4110.3	55	70	152.6

103 AHAD_070	8432944	784364.6	4067.5	55	70	142.4
104 AHAD_071	8433158	786567.6	4101	55	70	132.2
105 AHAD_072	8433034	784665.8	4025.7	55	70	152.4
106 AHAD_073	8432961	783982.6	4092	55	70	129.4
107 AHAD_074	8432877	784288.5	4105.2	55	70	126.4
108 AHAD_075	8432909	786599.6	4140.3	55	70	124.5
109 AHAD_076	8432786	784084.8	4144.6	55	70	183.5
110 AHAD_077	8432843	786763.4	4111.8	55	70	125.9
111 AHAD_078	8432838	784396.9	4090.9	55	70	129.3
112 AHAD_079	8432775	784472	4069.2	55	70	118.6
113 AHAD_080	8432729	783654.7	4007.3	55	70	86.6
114 AHAD_081	8432721	784396	4075.9	55	70	162.6
115 AHAD_082	8432690	786970	4151.4	235	70	249.8
116 AHAD_083	8432936	784484.8	4068.6	55	70	170.1
117 AHAD_084	8432711	784894.1	3999.2	55	70	120.5
118 AHAD_085	8433096	786385.1	4163.3	55	70	129.1
119 AHAD_086	8432660	784654.7	3992.9	55	70	127.5
120 AHAD_087	8432773	784943.1	4005.8	55	70	111.5
121 AHAD_088	8432624	784913.1	4013.6	55	70	118.1
122 AHAD_089	8433026	786612.8	4117.1	55	70	116.4
123 AHAD_090	8432793	784704.6	3988.8	55	70	109.1
124 AHAD_091	8432720	786815.4	4137.3	235	70	152.6
125 AHAD_092	8432826	785111	4050.1	55	55	140.9
126 AHAD_093	8432840	785053.1	4030.3	235	70	16.4
127 AHAD_094	8432771	786555.1	4177.2	55	70	145.9
128 AHAD_095	8432934	786440.1	4200.8	55	70	215.6
129 AHAD_096	8432842	785055.9	4030.2	235	70	134.4
130 AHAD_097	8432607	786670.3	4196.6	55	70	252.7
131 AHAD_098	8432689	786790	4149.8	235	80	111.9
132 AHAD_098A	8432689	786788.6	4149.9	235	80	613.5
133 AHAD_099	8432603	786839.2	4184.7	55	80	563.9
134 AHAD_100	8432478	786663.2	4252.4	55	80	541.3
135 AHAD_101	8432571	786971.1	4191.1	235	80	551.3
136 AHAD_102	8432750	786872.5	4126.5	235	80	800.5
137 AHAD_103	8432813	786794.3	4113.7	235	80	783
138 AHAD_104	8432814	786795.5	4114.1	55	80	581.7
139 AHAD_105	8432751	786874.1	4126.6	55	80	557.6
140 AHAD_106	8432880	786712.6	4113	55	80	619.3
141 AHAD 107	8432776	786551.5	4176.7	55	80	1007.6
142 AHAD 108	8432911	786581.5	4146	55	80	745
143 AHAD_109	8432853	786500.1	4184.3	55	80	944.2
144 AHAD 110	8432868	784433.8	4087.7	55	70	264.7
145 HAC_01	8431005	785133.8	4183.8	65	70	150
146 HAC_02	8431335	785120	4212.6	50	80	114
147 HAC 03	8430531	785390	4179.5	0	90	149
148 HAC_04	8433236	786508.9	4107.4	0	90	161
149 HAC_05	8433603	786338.1	4126.6	0	90	92
150 HAC_06	8433175	785972.4	4064.8	0	90	40
151 HAC_07	8432945	786726.2	4099.3	0	90 90	37
152 HAC_08	8432816	786630.8	4143.7	145	30 70	256
153 HAC_09	8430887	786418.2	4006.1	0	90	250
154 HAC_10	8431504	786110.2	4000.1	30	90 75	142
155 HAC_11	8430955	784299.5	4104.3	250	70	142
155 HAC_11 156 HAC_12	8431243	783421.9	4202.0	250 75	70 80	204
130 HAC_12	0431243	100421.9	4190.0	15	00	204

157 HAC_13	8433128	786276.1	4155.4	0	90	118
158 HAC_14	8432944	787063.2	4084.2	0	90	133
159 HAC_15	8433383	787635.6	4038.2	0	90	118
160 HAC_16	8432767	787714.3	4112	0	90	216
161 HAC_17	8432401	784695.8	3998.5	45	70	121
162 HAC_17A	8432352	784729.3	4010.4	50	70	157
163 HAC_18	8432868	784433.8	4087.7	55	70	253
164 HAC_18A	8432869	784434.7	4087.5	225	70	220
165 HAC_19	8432622	784826.6	3994.3	50	70	187
166 HAC_20	8432144	785070.7	4179.1	0	70	172
167 HAC_20A	8432161	785082.1	4178	175	70	154
168 HAC_21	8432775	784282.4	4128.2	0	90	148
169 HAC_22	8432505	784221.1	4113.8	0	90	121
170 HAC_23	8433172	784677.2	4058.9	0	90	127
171 HAC_24	8432178	784168.9	4130.1	0	90	124
172 HAC_25	8431992	784218.4	4133.3	0	90	115
173 HAC_26	8431646	784389	4108.2	0	90	100
174 HAC_27	8432104	784388.8	4070.1	0	90	121
175 HAC_28	8431769	784539.9	4065.4	0	90	88
176 HAC_29	8431939	784513.9	4057	0	90	91
177 HAC_30	8432435	784501.7	4030.9	0	90	121
178 HAC_30A	8432439	784502.1	4030.6	0	90	31
179 HAC_31	8431697	784862.1	4090	0	90	79
180 HAC_32	8432825	785109.9	4050.3	0	90	139
181 HAC_33	8432594	785079.4	4070.1	0	90	138
182 HAC_34	8433429	784564.2	4033.2	0	90	120
183 HAC_35	8432207	784537.5	4024.2	0	90	125
184 HAC_36	8433012	784554.1	4050	0	90	124
185 HAC_37	8432948	784189.2	4136.2	0	90	127
186 HAC_38	8431425	784768.2	4102.9	0	90	101
 187 HAC_39	8432057	784701	4036	0	90	105
188 HAC_40	8431826	785056.2	4164.7	50	70	97
189 HAC_41	8432681	784983.9	4026.2	0	90	121
190 HAC_42	8433038	785120.7	4024.7	0	90	121
191 HAC_43	8432930	784951.2	3969.7	0	90	115
192 HAC_44	8433617	785115	3928.6	0	90	100
193 HAC_45	8431959	784923.2	4134	0	90	100
194 HAC_46	8432393	784980.1	4084.2	0	90	103
195 HAC_47	8432553	787082.3	4197	0	90	118
196 HAC_48	8432580	786584.9	4224.4	0	90	55
197 HAC_49	8433044	785784.6	4036.3	0	90	121
198 HAC_50	8432712	785262.9	4056.2	0	90	94
199 HAC_51	8432772	786343.9	4253.2	0	90	94
200 HAC_52	8432561	786855.2	4204.8	0	90	121
201 HAC_53	8432733	787278.2	4171.8	0	90	112
202 HAC_54	8432728	787014.1	4142.4	0	90	121
203 HAC_55	8433068	785976.8	4080.2	180	70	88
204 HAC_5A	8433497	786285.9	4129.9	42	70	170.5
205 HAC_7A	8432946	786726.3	4099.4	40	70	232
206 HAD_01	8433048	784383.6	4033.7	50	70	263.9
207 HAD_02	8433012	784555.4	4050	0	90	210
208 HAD_03	8432868	784668.7	4010.5	0	90	140
209 HAD_04	8432605	784402.7	4052.5	0	90	158.7
210 HAD_05	8432694	784557	4028	0	90	180

211 HAD_06	8432317	784320.9	4077.9	50	70	138.1
212 HAD_07	8433011	785592.9	4014.8	0	90	150.1
213 HAD_08	8431865	784357.5	4134.4	40	70	200
214 HAD_09	8432144	784877.2	4111.1	50	70	164.9
215 HAD_10	8432485	785218.1	4120.9	45	70	170.4
216 HAD_11	8433360	786736.1	4047.6	0	90	87.8
217 HAD_12	8431881	784761.6	4066.3	50	70	141.6
218 HAD_13	8433179	786709.9	4081.8	0	90	113.4
219 HAD_14	8431819	785055.3	4164.8	50	70	134.2
220 HAD 15	8432765	786813.1	4125.7	0	75	71.4
221 HAD_16	8433065	786501.4	4140.4	230	70	220
222 HAD_17	8433428	784382.2	3976.8	70	70	110.8
223 HAD_18	8433097	784759.3	4016.4	280	70	115.9
224 HAD_19	8433224	784480.4	4044.5	50	70	143.3
225 HAD 20	8433551	786298.1	4129	20	70	142.6
226 HAD_21	8432663	785524.2	4030.3	0	90	140.6
227 HAD_22	8432439	785568.1	4072.9	0	90	128.6
228 HAD_23	8432575	786598.6	4224	0	90	68.8
229 HAD_4A	8432611	784399.8	4052.4	0	90	64.7
230 AHAD 111	8432968	786664.1	4112.8	55	80	715.1
231 AHAD_112	8432793	786412.4	4227.1	55	80	1028.4
232 AHAD 113	8432992	786520.7	4154	55	80	682.6
233 AHAD_044M	8432899	786699.4	4113	40	70	92.2
234 AHAD_089M	8433026	786612.8	4117	55	70	81.7
235 AHAD_114	8432934	786438.8	4200.9	55	80	766.1
236 AHAD_090M	8432765	783931.9	4086.6	67	70	125.3
237 AHAD 083M	8432936	784484.8	4068.6	55	70	160.1
238 AHAD_036M	8432798	784626.7	4014.2	235	70	93.5
239 AHAD_038M	8432752	785046.4	4037.6	55	70	132.9
240 AHAD_115	8433072	786463.6	4150.7	55	80	732.2
241 AHAD_116	8432711	786469.7	4223.7	55	80	1026.4
242 AHAD_117	8432546	786584.2	4241.2	55	80	1087.2
243 AHAD_118	8432570	786969.5	4191.2	55	80	610.6
244 AHAD_119	8432992	786525.4	4151.3	235	65	805.5
245 AHAD_120	8432623	786525.8	4225.6	55	80	1041.1
246 AHAD_121	8433072	785788.9	4034.1	358.8	65.56	566.3
247 AHAD_122	8433070	785788.9	4034.1	180.26	65.01	550.8
248 AHAD_123	8432721	785019.8	4032.3	234.62	70.49	803.5
249 AHAD_124	8432693	786615.2	4177.4	54.93	79.96	1157.9
250 AHAD_125	8432622	786525.8	4225.6	234.82	79.93	1107.1
251 AHAD_126	8432209	784537.3	4023.5	359.72	72.24	818.1
251 AHAD_120	8432820	786628.9	4144.1	55	79.94	1153.3
253 AHAD_128	8431909	784110	4194.1	54.87	70.55	878.7
254 AHAD_129	8431879	784762.3	4065.5	299.85	70.4	762.4
255 AHAD_130	8432540	786748.6	4216.1	55.06	79.82	959.6
256 AHAD 131	8432304	784165.6	4131.9	55	68.93	266.6
257 AHAD_132	8432654	786387.8	4265.7	54.75	79.57	1133.4
258 AHAD_133	8432736	786332.4	4258.7	55	77.96	1132.8
259 AHAD_134	8431946	783967.1	4216.4	54.96	70.1	380
260 AHAD_135	8432711	784186.9	4150.6	54.96 54.99	68.17	190.3
261 AHAD_135	8431757	783762.9	4150.6	54.99 55.07	69.24	138.1
261 AHAD_130 262 AHAD_137		784063.8	4181.4		69.24 70.09	293.6
	8431737			54.96		293.6
263 AHAD_138	8431832 8431428	783860.8	4188.9	55.17	70.8 70.31	
264 AHAD_139	8431428	784768.2	4101.9	0.11	70.31	696.8

265 AHAD_140	8431689	783955.3	4251.4	55	69.26	197.1
266 AHAD_141	8432063	784127.9	4158	54.92	70.35	227.8
267 AHAD_142	8432421	783947.6	4149.1	55.27	70.17	268.2
268 AHAD_143	8432282	786216.6	4324	54.91	69.84	1005.5
269 AHAD_144	8432627	783859.6	4082.3	55.54	70.79	213.2
270 AHAD_145	8432797	783707.2	4024.5	55.22	69.52	176.6
271 AHAD_146	8431983	784340.8	4100.6	55.07	69.2	142.1
272 AHAD_147	8432865	783924.8	4086.7	54.89	70.8	<mark>186.4</mark>
273 AHAD_148	8431866	784228	4165.9	55.02	69.38	179.3
274 AHAD_149	8432694	784035.6	4135.5	55.03	68.38	250.7
275 AHAD_150	8432078	783842.5	4144.2	54.81	68.17	<u>193.9</u>
276 AHAD_151	8433067	784482.6	4047.4	55.08	70.07	222.9
277 AHAD_152	8432907	784082	4166.3	54.75	69.5	<mark>193.8</mark>
278 AHAD_153	8433154	784331.2	4003.4	54.89	69.02	<u>197.6</u>
279 AHAD_154	8432805	784335.1	4110.4	54.85	68.29	184.1
280 AHAD_155	8433195	784544.2	4074.3	54.76	70.32	187.4
281 AHAD_156	8432264	783738.4	4123.7	54.82	70.84	223.3
282 AHAD_157	8432503	784077.2	4161.6	54.86	70.24	208.9
283 AHAD_158	8432423	783621.2	4127.5	54.92	70.04	223.6
284 AHAD_159	8432692	786970.5	4151.1	235.05	70.95	1057.5
285 AHAD_160	8432945	786328.7	4248.4	54.89	79.57	735.8
286 AHAD_161	8431995	783705.8	4105.2	55.13	70.28	216.4
287 AHAD_162	8432456	787842.2	4103.5	257	69	488.4
288 AHAD_163	8432932	785853.9	4064.3	118.86	70.6	<u>544.8</u>
289 AHAD_164	8432400	788108.9	4035.3	236.32	70.55	263.9
290 AHAD_165	8432402	788106.3	4035.4	340.07	68.79	236.8
291 AHAD_166	8432780	787468.9	4174	178	70.09	<u>691.9</u>
292 AHAD_167	8432317	784320.6	4078	318.83	69.89	721
293 AHAD_168	8432692	786968.8	4151.2	54.97	80.57	509.8
294 AHAD_169	8432605	784401.9	4052.8	10.03	71.7	128.4
295 AHAD_170	8432689	784453.2	4052.2	325.09	69.74	194.4
296 AHAD_171	8432691	784456.1	4052.5	260.68	74.93	674.2
297 AHAD_172	8432682	787136.7	4159.7	17.79	80.38	392.9
298 AHAD_173	8432479	786664.1	4252	54.93	80.28	1055.3
299 AHAD_174	8432749	786721.6	4140.9	55.61	82.08	873.5

	NORTHING	EASTING	ELEVATION	AZIMUTH	DIP	DEPTH
MINIMUM	8430531	783421.9	3928.6	0	55	31
MAXIMUM	8433846	788108.9	4324	359.7	90	1157.9
AVERAGE	8432575.4	785196.5	4112.9	71.2	75.4	264.7
RANGE	3315	4687	395.3	359.7	35	1126.9
TOTAL	COUNT	272				
TOTAL	LENGTH	72007.3				