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VM HOLDING S.A.

TECHNICAL REPORT ON THE PRELIMINARY ECONOMIC ASSESSMENT OF THE MAGISTRAL PROJECT, ANCASH REGION, PERU

NI 43-101 Report

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1 SUMMARY

EXECUTIVE SUMMARY

Roscoe Postle Associates Inc. (RPA) was retained by VM Holding S.A. (VMH) to prepare an independent Technical Report on the Magistral Project (the Project or the Property), located in the Ancash Region, Peru. The purpose of this report is to support the disclosure of a Mineral Resource estimate and a Preliminary Economic Assessment (PEA) of the Project. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA visited the Property on June 16, 2017.

VMH is a company based in Luxembourg and is one of the largest producers of zinc in the world. It has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, VMH owns and operates two underground mines, Vazante (Zn and Pb) and Morro Agudo (Zn and Pb) and two development projects, Aripuanã and Caçapava do Sul. It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, VMH owns a controlling interest in Lima Stock Exchange-listed Compañía Minera - Milpo S.A.A. (Milpo). Milpo currently operates the El Porvenir (Zn-Pb-Cu-Ag-Au), Cerro Lindo (Zn-Cu-Pb-Ag), and Atacocha (Zn-Cu-Pb-Au-Ag) underground mines in Peru. The development projects in Peru include Shalipayco, Magistral, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. It also operates one zinc smelter in Peru (Cajamarquilla).

The Magistral Project consists of 34 concessions covering an area of approximately 14,340.29 ha located in the Ancash Region, approximately 450 km northwest of the capital of Lima. The Property is accessible by road.

Open pit mining is proposed to be carried out by a contractor as a conventional truck and shovel operation. The contemplated production rate is 30,000 tonnes per day (tpd) with a strip ratio of approximately 1.5:1 (waste:mineral) over the Life of Mine (LOM). Mineralized material will be directly fed into a primary crusher located adjacent to the open pit. Material from the crusher will be transported to the processing facility using conveyors.

VMH plans to produce separate copper and molybdenum concentrates with respective grades of 26% and 55% which is within the range of marketable concentrates. The copper concentrate will contain some silver for which credit will be gained and which accounts for approximately 4% of the estimated Project revenue.

This report is considered by RPA to meet the requirements of a Preliminary Economic Assessment as defined in Canadian NI 43-101 regulations. The economic analysis contained in this report is based on cost estimates in the range of +30%/-30% and is preliminary in nature. VMH has used only Measured and Indicated Resources in the Whittle optimization and no Inferred Resources are included in either the mine plan or cash flow analysis. There is no certainty that economic forecasts on which this PEA is based will be realized.

CONCLUSIONS

GEOLOGY AND MINERAL RESOURCES

The Magistral Property is underlain predominantly by Cretaceous-age carbonate and clastic sequences. Mineralization is strongly associated with skarns at and within the margins of intrusive porphyries.

- As prepared by VMH and accepted by RPA, the Magistral Measured and Indicated Mineral Resources comprise 205.3 million tonnes at 0.52% Cu, 0.05% Mo, and 2.96 g/t Ag for 2.35 million pounds of Cu, 224 million pounds of Mo, and 19.5 million ounces of Ag. The Magistral Inferred Mineral Resources comprise 50.6 million tonnes at 0.425% Cu, 0.05% Mo, and 2.57 g/t Ag for 474 million pounds of Cu, 52 million pounds of Mo, and 4.2 million ounces of Ag.

- Drill core logging, sampling, sample preparation, and analytical procedures meet industry standards, and results of the VMH quality assurance and quality control (QA/QC) program are appropriate.

- The drill hole database has been maintained to a reasonable standard and is suitable to support Mineral Resource estimation.

- The Mineral Resource estimate has been completed following standard industry practices and is suitable to support the public disclosure of Mineral Resources and Mineral Reserves.

MINING

- Open pit mining is proposed to be carried out at 30,000 tpd using contract mining to produce 650,000 tonnes (1,432 million pounds) of copper, 49,000 tonnes (106 million pounds) of molybdenum, and 10.6 million ounces of silver over the life of the mine. The mine life is expected to be 16 years. Average head grades over the LOM are 0.48% Cu, 0.05% Mo, and 2.9 g/t Ag.

- The mine is envisaged to be primarily operated by a contract mining company, with oversight from the Owner. The mine contractor will provide all of the major mining equipment necessary for mine operations, and will be responsible for maintenance of the equipment and surface facilities. All mineral processing will be Owner operated.

- The level and detail of mine planning is appropriate for a PEA. The method in which Mineral Resources have been evaluated for inclusion in a mine plan is appropriate for this level of study.

- There is arsenic present in the deposit but the mine plan has accounted for the appropriate blending to ensure that the overall levels are maintained to ensure concentrate marketability. The average head grade for arsenic over the LOM is expected to be 0.04% compared to an estimated at 0.25% As in the concentrate. The relatively low ratio of grade in concentrate to head grade is attributed to the low (9%) recoveries of arsenic in the process plant. Generally, the limit of arsenic permitted in a concentrate is 0.50% As.

METALLURGY AND MINERAL PROCESSING

- Metallurgical test work for Magistral has been ongoing since 2000. Testing completed since 2013 has focused on limiting the quantity of arsenic reporting to the copper flotation concentrate.

- Test work completed in 2016 and 2017 confirmed the results achieved in 2013 and 2015. It also included variability testing and geometallurgical evaluations that provide sufficient data to support a feasibility study.

- In RPA's opinion, the samples used to conduct the 2016 and 2017 test work are representative of the material that will be processed over the LOM.

- In RPA's opinion, recovery estimates used to support the PEA are reasonable based on the available metallurgical data. Over the LOM, the recoveries average 87.8% for copper, 76.6% for silver, and 66.9% for molybdenum to concentrates with average grades of 26% Cu, 131 g/t Ag, and 55% Mo.

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

- An Environmental Impact Assessment (EIA) had been submitted in 2008 and was approved in 2009. However, the approval was revoked in 2010 due to the fact that social concerns by the community of Conchucos had not been resolved. A new EIA was submitted in 2016 and was approved in September 2016.

- Geochemical analyses of 15 samples identified that eight samples have zero to low acid generating potential, two have marginal potential to generate acid, and five samples demonstrate a high acid generating potential.

- Due to the geological conditions in the region, soils in the Project area are found to have naturally high arsenic levels, exceeding 140 mg/kg in all baseline sampling locations. All other parameters meet national guidelines for soils.

- The Project will require the resettlement of 21 households/farms. Resettlement in isolated and low income areas can lead to significant social impacts. It is therefore suggested that a detailed and International Finance Corporation (IFC) Resettlement Action Plan be developed and implemented during subsequent planning stages.

COSTS AND ECONOMICS

- The pre-production capital costs for the Project are estimated to be $555.1 million.
- The LOM unit operating costs are estimated to total $9.23/t processed.
- The original general and administrative (G&A) cost assumption used in Whittle was $0.47/t, which appears low. RPA has adjusted the G&A cost to $10 million per year ($0.93/t) for the use in cut-off grade and in the cash flow.

RECOMMENDATIONS

GEOLOGY AND MINERAL RESOURCES

- The relationships between deposit alteration, mineralization, and structure should be investigated for future modelling. Although block grades reflect drilled grades at the reasonable drill spacing, there may be some risk associated with grades reporting locally to structures.
- Arsenic reports locally to structure. VMH should review the structural model in the context of arsenic concentration to refine the understanding of arsenic distribution in mineralized material and to guide mine planning.
- With respect to sampling, analyses, and QA/QC, RPA offers the following recommendations:
    - QA/QC programs should be continued at Magistral and tighter controls on the QA/QC data management should be imposed.
    - The database should be revisited to address minor issues. The database should contain tracking information for re-assayed batches and a proper control for values below and above detection limits. The assay certificates should be revisited and all available data for deleterious elements added to the database.
    - Check sample insertion rates should be increased to approximately 5% or one in 20 samples.
    - All core intervals immediately adjacent to mineralization should be sampled, as undersampling of a few mineralized “shoulders” was noted. These unsampled intervals should also be reviewed after assays have been returned.
    - Data verification programs should be carried out and documented semi-annually.
- With respect to block modelling and Mineral Resource estimation, RPA offers the following recommendations:
    - Evaluate density weighted compositing and grade interpolation. Density weighting could more accurately reflect Mineral Resource tonnages.
    - Incorporate structural data in the database to assist in the fault interpretations and guide the preparation of future updates of the Mineral Resources.
    - Complete further review of mixed domain solids to refine lithological boundaries.
    - Perform capping analysis and visual checks for high grade populations to validate high grade restriction levels.

- o Carry out a final review of the geological modelling to review mineralized drill intervals outside the skarn and mixed domains.
- o Perform additional visual reclassification to re-categorize isolated islands of material at Mineral Resource class boundaries.
- o Extend the block model below the pit shell where mineralization is open at depth.
- o Carry out drilling in areas where mineralization is open at depth.

MINING

- The mine plan presented in this report does not consider a pre-stripping period. There is a significant amount of waste in the early years resulting in higher stripping ratios (4.3:1 in Year 1). RPA recommends that future mine plans evaluate some pre-stripping prior to production. Any mineral extracted in this period could be stockpiled adjacent to the primary crusher location. It is anticipated that mining production will be slow at the start as a result of the steep terrain and pre-stripping will allow time to open up operable mining benches prior to production to permit higher mining rates.

METALLURGY AND MINERAL PROCESSING

- RPA was provided with the 2016 Feasibility Study by Golder Associates Ltd. (the Golder 2016 FS), which used 10,000 tpd of material processed as a design basis, however, the current plan is to process 30,000 tpd. RPA understands that VMH is in the process of completing a new study that is based on 30,000 tpd. RPA recommends that the new design and cost estimates be completed in order to confirm the findings of this report.

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

- The geochemistry baseline has identified that some sample have acid rock drainage (ARD) potential. Further work is required to identify this material. More detailed ARD testing should be carried out and a detailed plan how ARD will be prevented throughout all Project phases should be developed. Also, this test work should determine if the site is expected to generate metal leaching.

- The EIA mentions that the tailings from the molybdenum concentration process and the water treatment precipitate will contain high levels of arsenic. A more detailed plan on management of these wastes should be developed, involving inclusion in the water quality model, with the aim of identifying potential effects on surface waters during all Project phases.

- The EIA determines that there will be effects on water and air, but that regulatory standards will be met. An ecological and human health risk assessment should be carried out, with the aim of identifying if these effects combined with local uses of the areas have the potential to affect the health of local wildlife, feedstock, and/or the local population.

- Site closure will require large amounts of soil. A detailed soils balance should be developed with the aim of ensuring that the required amount of soils will be available to support closure activities.

- Historically, closure of mine sites has the potential to result in significant economic impacts. To avoid these impacts a detailed social management plan should be developed, which includes ongoing consultation, training and planning of workers and local community members, with the aim of mitigating the economic and social effects of mine closure.

OPERATING COSTS

- The operating cost estimates generally appear low. RPA recommends that these be reviewed for future studies.

PROPOSED BUDGET

The Magistral Project has a minimal budget for 2017, in order to keep environmental and social licences in good standing, however, in 2018, Milpo intends to invest US$500,000 in exploration and drilling permitting applications at seven regional/satellite targets. The plan is to cover the regional area (4 km by 4 km) with 200 m line-spacing ground- or UAV-borne magnetometry. The concept behind this relies on the fact that the skarn mineralization has a very high and unique magnetic susceptibility with evident contrast with the other rocks in the region. Milpo plans to process/invert the magnetometry data in 3D, which aligned with the current surface expressions of these targets (geology and rock geochemistry) could lead Milpo to successfully define high-grade satellite targets to be tested by diamond drilling in 2019.

ECONOMIC ANALYSIS

The economic analysis contained in this report is based on cost estimates of +30%/-30% and is preliminary in nature. VMH has used only Measured and Indicated Resources in the Whittle optimization and no Inferred Resources are included in either the mine plan or cash flow analysis. There is no certainty that economic forecasts on which this PEA is based will be realized.

Using a half-year period discount assumption, an after-tax Cash Flow Projection has been generated from the LOM production schedule and capital and operating cost estimates, and is summarized in Table 1-1. A summary of the key criteria is provided below.

ECONOMIC CRITERIA

REVENUE

- 30,000 tonnes per day mining from open pit (10.8 Mtpa).
- Mill recovery by rock type, as indicated by test work, averaging 88% for copper, 77% for silver, and 67% for molybdenum.

- Payable of 96.2% for copper and 77.5% for silver. Molybdenum payables are accounted for in a higher treatment cost.
- All economic figures are expressed in $US.
- Metal price: $2.74/lb for copper, $7.48/lb for molybdenum, and $18.91/oz for silver.
- NSR includes logistics, treatment, and refining costs.
- Revenue is recognized at the time of production.

COSTS

- Pre-production period: 36 months (2019 to 2021).
- Mine life: 16 years.
- LOM production plan as summarized in Table 16-9.
- Mine life capital totals $731.6 million including $555.1 million in initial capital costs.
- Average operating cost over the mine life is $9.23 per tonne milled.

TABLE 1-1 CASH FLOW SUMMARY
VM Holding S.A. - Magistral Project

Date:	INPUTS	UNITS	TOTAL	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
MINING																						
Open Pit																						
Operating Days	360	days	6,267				360	360	360	360	360	360	360	360	360	360	253	360	360	360	360	254
Tonnes milled per day		tonnes / day	24,868				14,895	26,580	30,002	30,036	29,939	29,956	29,945	29,193	29,996	30,007	42,681	30,088	29,992	29,998	30,010	3,218
Tonnes moved per day		tonnes / day	62,127				79,492	102,580	106,592	97,893	97,617	96,153	97,489	97,478	71,475	50,681	61,228	37,669	35,952	34,285	30,773	3,346
Total Production		'000 tonnes	155,846				5,362	9,569	10,801	10,813	10,778	10,784	10,780	10,510	10,799	10,803	10,798	10,832	10,797	10,799	10,804	817
As Grade		%	0.00				0.07%	0.03%	0.03%	0.03%	0.03%	0.04%	0.04%	0.06%	0.07%	0.07%	0.05%	0.04%	0.03%	0.04%	0.03%	0.02%
Ag Grade		g/t	2.86				4.07	2.55	5.11	3.58	2.76	2.61	2.65	3.01	2.82	2.85	2.63	2.27	2.40	2.32	1.87	1.55
Cu Grade		%	0.48%				0.73%	0.50%	0.62%	0.52%	0.40%	0.38%	0.39%	0.44%	0.52%	0.53%	0.50%	0.45%	0.46%	0.48%	0.42%	0.38%
Mo Grade		%	0.05%				0.05%	0.05%	0.03%	0.04%	0.04%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.06%	0.05%	0.05%	0.05%
Waste		'000 tonnes	233,501				23,255	27,360	27,572	24,429	24,364	23,831	24,316	24,582	14,932	7,442	4,692	2,729	2,146	1,543	274	32
Total Moved		'000 tonnes	389,347				28,617	36,929	38,373	35,241	35,142	34,615	35,096	35,092	25,731	18,245	15,491	13,561	12,943	12,343	11,078	850
Stripping Ratio			1.50				4.34	2.86	2.55	2.26	2.26	2.21	2.26	2.34	1.38	0.69	0.43	0.25	0.20	0.14	0.03	0.04
PROCESSING																						
Total Mill Feed		'000 tonnes	155,846				5,362	9,569	10,801	10,813	10,778	10,784	10,780	10,510	10,799	10,803	10,798	10,832	10,797	10,799	10,804	817
As Grade		%	0.04%				0.07%	0.03%	0.03%	0.03%	0.03%	0.04%	0.04%	0.06%	0.07%	0.07%	0.05%	0.04%	0.03%	0.04%	0.03%	0.02%
Ag Grade		g/t	2.86				4.07	2.55	5.11	3.58	2.76	2.61	2.65	3.01	2.82	2.85	2.63	2.27	2.40	2.32	1.87	1.55
Cu Grade		%	0.48%				0.73%	0.50%	0.62%	0.52%	0.40%	0.38%	0.39%	0.44%	0.52%	0.53%	0.50%	0.45%	0.46%	0.48%	0.42%	0.38%
Mo Grade		%	0.05%				0.05%	0.05%	0.03%	0.04%	0.04%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.06%	0.05%	0.05%	0.05%
Contained As		tonnes	67,825				3,898	3,094	3,707	3,300	3,555	3,782	3,879	5,780	7,704	7,432	5,611	4,706	3,434	4,431	3,333	179
Contained Ag		oz	14,314,699				701,500	785,248	1,775,816	1,245,411	957,541	906,102	919,123	1,018,575	979,782	990,822	912,168	791,688	834,665	806,704	648,875	40,679
Contained Cu		tonnes	750,544				39,326	47,703	67,196	56,058	43,405	41,278	41,952	46,599	56,614	57,476	53,720	49,135	49,185	52,118	45,670	3,109
Contained Mo		tonnes	72,623				2,437	5,032	3,684	4,078	4,049	4,486	5,189	4,800	5,733	5,536	5,169	5,121	6,104	5,661	5,112	432
Total Recovery																						
Copper Concentrate																						
As Recovery		%	10%				9%	10%	7%	8%	9%	9%	9%	8%	10%	11%	12%	12%	10%	10%	10%	9%
Ag Recovery		%	77%				72%	78%	72%	76%	78%	79%	78%	76%	73%	75%	77%	79%	79%	78%	82%	82%
Cu Recovery		%	88%				83%	90%	84%	87%	89%	89%	89%	87%	84%	86%	88%	90%	90%	88%	93%	94%
Mo Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Moly Concentrate																						
As Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ag Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cu Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Mo Recovery		%	67%				55%	73%	55%	65%	69%	69%	67%	64%	57%	62%	68%	72%	74%	68%	79%	83%
Net Recovery																						
As Recovery		%	10%				8.50%	10.16%	6.78%	7.86%	8.96%	9.19%	8.53%	7.88%	9.58%	11.21%	12.12%	12.11%	10.01%	9.68%	9.92%	9.26%
Ag Recovery		%	77%				72.16%	78.34%	72.39%	76.00%	78.33%	78.70%	77.72%	76.03%	72.72%	74.80%	77.16%	78.88%	78.79%	77.86%	82.03%	82.01%
Cu Recovery		%	88%				83.49%	89.83%	83.68%	87.49%	89.07%	89.29%	88.54%	87.18%	83.85%	85.69%	87.92%	89.64%	90.27%	88.49%	92.73%	94.03%
Mo Recovery		%	67%				55.44%	72.69%	54.69%	65.27%	68.98%	69.45%	67.45%	64.05%	56.79%	62.17%	68.21%	72.50%	73.69%	67.80%	78.75%	83.35%
Production																						
Copper Concentrate																						
As		tonnes	6,550				331	314	251	259	319	348	331	456	738	833	680	570	344	429	331	17
Ag		oz	10,643,974				487,850	597,425	1,241,844	901,330	719,295	688,136	693,034	746,800	700,510	731,754	695,239	622,902	650,522	610,910	523,082	33,340
Cu		tonnes	649,575				32,140	41,989	55,101	47,559	37,588	36,157	36,778	39,903	47,194	49,286	47,210	44,224	44,318	45,443	41,760	2,924
Mo		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
							70%	76%	70%	72%	75%	76%	75%	73%	71%	74%	76%	79%	78%	76%	81%	82%
Moly Concentrate																						
Ag		oz	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mo		tonnes	48,032				1,404	3,679	1,991	2,637	2,728	3,055	3,460	3,125	3,118	3,284	3,391	3,636	4,427	3,721	4,014	363
							58%	73%	54%	65%	67%	68%	67%	65%	54%	59%	66%	71%	73%	66%	79%	84%
Copper Concentrate		dmt	2,498,365				123,614	161,495	211,928	182,921	144,568	139,066	141,454	153,473	181,514	189,563	181,579	170,092	170,454	174,780	160,617	11,247
As grade in concentrate		%	0.25				0.205	0.188	0.115	0.143	0.231	0.260	0.253	0.263	0.380	0.351	0.346	0.358	0.218	0.267	0.223	0.158
Ag grade in concentrate		g/t	132.5				122.8	115.1	182.3	153.3	154.8	153.9	152.4	151.3	120.0	120.1	119.1	113.9	118.7	108.7	101.3	92.2
Cu grade in concentrate	26%	%	26%				26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
Mo grade in concentrate		%	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concentrate Moisture	10%																					
Copper Concentrate		wmt	2,775,961				137,348	179,438	235,476	203,245	160,631	154,517	157,172	170,526	201,682	210,626	201,754	188,991	189,393	194,200	178,463	12,497
Moly Concentrate		dmt	87,330				2,553	6,689	3,620	4,795	4,960	5,554	6,290	5,683	5,668	5,971	6,165	6,610	8,049	6,765	7,298	659
Ag grade in concentrate		g/t	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu grade in concentrate		%	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mo grade in concentrate	55%	%	55%				55.00%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Concentrate Moisture	10%																					
Moly Concentrate		wmt	97,034				2,837	7,433	4,023	5,328	5,511	6,172	6,989	6,314	6,298	6,635	6,850	7,344	8,943	7,516	8,109	732
Total Concentrate Tonnes		wmt	2,872,995				140,186	186,871	239,498	208,573	166,142	160,689	164,161	176,840	207,981	217,261	208,603	196,336	198,336	201,717	186,572	13,230
Total Recovered																						
Ag		**oz**	**10,643,974**				**487,850**	**597,425**	**1,241,844**	**901,330**	**719,295**	**688,136**	**693,034**	**746,800**	**700,510**	**731,754**	**695,239**	**622,902**	**650,522**	**610,910**	**523,082**	**33,340**
Cu	**1,432,065,996**	**tonnes**	**649,575**				**32,140**	**41,989**	**55,101**	**47,559**	**37,588**	**36,157**	**36,778**	**39,903**	**47,194**	**49,286**	**47,210**	**44,224**	**44,318**	**45,443**	**41,760**	**2,924**
Mo	**105,891,408**	**tonnes**	**48,032**				**1,404**	**3,679**	**1,991**	**2,637**	**2,728**	**3,055**	**3,460**	**3,125**	**3,118**	**3,284**	**3,391**	**3,636**	**4,427**	**3,721**	**4,014**	**363**
REVENUE																						
Metal Prices																						
Ag	US$18.91 / oz Ag	US$/oz Ag	$ 18.91				$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91
Cu	US$2.74 / lb Cu	US$/lb Cu	$ 2.74				$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74
Mo	US$7.48 / lb Mo	US$/lb Mo	$ 7.48				$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48
Exchange Rate	1.00 US$ = 1.00 US$	US$ 1.00 = X US$	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Copper Concentrate Payable %				If Grade <	Min Deduct	Max Payable																
Ag		%	77%	298.6 g/t	29.86 g/t	90.0%	75.7%	74.0%	83.6%	80.5%	80.7%	80.6%	80.4%	80.3%	75.1%	75.1%	74.9%	73.8%	74.8%	72.5%	70.5%	67.6%
Cu		%	96%	30.3%	1%	96.7%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%
Mo		%	0%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Moly Concentrate Payable %																						
Ag		%	0%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cu		%	0%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mo	0%	%	100%		0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Copper Metal Payable																						
Ag		oz	8,245,543				369,181	442,390	1,038,393	725,726	580,510	554,633	557,238	599,466	526,256	549,773	520,923	459,613	486,887	443,121	368,890	22,543
Cu		tonnes	624,591				30,903	40,374	52,982	45,730	36,142	34,766	35,364	38,368	45,379	47,391	45,395	42,523	42,613	43,695	40,154	2,812
Mo		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moly Metal Payable																						
Ag		oz	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mo		tonnes	48,032				1,404	3,679	1,991	2,637	2,728	3,055	3,460	3,125	3,118	3,284	3,391	3,636	4,427	3,721	4,014	363
Gross Revenue																						
Ag Gross Revenue		US$ '000	$155,923				$6,981	$8,366	$19,636	$13,723	$10,977	$10,488	$10,537	$11,336	$9,952	$10,396	$9,851	$8,691	$9,207	$8,379	$6,976	$426
Cu Gross Revenue	3,583,651.35	US$ '000	$3,773,747				$186,717	$243,935	$320,115	$276,299	$218,368	$210,057	$213,665	$231,819	$274,175	$286,333	$274,272	$256,922	$257,468	$264,003	$242,610	$16,989
Mo Gross Revenue	500,263.70	US$ '000	$792,034				$23,158	$60,668	$32,835	$43,488	$44,981	$50,375	$57,049	$51,539	$51,409	$54,158	$55,909	$59,949	$72,998	$61,351	$66,187	$5,979
Total Gross Revenue		**US$ '000**	**$4,721,704**				**$216,856**	**$312,969**	**$372,586**	**$333,511**	**$274,327**	**$270,920**	**$281,251**	**$294,694**	**$335,535**	**$350,887**	**$340,031**	**$325,562**	**$339,673**	**$333,734**	**$315,772**	**$23,394**
Logistics																						
Cu Concentrate	US$130.00 / wmt conc	US$ '000	$360,875				$17,855	$23,327	$30,612	$26,422	$20,882	$20,087	$20,432	$22,168	$26,219	$27,381	$26,228	$24,569	$24,621	$25,246	$23,200	$1,625
Mo Concentrate	US$130.00 / wmt conc	US$ '000	$12,614				$369	$966	$523	$693	$716	$802	$909	$821	$819	$863	$890	$955	$1,163	$977	$1,054	$95
Treatment																						
Cu Concentrate	US$90.00 / dmt conc	US$ '000	$224,853				$11,125	$14,535	$19,074	$16,463	$13,011	$12,516	$12,731	$13,813	$16,336	$17,061	$16,342	$15,308	$15,341	$15,730	$14,456	$1,012
Mo Concentrate	US$3308.00 / dmt conc	US$ '000	$288,888				$8,447	$22,128	$11,976	$15,862	$16,406	$18,374	$20,808	$18,798	$18,751	$19,754	$20,392	$21,866	$26,626	$22,377	$24,141	$2,181
Refining cost																						
Ag	US$0.50 / oz Ag	US$ '000	$4,123				$185	$221	$519	$363	$290	$277	$279	$300	$263	$275	$260	$230	$243	$222	$184	$11
Cu	US$0.09 / lb Cu	US$ '000	$117,043				$5,791	$7,566	$9,928	$8,569	$6,773	$6,515	$6,627	$7,190	$8,504	$8,881	$8,507	$7,968	$7,985	$8,188	$7,525	$527
Mo	US$0.03 / lb Mo	US$ '000	$2,882				$84	$221	$119	$158	$164	$183	$208	$188	$187	$197	$203	$218	$266	$223	$241	$22
Total Charges		US$ '000	$1,011,278				$43,856	$68,964	$72,752	$68,530	$58,243	$58,755	$61,993	$63,277	$71,079	$74,411	$72,823	$71,114	$76,245	$72,963	$70,801	$5,473
Net Revenue		**US$ '000**	**$3,710,426**				**$173,000**	**$244,006**	**$299,834**	**$264,981**	**$216,084**	**$212,165**	**$219,258**	**$231,417**	**$264,457**	**$276,476**	**$267,208**	**$254,448**	**$263,429**	**$260,770**	**$244,971**	**$17,921**
Unit NSR		**US$/t milled**	**$23.81**				**$32.26**	**$25.50**	**$27.76**	**$24.51**	**$20.05**	**$19.67**	**$20.34**	**$22.02**	**$24.49**	**$25.59**	**$24.75**	**$23.49**	**$24.40**	**$24.15**	**$22.67**	**$21.92**

Date:	INPUTS	UNITS	TOTAL	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
CUT-OFF GRADE																						
Net Revenue by Metal																						
Ag		%	4%				4%	3%	6%	5%	5%	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%	2%
Cu		%	83%				88%	81%	87%	85%	82%	81%	79%	82%	84%	84%	84%	82%	80%	82%	81%	77%
Mo		%	13%				8%	15%	7%	10%	13%	15%	16%	14%	12%	12%	13%	15%	17%	14%	17%	21%
Total		%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Revenue per Metal Unit (NSR Factor)																						
Ag		$ per g Ag	$0.34				$0.31	$0.33	$0.35	$0.34	$0.36	$0.36	$0.36	$0.35	$0.32	$0.33	$0.34	$0.34	$0.35	$0.33	$0.34	$0.33
Cu		$ per % Cu	$40.92				$38.64	$41.61	$38.77	$40.11	$40.94	$41.41	$41.45	$40.48	$39.41	$40.54	$41.55	$42.55	$42.60	$41.22	$43.23	$44.47
Mo		$ per % Mo	$67.15				$58.51	$74.23	$54.88	$65.66	$68.40	$69.14	$67.69	$66.11	$55.21	$60.23	$66.60	$72.07	$73.63	$66.72	$79.72	$85.25
OPERATING COST																						
Mining (Open Pit)		US$/t moved	$1.70				$1.61	$1.63	$1.64	$1.65	$1.65	$1.65	$1.65	$1.64	$1.68	$1.73	$1.76	$1.79	$1.80	$1.81	$1.84	$1.83
Mining (Open Pit)		US$/t milled	$4.18				$8.60	$6.30	$5.82	$5.36	$5.37	$5.29	$5.36	$5.49	$4.00	$2.92	$2.52	$2.24	$2.15	$2.07	$1.88	$1.91
Processing		US$/t milled	$4.12				$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12
G&A		US$/t milled	$0.93				$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93
Total Unit Operating Cost		**US$ '000**	**$9.23**				**$13.65**	**$11.35**	**$10.87**	**$10.41**	**$10.41**	**$10.33**	**$10.41**	**$10.54**	**$9.05**	**$7.96**	**$7.57**	**$7.28**	**$7.20**	**$7.11**	**$6.93**	**$6.95**
Mining (Open Pit)		US$ '000	$651,264				$46,128	$60,283	$62,885	$58,008	$57,843	$57,024	$57,772	$57,689	$43,183	$31,518	$27,224	$24,227	$23,254	$22,319	$20,350	$1,558
Processing		US$ '000	$641,541				$22,074	$39,391	$44,462	$44,511	$44,368	$44,394	$44,376	$43,263	$44,453	$44,469	$44,451	$44,588	$44,446	$44,456	$44,474	$3,365
G&A		US$ '000	$144,944				$4,988	$8,900	$10,045	$10,056	$10,024	$10,030	$10,026	$9,774	$10,043	$10,047	$10,043	$10,074	$10,042	$10,044	$10,048	$760
Total Operating Cost		**US$ '000**	**$1,437,750**				**$73,190**	**$108,573**	**$117,392**	**$112,575**	**$112,236**	**$111,448**	**$112,174**	**$110,726**	**$97,679**	**$86,034**	**$81,718**	**$78,889**	**$77,742**	**$76,819**	**$74,871**	**$5,683**
Unit Operating Cost		US$/t milled	$15,714				$21,827	$18,553	$17,605	$16,749	$15,817	$15,782	$16,156	$16,557	$15,628	$14,852	$14,312	$13,849	$14,262	$13,870	$13,483	$13,647
Production Taxes & Royalties		**US$ '000**	**$248,066**				**$6,195**	**$10,597**	**$17,380**	**$12,634**	**$6,543**	**$6,046**	**$6,733**	**$8,149**	**$13,889**	**$18,241**	**$29,311**	**$26,665**	**$29,339**	**$29,050**	**$26,820**	**$476**
Operating Cashflow		US$ '000	$2,024,609				$93,615	$124,836	$165,061	$139,772	$97,306	$94,671	$100,350	$112,542	$152,889	$172,200	$156,179	$148,894	$156,348	$154,902	$143,280	$11,762
CAPITAL COST																						
Direct Cost																						
Mining		US$ '000	$22,396	$1,803	$10,489	$10,104	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Processing		US$ '000	$164,273	$13,223	$76,936	$74,114	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Infrastructure		US$ '000	$80,620	$6,490	$37,758	$36,373	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tailings		US$ '000	$47,433	$3,818	$22,215	$21,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Direct Cost		**US$ '000**	**$314,721**	**$25,334**	**$147,397**	**$141,991**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Other Costs																						
EPCM / Owners / Indirect Cost	46%	US$ '000	$145,996	$11,752	$68,376	$65,868	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Costs		**US$ '000**	**$460,717**	**$37,086**	**$215,773**	**$207,858**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Contingency	30%	US$ '000	$94,415	$7,600	$44,219	$42,597	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Initial Capital Cost		**US$ '000**	**$555,133**	**$44,686**	**$259,992**	**$250,455**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sustaining		US$ '000	$143,455	$0	$0	$0	$8,327	$8,327	$12,679	$8,327	$13,117	$8,327	$8,327	$8,327	$13,110	$8,327	$8,327	$12,952	$8,327	$8,327	$8,327	$0
Reclamation and closure		US$ '000	$33,022	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,022
Total Capital Cost		**US$ '000**	**$731,609**	**$44,686**	**$259,992**	**$250,455**	**$8,327**	**$8,327**	**$12,679**	**$8,327**	**$13,117**	**$8,327**	**$8,327**	**$8,327**	**$13,110**	**$8,327**	**$8,327**	**$12,952**	**$8,327**	**$8,327**	**$8,327**	**$33,022**
PRE-TAX CASH FLOW																						
Net Pre-Tax Cashflow		US$ '000	$1,293,000	-$44,686	-$259,992	-$250,455	$85,288	$116,509	$152,383	$131,445	$84,189	$86,344	$92,023	$104,215	$139,779	$163,873	$147,852	$135,943	$148,021	$146,575	$134,953	-$21,260
Cumulative Pre-Tax Cashflow		US$ '000		-$44,686	-$304,677	-$555,133	-$469,845	-$353,335	-$200,953	-$69,507	$14,682	$101,026	$193,049	$297,264	$437,043	$600,916	$748,768	$884,711	$1,032,732	$1,179,306	$1,314,260	$1,293,000
Taxes	31%	US$ '000	$400,739	$0	$0	$10,994	$19,959	$31,451	$23,745	$10,831	$9,808	$11,238	$14,589	$26,104	$31,555	$43,206	$40,920	$43,247	$42,821	$39,534	$736	$0
After-Tax Cashflow		US$ '000	$892,262	-$44,686	-$259,992	-$261,449	$65,329	$85,058	$128,637	$120,614	$74,381	$75,106	$77,435	$78,111	$108,223	$120,668	$106,932	$92,695	$105,200	$107,041	$134,217	-$21,260
Cumulative After-Tax Cashflow		US$ '000		-$44,686	-$304,677	-$566,127	-$500,798	-$415,740	-$287,103	-$166,489	-$92,107	-$17,001	$60,434	$138,544	$246,768	$367,435	$474,367	$567,062	$672,263	$779,304	$913,521	$892,262
PROJECT ECONOMICS				1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5
Pre-Tax IRR		%	17.0%																			
Pre-tax NPV at 5% discounting	5.0%	US$ '000	$573,972	-$41,532	-$230,137	-$211,138	$68,476	$89,088	$110,970	$91,164	$55,609	$54,317	$55,133	$59,464	$75,958	$84,811	$72,876	$63,815	$66,176	$62,409	$54,724	-$8,210
Pre-tax NPV at 7.5% discounting	9.0%	US$ '000	$275,175	-$39,267	-$209,601	-$185,241	$57,872	$72,529	$87,029	$68,873	$40,470	$38,079	$37,232	$38,683	$47,600	$51,198	$42,378	$35,747	$35,710	$32,441	$27,403	-$3,960
Pre-tax NPV at 10% discounting	10.0%	US$ '000	$222,912	-$38,733	-$204,870	-$179,414	$55,542	$68,976	$82,013	$64,313	$37,447	$34,914	$33,828	$34,827	$42,465	$45,259	$37,122	$31,029	$30,715	$27,649	$23,143	-$3,314
After-Tax IRR		%	12.8%																			
After-Tax NPV at 5% discounting	5.0%	US$ '000	$346,388	-$41,532	-$230,137	-$220,407	$52,451	$65,039	$93,678	$83,653	$49,131	$47,247	$46,393	$44,569	$58,810	$62,450	$52,706	$43,513	$47,032	$45,576	$54,426	-$8,210
After-Tax NPV at 9% discounting	9.0%	US$ '000	$122,846	-$39,267	-$209,601	-$193,373	$44,329	$52,950	$73,467	$63,198	$35,755	$33,123	$31,330	$28,994	$36,854	$37,699	$30,650	$24,375	$25,379	$23,691	$27,253	-$3,960
After-tax NPV at 10% discounting	10.0%	US$ '000	$84,213	-$38,733	-$204,870	-$187,289	$42,544	$50,356	$69,233	$59,014	$33,085	$30,370	$28,465	$26,103	$32,878	$33,327	$26,848	$21,158	$21,829	$20,192	$23,017	-$3,314

TAXATION AND ROYALTIES

- Total taxes over the LOM are $401 million and result in an effective tax rate of 31% after accounting for depreciation. All assets are depreciated on a 10-year straight-line basis.
- Corporate tax rate is 29.5%.
- Royalties of 5.46% (average) over the LOM.
- There is an 8% profit sharing tax for Peru.

CASH FLOW ANALYSIS

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals $1,293 million over the mine life, and simple payback occurs five years after start of production.

Using a half-year period discount assumption, the After-Tax Net Present Value (NPV) at a 9% discount rate is $123 million, and the Internal Rate of Return (IRR) is 12.8%.

SENSITIVITY ANALYSIS

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities:

- Copper price
- Copper recovery
- Copper head grade
- Operating costs
- Capital costs

IRR sensitivity over the base case has been calculated for -20% to +20% variations. The sensitivities are shown in Figure 1-1 and Table 1-2. The Project is most sensitive to changes in metal prices, followed by head grade, recovery, and capital costs.

FIGURE 1-1 MAGISTRAL SENSITIVITY ANALYSIS

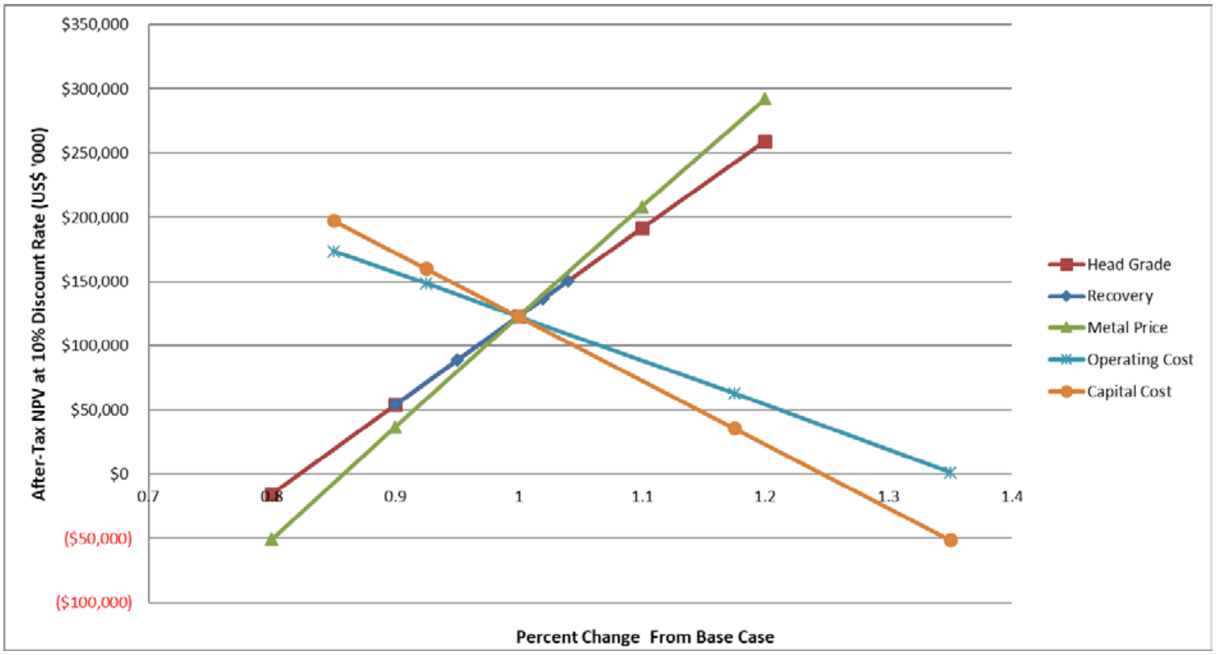


TABLE 1-2 MAGISTRAL SENSITIVITY ANALYSIS
VM Holding S.A. - Magistral Project

Sensitivity	Head Grade	NPV at 9% (US$'000)
80%	0.39%	$(15,657)
90%	0.43%	$54,054
100%	**0.48%**	$122,846
110%	0.53%	$191,426
120%	0.58%	$259,147

Sensitivity	Recovery	NPV at 9% (US$'000)
90%	79%	$54,054
95%	84%	$88,699
100%	**88%**	$122,846
102%	90%	$136,609
104%	91%	$150,419

Sensitivity	Copper Price	NPV at 9% (US$'000)
80%	$2.19	($50,635)
90%	$2.47	$36,926
100%	**$2.74**	$122,846
110%	$3.01	$208,346
120%	$3.29	$292,238

Sensitivity	Operating Cost	NPV at 9% (US$'000)
85%	$1,222,087	$173,533
93%	$1,329,919	$148,671
100%	**$1,437,750**	$122,846
118%	$1,689,356	$62,889
135%	$1,940,962	$1,654

Sensitivity	Capital Cost	NPV at 9% (US$'000)
85%	$621,868	$197,477
93%	$676,738	$160,162
100%	**$731,609**	$122,846
118%	$859,641	$35,777
135%	$987,672	($51,292)

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The Project is located in the Ancash Region, approximately 450 km north northwest of the capital of Lima and approximately 140 km east of the port city of Trujillo. The centre of the Project is approximately at Universal Transverse Mercator (UTM) co-ordinates 9,089,000m N and 190,000m E (WGS 84, Zone 18S). The Property can be reached by vehicle by driving a total of 272 km from Trujillo, much of which consists of secondary, poorly maintained roads that traverse steep topography.

LAND TENURE

The Project consists of a large, irregularly shaped block of contiguous concessions and two smaller, non-contiguous single concessions. The Project comprises 34 granted concessions, totalling 14,340.29 ha.

In 2011, Milpo was awarded a contract to develop Magistral. Milpo made an initial payment of US$8.02 million to acquire the Magistral concessions, subject to a 2% NSR royalty upon production. Under the terms of the contract, Milpo has a 48-month period to exercise the option by committing to develop the Property within 36 months of the exercise date.

Milpo currently holds a 100% interest in 21 of the 34 concessions comprising the Project. Milpo holds eight concessions by way of a Lease Agreement entered into with Compañía de Minas

Magistral S.A.; Minas Ancash Cobre S.A. (Ancash Cobre), a company controlled either directly or indirectly by Milpo, holds a 100% interest in three mineral concessions; and Compañía Minera Atacocha S.A.A., a company also controlled by Milpo, holds a 100% interest in two concessions.

EXISTING INFRASTRUCTURE

Local resources are minimal. The closest electric power substation connected to the national grid is at Pallasca (69 kV/22.9 kV), a distance of approximately 60 km from the Property.

HISTORY

The Pasto Bueno - Conchucos district, of which Magistral is a part, was known early in the colonial era as a gold-silver producing district. Early records report the production of 22,000 ounces of gold and 44,000 ounces of silver between 1644 and 1647. The first modern records of exploitation date to 1915 when the Garagorri Mining Company built a small smelting furnace to exploit high-grade surface ores from shallow workings in the Arizona and El Indio outcrops. This operation continued until 1919.

In 1920, Cerro de Pasco Corporation (Cerro de Pasco) conducted a thorough study of the deposit area, which included topographic and geologic mapping. A total of 854 m of underground workings were accessible in 1920. Cerro de Pasco purchased the Magistral concessions in 1950, but no significant work was done until 1969. From 1969 to 1973, Minera Magistral conducted a surface and underground exploration program. Buenaventura Ingenieros S.A. conducted a thorough evaluation of the Magistral deposit in 1980-1981.

In 1997, Minero Peru S.A. (Minero Peru) began the process to privatize Magistral by inviting open bidding. An option to purchase the titles to the five Magistral mining concessions was awarded to Inca Pacific Resources Inc. (Inca Pacific) on February 18, 1999. In November 2000, Inca Pacific and Minera Anaconda Peru S.A. (Anaconda Peru) formed Ancash Cobre, as a holding company to carry out exploration and development at Magistral.

From 1999 to 2001, Anaconda Peru completed 76 drill holes totalling 24,639.58 m. In March 2004, Inca Pacific acquired Anaconda Peru's 51% interest in Ancash Cobre for $2.1 million, thus restoring its 100% interest in Magistral.

In 2004, Ancash Cobre completed a 7,984.85 m, 34-hole, diamond drill hole program, a geotechnical review, and initiated environmental baseline studies. In 2005, Inca Peru entered into a joint venture with Quadra Mining (Quadra).

In 2005, Ancash Cobre (funded by Quadra) drilled 14,349.35 m in 60 holes. In October 2005, Quadra withdrew from the joint venture and retained no interest. In 2006 Ancash Cobre completed a 7,073.5 m, 49-hole, diamond drilling program, and a positive preliminary feasibility study was issued by SRK Consulting (Canada) Inc. (SRK) in October 2006. In 2007, Ancash Cobre drilled 18,222.35 m in 116 drill holes, prepared a new mineral resource estimate, and completed a final feasibility study. In December 2009, the Peruvian government agency responsible for administering the Magistral contract with Ancash Cobre announced that it was terminating the contract.

GEOLOGY AND MINERALIZATION

The western continental margin of the South American Plate developed at least since Neoproterozoic to Early Paleozoic times and constitutes a convergent margin, along which eastward subduction of Pacific oceanic plates beneath the South American Plate takes place. Through this process, the Andean Chain, the highest non-collisional mountain range in the world, developed.

The Central Andes developed as a typical Andean-type orogen through subduction of oceanic crust and volcanic arc activity. The Central Andes includes an ensialic crust and can be subdivided into three main sections which reveal different subduction-geometry as well as different uplift mechanisms. The Northern Sector of the Central Andes, which hosts the Magistral Project, developed through extensional tectonics and subduction during early Mesozoic times. The sector was uplifted due to compression and deformation towards the foreland. In the last 5 Ma a flat-slab subduction developed (Peruvian Flat Slab Segment).

The Magistral property is near the northeastern end of the Cordillera Blanca, a region that is underlain predominantly by Cretaceous carbonate and clastic sequences. These units strike north to northwest and are folded into a series of anticlines and synclines with northwest-trending axes.

The Cretaceous sedimentary rocks are bounded to the east by an early Paleozoic metamorphic terrane composed mainly of micaceous schist, gneissic granitoid, and slate. The

Cretaceous sedimentary sequence unconformably overlies these metamorphic rocks. The Cretaceous rocks are structurally overlain by black shale and sandstone of the Upper Jurassic Chicama Formation that were thrust eastwards along a prominent regional structure. The Chicama Formation was intruded by granodiorite and quartz diorite related to the extensive Cordillera Blanca batholith, which has been dated at 8.2 +/- 0.2 Ma.

Several major structural features are evident in the Cretaceous sedimentary rocks in the Magistral region, including anticlines, synclines, and thrust faults. The trend of the fold axes and the strike of the faults changes from northwest to north near Magistral.

EXPLORATION STATUS

Since acquiring the Project in 2011, Milpo has initiated a comprehensive exploration program consisting of geological mapping, prospecting and sampling, ground geophysical surveying, and diamond drilling.

Seven exploration targets occur in a radius of two kilometres from San Ernesto, H, and Sara porphyries. The targets are identified by country rock alteration (e.g., marble, skarn), porphyry intrusions, and anomalous rocks identified from rock chip sampling. Of the seven targets, only two were drilled. There has been no drilling on the Property since 2015.

MINERAL RESOURCE ESTIMATE

The Mineral Resource estimate for the Magistral Project was completed by VMH with an effective date of June 30, 2017. The estimate was reviewed and accepted by RPA, and is summarized in Table 1-3.

TABLE 1-3 MINERAL RESOURCE ESTIMATE, JUNE 30, 2017
VM Holding S.A. – Magistral Project

Resource Category	Tonnage (000 t)	Grade			Contained Metal		
		Cu %	Mo %	Ag g/t	Cu Mlb	Mo Mlb	Ag (000 oz)
Measured	84,238	0.56	0.06	2.96	1,033	104	8,020
Indicated	121,076	0.50	0.05	2.96	1,321	120	11,530
Total Measured + Indicated	**205,314**	**0.52**	**0.05**	**2.96**	**2,354**	**224**	**19,550**
Inferred	50,571	0.43	0.05	2.57	474	52	4,180

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are reported using a 0.2% Cu cut-off grade for the material inside the pit shell design.
3. Mineral Resources are estimated based on metal prices of US$2.68 per lb Cu, US$7.30 per lb Mo and US$18.94 per ounce Ag.
4. Density was assigned based on rock type.
5. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
6. Numbers may not add due to rounding.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

The Mineral Resource was completed using MineSight, Leapfrog Geo, and Supervisor software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, and structural data. Assays were composited to five metre lengths, then interpolated using a high yield restriction for anomalously high grades instead of capping. Grade was interpolated into a 10 m by 10 m by 10 m regular block model. Blocks were interpolated with grade using Ordinary Kriging (OK) and checked using Inverse Distance Squared (ID^2) and Nearest Neighbour (NN) methods. Block estimates were validated using industry standard validation techniques. Classification of blocks was based on distance based criteria.

Mineral Resources are based on a 0.2% Cu cut-off grade inside a pit shell. RPA concurs that it is more reasonable to declare the Mineral Resource based on Cu grade than NSR, because molybdenum and silver grades are low relative to copper.

RPA reviewed the Mineral Resource modelling methods and parameters and accepted the results.

MINERAL RESERVE ESTIMATE

There currently are no Mineral Reserves on the Magistral Project.

MINING METHOD

Open pit mining is proposed to be carried out by a contractor as a conventional truck and shovel operation. VMH is currently studying the option to mine using owner-owned equipment but the trade-off analysis was not available at the time of this report.

The mining contractor would undertake the following activities:

- Drilling performed by conventional hydraulic production drills.
- Blasting using ANFO (ammonium-nitrate fuel oil) and a down-hole delay initiation system.
- Loading and hauling operations performed with hydraulic excavators, and 40t 8x4 haulage trucks.

The production equipment would be supported by bulldozers, graders, and water trucks. VMH would supervise the overall mining operation with its own employees including mining engineers, geologists, surveyors, and support staff.

Mineralized material will be fed directly into a primary crusher located adjacent to the open pit. Material from the crusher will be transported to the processing facility using a system of conveyors.

Topsoil stripping will be required to gain access to mineral and waste rock below. The volume is estimated to be approximately 2.2 Mm^3, which will be stored to the northeast of the pit. Waste rock will be sent to either the Valley Waste Dump (located west of the pit) or the North Waste Dump (located to the northeast of the pit).

Studies at the PEA level typically include Inferred Resources, however, VMH has used only Measured and Indicated Resources in the Whittle optimization and no Inferred Resources are included in either the mine plan or cash flow analysis.

MINERAL PROCESSING

Metallurgical test work was completed using samples from the Magistral Project starting in 2000. The early test work was reported in a number of Technical Reports that were completed for Inca Pacific Resources. The work indicated that the mineralised material was amenable to sulphide flotation, excellent recoveries were achieved for both copper and molybdenum, and it was possible to separate the molybdenum and the copper from the bulk flotation concentrate into individual concentrates using standard flotation conditions and reagents. The difficulty with the early test work was that the resulting flotation concentrates contained elevated levels of arsenic and antimony that would result in high smelter penalties or may possibly make it difficult to market the concentrates. Therefore, when Milpo initiated metallurgical test work in 2012, the emphasis was to utilize more selective flotation reagents in order to minimize the arsenic and antimony that reported to the flotation concentrates while maintaining the concentrate grades and metal recovery. The recent test work results in copper recovery just over 90% and molybdenum recovery just under 90% with marketable concentrate grades, which indicates that the copper and molybdenum recoveries utilized in the cash flow analysis are conservative. The copper concentrate contains approximately 0.3% As and 0.2% Sb.

The conceptual plant designed for Magistral will process 30,000 tpd using:

- Primary crusher
- Semi-autogenous grinding (SAG) mill
- Ball mill
- Bulk sulphide flotation circuit to recover copper and molybdenum
- Bulk concentrate regrind mill
- Copper – molybdenum separation flotation circuit
- Molybdenum concentrate regrind mill
- Molybdenum flotation circuit
- Thickening for tailings
- Thickening and filtration for the copper and molybdenum concentrates
- Drying and bagging for the molybdenum concentrate
- Support systems

PROJECT INFRASTRUCTURE

The Project infrastructure was evaluated by Golder in the Golder 2016 FS. However, RPA understands that VMH is presently undertaking further optimization studies on the Project with a view to bringing down the capital expenditure requirements.

The facilities and infrastructure for the Magistral Project were grouped into two large areas: the first area is the internal infrastructure (On-Site) and the second area is the external infrastructure (Off-Site).

The On-Site Infrastructure comprises the following key components:

- Auxiliary concentrator plant infrastructure which includes: reagent plant, located at 4,440 MASL and occupies an area of 600 m^2; reagent storehouse located at 4,458 MASL; and the compressor house located on a platform adjacent to the concentrator plant and occupies an area of 550 m^2.
- Internal mine operation roads, which will connect the different facilities of the Project. The road design has been developed taking into account the regulations established by the Ministry of Transport and Communications (MTC) in 2013 and the Occupational Safety and Health Regulations (OSHR).
- The electrical distribution system of the Project, which will supply power to all facilities of the concentrator plant, services and infrastructure plant and mine.
- The supply of fresh water for the Project will be abstracted from the La Esperanza Lake, which is located in the upper part of the Toldobamba micro basin.
- Two camps are envisaged for the Project: a concentrator plant camp and a mine camp.
- The fuel storage and dispatch station are located at 4,057 MASL on a 7,100 m^2 platform.
- Warehouses and workshops are planned within the mine infrastructure.
- Fire suppression system covering the following areas: concentrator and mine camps, central warehouse, processing and concentrate storage areas, mine and concentrator offices, concentrator plant workshops, and the mine maintenance areas.

The Off-Site Infrastructure comprises the following key components:

- The supply of electrical energy for the Project will be provided by third parties and requires a new 69 kV transmission line between the existing Ramada electrical substation and the projected Magistral electrical substation. The transmission line to the site will be approximately 60 km.

- The main access road to the Magistral Project will be used for external access and transport of concentrates to the port of Salaverry. This route will consist mainly of National Route PE-3N from Trujillo-Huamachuco with a diversion near the La Arena mine, passing through the populated centers of Alto de Tamboras and Pampa El Cóndor, and finally passing Pelagatos Lake, before reaching the Magistral Project.

- The transport of concentrates is envisaged to be outsourced through a specialized company hired by Milpo. The service includes the transport of copper and molybdenum concentrate, from the Magistral Project, via Huamachuco, to the port of Salaverry for the copper concentrate and to the port of Callao for the molybdenum concentrate. The port logistics of concentrate handling and shipment would be carried out by a logistics operator hired by Milpo.

MARKET STUDIES

MARKETS

Mineralized material will be processed on site to produce separate copper and molybdenum concentrates. The copper concentrate will contain some silver for which credit will be gained and which accounts for approximately 4% of the estimated Project revenue.

The copper concentrate is assumed to have an average grade of 26% Cu which is within the range of marketable concentrates. The silver recovery to the Cu concentrate is assumed to be 72% Ag and results in an average grade of 133 g/t Ag over the LOM. The moisture content of the copper concentrate is assumed to be 10%. There is arsenic present in the deposit, however, the mine plan has accounted for the appropriate blending to ensure that the overall levels are maintained within the generally accepted concentrate market limit of 0.50% As. The average head grade for arsenic over the LOM is expected to be 0.04% compared to an estimated 0.25% As in the concentrate. The relatively low ratio of grade in concentrate to head grade is attributed to the low (9%) recovery of arsenic in the process plant.

The molybdenum concentrate is assumed to have an average grade of 55% Mo which is within the typical range of marketable concentrates. There is no silver recovery accounted for in the molybdenum concentrate. The moisture content of the molybdenum concentrate is assumed to be 10%.

RPA assumes that Milpo would market the concentrates to international customers. In assessing the NSR received from the two concentrates, the terms shown in Table 1-4 were used.

TABLE 1-4 SMELTING AND REFINING TERMS
VM Holding S.A. – Magistral Project

Parameter	Units	Copper Concentrate	Molybdenum Concentrate
Payable Metals	-	Cu, Ag	Mo
Payability Factors	%	Cu: Maximum 96.7%, Minimum 1% Deduction Ag: Deduction of 30 g/t, and pay 90% on remainder	Mo: Assumes 100%, all deductions are accounted for in Treatment Charges
Treatment Charges	US$/dmt	90	3,308
Transportation and Logistics Charges	US$/wmt	130	130
Impurity Penalties	US$/dmt	Incl. in Terms	Incl. in Terms
Refining Charges	US$/oz	Ag: US$0.50 / oz Ag	N/A

The cost for transportation and treatment assumes that the seller is responsible for costs, insurance and freight (CIF).

CONTRACTS

RPA is not aware of any contracts that have been signed by Milpo in relation to the Project. Prior to mine construction, Milpo would negotiate sales contracts or memorandums of understanding (MOUs) for the treatment of concentrates with smelters or other third-parties.

It is envisaged that once the mine is in operation, Milpo would rely on contractors for several areas of the operation, including but not limited to:

- Mining operations
- Mine security
- Explosives provider
- Transportation of personnel
- Camp catering, laundry, and janitorial services

ENVIRONMENTAL, PERMITTING AND SOCIAL CONSIDERATIONS

ENVIRONMENTAL STUDIES

An EIA had been submitted in 2008 and was approved in 2009, however, the approval was revoked in 2010 due to the fact that social concerns by the community of Conchucos had not been resolved. A new EIA was submitted in 2016 and was approved in September 2016.

The EIA submitted in 2016 includes a full description of baseline conditions, however, this chapter of the EIA was not available for the preparation of this Report. Since the EIA was approved in 2016, RPA considers it reasonable to assume that the information provided in the EA was considered adequate by the responsible Peruvian authorities.

The Project does not overlap with any recognized protected or sensitive areas.

SOCIAL OR COMMUNITY REQUIREMENTS

Magistral has taken a proactive approach to community engagement. The Magistral office in Conchucos is equipped with several copies of past engineering reports, including the full 2016 EIA, as well as maps and demonstrative tools to educate the public about the Project. Consultation sessions are open to the public and discussions are held at the offices. VMH has actively consulted on the effects of the Project and has responded to and considered stakeholder concerns and comments as part of the final EIA.

VMH reports that the population of Conchucos is supportive of the Project and expects to benefit from an increase in economic activity and employment in the area.

There have been some issues with the adjacent Pampas community relating to a dispute over land rights between the Pampas and Conchucos communities. Pampas is currently in the process of litigation of these land rights and a resolution is expected to occur sometime in 2017. VMH has not signed an agreement with either the Conchucos or the Pampas community and will do so once the land rights dispute between Pampas and Conchucos has been resolved. At the time of the site visit, the Pampas community had blocked the road through their community limiting a portion of the planned roadway to connect the Project to the port. It is expected that once the agreements have been settled relations with the Pampas community will improve.

CAPITAL AND OPERATING COST ESTIMATES

CAPITAL COSTS

The initial capital costs were estimated by Golder in the Golder 2016 FS. Subsequently, Ausenco has reviewed the cost estimate and has factored the costs from the 10,000 tpd operation to 30,000 tpd. RPA has reviewed the cost estimate at a high level and considers the costs to be reasonable for this level of study.

The pre-production capital costs for the Project are estimated to be $555.1 million. Expenditures will take place over a three year period with a spending distribution of 8%, 47%, and 45% in Year 1, Year 2, and Year 3, respectively.

Indirect costs are estimated at 46% of direct costs and a contingency of 30% of direct costs was applied, both of which are reasonable in RPA's opinion.

It is envisaged that all of the mobile equipment related to mine development and production will be supplied by the mining contractor. As a result, the capital cost estimate has not considered the cost of purchasing a fleet of mining equipment.

The breakdown of pre-production capital by area is shown in Table 1-5.

TABLE 1-5 PRE-PRODUCTION CAPITAL
VM Holdings S.A. - Magistral Project

Direct Cost		Unit	Total	2019	2020	2021
Mining		US$ '000	22,396	1,803	10,489	10,104
Processing		US$ '000	164,273	13,223	76,936	74,114
Infrastructure		US$ '000	80,620	6,490	37,758	36,373
Tailings		US$ '000	47,433	3,818	22,215	21,400
Total Direct Cost		**US$ '000**	**314,721**	**25,334**	**147,397**	**141,991**
Other Costs						
EPCM/Owners/Indirect Cost	**46%**	US$ '000	145,996	11,752	68,376	65,868
Subtotal Costs		**US$ '000**	**460,717**	**37,086**	**215,773**	**207,858**
Contingency	**30%**	US$ '000	94,415	7,600	44,219	42,597
Initial Capital Cost		**US$ '000**	**555,133**	**44,686**	**259,992**	**250,455**

Annual sustaining capital was estimated for the Project using 1.5% of the initial capital expenditures per year, which results in approximately $8.3 million per year. This capital is anticipated to cover the costs of maintaining the mine infrastructure and concentrator plant. An additional allocation of $4.4 million, $4.8 million, $4.8 million, and $4.6 million is expected in Year 3, Year 5, Year 9, and Year 12, respectively, for the tailings dam lifts. Total sustaining capital over the LOM is estimated at $143.5 M.

Closure costs have been estimated at $33 million.

Exclusions from the capital cost estimate include, but are not limited to, the following:

- Project financing and interest charges.
- Escalation during construction.
- Working capital.

OPERATING COSTS

The LOM unit operating costs are estimated to total $9.23/t processed and are presented by area in Table 1-6.

TABLE 1-6 UNIT OPERATING COSTS
VM Holdings S.A. - Magistral Project

Area	Unit	Value
Mining	US$/t moved	1.70
Mining	US$/t processed	4.18
Processing	US$/t processed	4.12
G&A	US$/t processed	0.93
Total Unit Operating Cost	**US$/t processed**	**9.23**

The LOM total operating costs are estimated to be $1,438 million and are presented by area in Table 1-7.

TABLE 1-7 LOM TOTAL OPERATING COSTS
VM Holdings S.A. - Magistral Project

Cost	Unit	Value
Mining	US$ '000	651,264
Processing	US$ '000	641,541
G&A	US$ '000	144,944
Total Operating Cost	**US$ '000**	**1,437,750**

2 INTRODUCTION

Roscoe Postle Associates Inc. (RPA) was retained by VM Holding S.A. (VMH) to prepare an independent Technical Report on the Magistral Project (the Project or the Property), located in northwestern Ancash Region, Peru. The purpose of this report is to support the disclosure of a Mineral Resource estimate and a Preliminary Economic Assessment (PEA) of the Project. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

VMH is a company based in Luxembourg and is one of the largest producers of zinc in the world. It has a diversified portfolio of polymetallic mines (zinc, lead, copper, silver, and gold) and also greenfield projects at various stages of development in Brazil and Peru. In Brazil, VMH owns and operates two underground mines, Vazante (Zn and Pb) and Morro Agudo (Zn and Pb) and two development projects, Aripuanã and Caçapava do Sul. It also operates two zinc smelters in Brazil (Três Marias and Juiz de Fora). In Peru, VMH owns a controlling interest in Lima Stock Exchange-listed Compañía Minera - Milpo S.A.A. (Milpo). Milpo currently operates the El Porvenir (Zn-Pb-Cu-Ag-Au), Cerro Lindo (Zn-Cu-Pb-Ag), and Atacocha (Zn-Cu-Pb-Au-Ag) underground mines in Peru. The development projects in Peru include Magistral, Shalipayco, Florida Canyon (JV with Solitario), Hilarión, and Pukaqaqa. It also operates one zinc smelter in Peru (Cajamarquilla).

In April 2011, Activos Mineros S.A.C., a Peruvian government agency, awarded Milpo the contract to develop Magistral. Milpo made an initial payment of US$8.02 million to acquire the Magistral concessions, subject to a 2% net smelter return (NSR) royalty upon production. Under the terms of the contract, Milpo had a 48-month period to exercise the option by committing to develop the Project within 36 months of the exercise date.

This report is considered by RPA to meet the requirements of a Preliminary Economic Assessment as defined in Canadian NI 43-101 regulations. The economic analysis contained in this report is based on cost estimates in the range of +30%/-30% and is preliminary in nature. VMH has used only Measured and Indicated Resources in the Whittle optimization and no Inferred Resources are included in either the mine plan or cash flow analysis. There is no certainty that economic forecasts on which this PEA is based will be realized.

SOURCES OF INFORMATION

Ian Weir, P.Eng., RPA Senior Mining Engineer, and Rosmery Julia Cardenas Barzola, P.Eng., RPA Senior Geologist, visited Milpo's offices in Lima on June 12 and 13, 2017 and travelled to the Magistral property on June 16, 2017.

Technical documents and reports on the deposit were reviewed and obtained from Project personnel while at the site. The updated Mineral Resource files were transferred via a File Transfer Protocol (FTP) or by email. The principal technical documents related to RPA's review are listed in the Sources of Information.

Discussions were held with the following Milpo personnel:

- Enrique Garay — Corporate Manager of Exploration
- Jonas Mota e Silva — Exploration Manager
- Angel Mondragon — Mining Engineer – MICSAC Manager
- John Yapias — Corporate Planning Engineer
- Alberto Leiva — Corporate Planning Engineer
- Joel Meija — Mineral Resource Manager
- Jean Paul Guzman — Senior Project Geologist
- Yessica Inocente — Database Manager
- Jeimi Salas — Modelling Geologist
- Javier Peña Pablo — GIS Administrator
- Luis Orillo — Social Responsibility Supervisor

This report was prepared by Ian Weir, P. Eng., Rosmery Julia Cardenas Barzola, P. Eng., Philip Geusebroek, P.Geo., Kathleen Altman, Ph.D., P.E., and Stephan Theben, Dipl-Ing. Mr. Weir prepared Sections 15, 16, 19, and 21 to 24 and contributed to Sections 1, 2, 3, 18, 25, 26, and 27. Ms. Cardenas Barzola prepared Section 14 and contributed to Sections 1, 2, 3, 25, 26, and 27. Mr. Geusebroek prepared Sections 4 to 12 and contributed to Sections 1, 2, 3, 25, 26, and 27 of the Technical Report Dr. Altman prepared Sections 13 and 17 and contributed to Sections 1, 2, 3, 18, 25, 26, and 27. Mr. Theben prepared Section 20 and contributed to Sections 1, 2, 3, 25, and 26.

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References.

LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the metric system. All currency in this report is US dollars (US$) unless otherwise noted.

a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C$	Canadian dollars	M	mega (million); molar
cal	calorie	m^2	square metre
cfm	cubic feet per minute	m^3	cubic metre
cm	centimetre	µ	micron
cm^2	square centimetre	MASL	metres above sea level
d	day	µg	microgram
dia	diameter	m^3/h	cubic metres per hour
dmt	dry metric tonne	mi	mile
dwt	dead-weight ton	min	minute
°F	degree Fahrenheit	µm	micrometre
ft	foot	mm	millimetre
ft^2	square foot	mph	miles per hour
ft^3	cubic foot	MVA	megavolt-amperes
ft/s	foot per second	MW	megawatt
g	gram	MWh	megawatt-hour
G	giga (billion)	oz	Troy ounce (31.1035g)
Gal	Imperial gallon	oz/st, opt	ounce per short ton
g/L	gram per litre	ppb	part per billion
Gpm	Imperial gallons per minute	ppm	part per million
g/t	gram per tonne	psia	pound per square inch absolute
gr/ft^3	grain per cubic foot	psig	pound per square inch gauge
gr/m^3	grain per cubic metre	RL	relative elevation
ha	hectare	s	second
hp	horsepower	st	short ton
hr	hour	stpa	short ton per year
Hz	hertz	stpd	short ton per day
in.	inch	t	metric tonne
in^2	square inch	tpa	metric tonne per year
J	joule	tpd	metric tonne per day
k	kilo (thousand)	US$	United States dollar
kcal	kilocalorie	USg	United States gallon
kg	kilogram	USgpm	US gallon per minute
km	kilometre	V	volt
km^2	square kilometre	W	watt
km/h	kilometre per hour	wmt	wet metric tonne
kPa	kilopascal	wt%	weight percent
kVA	kilovolt-amperes	yd^3	cubic yard
kW	kilowatt	yr	year

3 RELIANCE ON OTHER EXPERTS

This report has been prepared by RPA for VMH. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by VMH and other third party sources.

For the purpose of this report, RPA has relied on ownership information provided by VMH and Osterling Abogados (Osterling), Milpo's legal counsel, regarding title to the Magistral Project. Osterling provided a legal review and opinion dated July 10, 2017 and a supplementary legal opinion dated July 11, 2017. This information was used in Sections 1 and 4 of this report.

RPA has relied on VMH for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Project.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Project is located in the west central portion of Peru, in the Ancash Region, approximately 450 km north-northwest of the capital of Lima and approximately 140 km east of port city of Trujillo. The centre of the Project is located at approximately 77°46'W Longitude and 08°13'S Latitude at elevations between 3,900 MASL to 4,700 MASL (Figure 4-1). The approximate Universal Transverse Mercator (UTM) co-ordinates of the centre of the currently defined Magistral mineralization are 9,090,500mN, and 194,300mE (Zone 18S, datum WGS 84.

LAND TENURE

The Project consists of a large, irregularly shaped block of contiguous concessions and two smaller, non-contiguous single concessions. It is composed of 34 granted concessions totalling 14,340.29 ha (Figure 4-2).

Table 4-1 lists all the subject concessions and relevant tenure information including concession names, file and resolution numbers, title holder, areas, and dates granted.

In April 2011, Milpo was awarded the contract to develop Magistral by Activos Mineros S.A.C., a Peruvian government agency. Milpo made an initial payment of US$8.02 million to acquire the Magistral concessions, subject to a 2% NSR royalty upon production. Under the terms of the contract, Milpo had a 48-month period to exercise the option by committing to develop the Property within 36 months of the exercise date.

TABLE 4-1 MAGISTRAL PROJECT TENURE DATA
VM Holding S.A. - Magistral Project

Name	Code/ Mining Register	Title Holder	Resolution	Area (ha)	Date Granted
MAGISTRAL	09000331Y01	COMPAÑÍA MINERA MILPO S.A.A.	535-RM	10.0	06/05/1933
MAGISTRAL Nº 1	15001693X01	COMPAÑÍA MINERA MILPO S.A.A.	2183-RM	60.0	24/12/1943
MAGISTRAL Nº 2	15001694X01	COMPAÑÍA MINERA MILPO S.A.A.	2237-RM	60.0	24/11/1943
MAGISTRAL Nº 3	15001695X01	COMPAÑÍA MINERA MILPO S.A.A.	2238-RM	60.0	24/11/1943
MAGISTRAL Nº 4	15001696X01	COMPAÑÍA MINERA MILPO S.A.A.	2239-RM	60.0	24/11/1943
MAGISTRAL 11	010176495	COMPAÑIA MAGISTRAL S.A.C.	7296-96-RPM	383.6	02/01/1995
MAGISTRAL 12	010176395	COMPAÑIA MAGISTRAL S.A.C.	2956-97-RPM	466.4	02/01/1995
MAGISTRAL 13	010176295	COMPAÑIA MAGISTRAL S.A.C.	1228-99-RPM	643.0	02/01/1995
MAGISTRAL 14	010175095	COMPAÑIA MAGISTRAL S.A.C.	7075-96-RPM	964.0	02/01/1995
MAGISTRAL 15	010174995	COMPAÑIA MAGISTRAL S.A.C.	1694-95-RPM	200.0	02/01/1995
MAGISTRAL 16 2007	010046207	COMPAÑIA MAGISTRAL S.A.C.	001131-2007-INACC/J	800.0	03/01/2007
MAGISTRAL 17 2007	010046307	COMPAÑIA MAGISTRAL S.A.C.	001130-2007-INACC/J	900.0	03/01/2007
MAGISTRAL 18 2007	010046407	COMPAÑIA MAGISTRAL S.A.C.	001077-2007-INACC/J	200.0	03/01/2007
MAGISTRAL 19	010091507	COMPAÑIA MAGISTRAL S.A.C.	002138-2007-INACC/J	455.1	18/01/2007
MAGISTRAL 20	010091607	COMPAÑIA MAGISTRAL S.A.C.	001886-2007-INACC/J	1,000.0	18/01/2007
MAGISTRAL 21	010091707	COMPAÑIA MAGISTRAL S.A.C.	001586-2007-INACC/J	900.0	18/01/2007
MAGISTRAL 22	010091807	COMPAÑIA MAGISTRAL S.A.C.	001263-2007-INACC/J	200.0	18/01/2007
MAGISTRAL 23	010091907	COMPAÑIA MAGISTRAL S.A.C.	001572-2007-INACC/J	890.0	18/01/2007
MAGISTRAL 24	010092007	COMPAÑIA MAGISTRAL S.A.C.	002199-2007-INACC/J	800.0	18/01/2007
MAGISTRAL 25	010092107	COMPAÑIA MAGISTRAL S.A.C.	001258-2007-INACC/J	1,000.0	18/01/2007
MAGISTRAL 26	010092207	COMPAÑIA MAGISTRAL S.A.C.	001413-2007-INACC/J	200.0	18/01/2007
MAGISTRAL 27	010092307	COMPAÑIA MAGISTRAL S.A.C.	001943-2007-INACC/J	950.0	18/01/2007
MAGISTRAL 28	010587407	COMPAÑIA MAGISTRAL S.A.C.	000901-2008-INGEMMET/PCD/PM	100.0	06/11/2007
MAGISTRAL 29	010586907	COMPAÑIA MAGISTRAL S.A.C.	001985-2008-INGEMMET/PCD/PM	99.5	06/11/2007
MARITA DOS 2002	010170102	COMPAÑIA MAGISTRAL S.A.C.	00227-2003-INACC/J	600.0	02/09/2002
MARITA UNO 2002	010170202	COMPAÑIA MAGISTRAL S.A.C.	00942-2003-INACC/J	400.0	02/09/2002
MILAGROS Y VIOLETA A M2	010261214	COMPAÑÍA MINERA ATACOCHA S.A.A.	002242-2015-INGEMMET/PCD/PM	92.8	02/06/2014
PLAYRONES M1	010306114	COMPAÑÍA MINERA ATACOCHA S.A.A.	002310-2015-INGEMMET/PCD/PM	200.0	01/08/2014
FLOR DEL ANDE M	010109214	COMPAÑÍA MINERA MILPO S.A.A.	001373-2014-INGEMMET/PCD/PM	1,000.0	02/01/2014
MAGISTRAL 31	010205613	COMPAÑÍA MINERA MILPO S.A.A.	004081-2013-INGEMMET/PCD/PM	200.0	13/05/2013
MILAGROS Y VIOLETA B M	010103614	COMPAÑÍA MINERA MILPO S.A.A.	004115-2014-INGEMMET/PCD/PM	335.2	02/01/2014
MILAGROS Y VIOLETA M	010261814	COMPAÑÍA MINERA MILPO S.A.A.	002310-2015-INGEMMET/PCD/PM	72.0	02/06/2014
POTOSI N° 2	010286995	COMPAÑÍA MINERA MILPO S.A.A.	1965-2000-RPM	100.0	02/01/1995
QORIWAYRA 1 M	010104814	COMPAÑÍA MINERA MILPO S.A.A.	001287-2014-INGEMMET/PCD/PM	100.0	02/01/2014
				14,501.6	

Figure 4-1

VM Holding S.A.

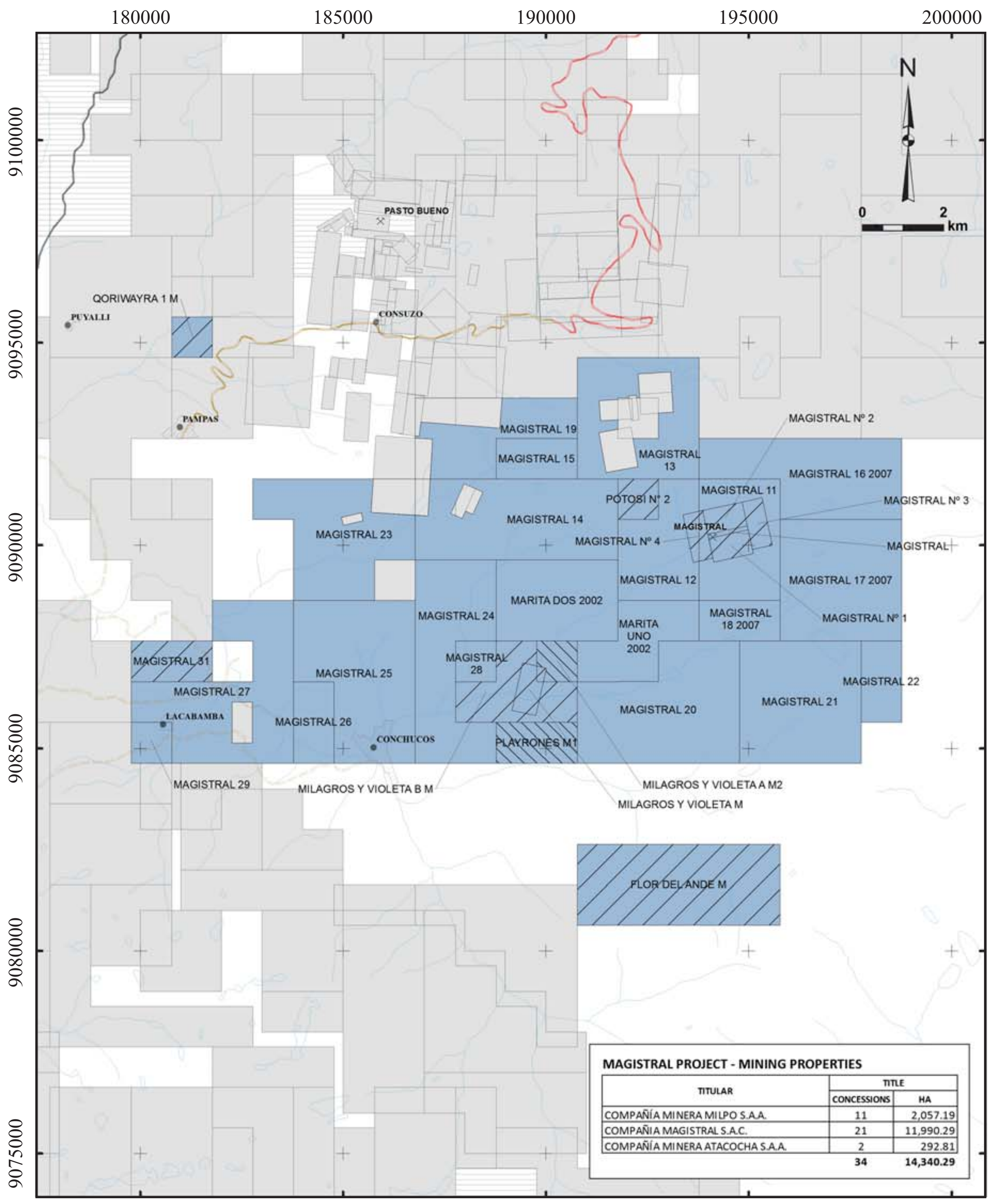
Magistral Project

Ancash Region, Peru

Location Map

August 2017

Source: CIAmap, 2015.



MAGISTRAL PROJECT - MINING PROPERTIES

TITULAR	TITLE	
	CONCESSIONS	HA
COMPAÑÍA MINERA MILPO S.A.A.	11	2,057.19
COMPAÑÍA MAGISTRAL S.A.C.	21	11,990.29
COMPAÑÍA MINERA ATACOCHA S.A.A.	2	292.81
	34	14,340.29

LEGEND

MAGISTRAL - Mining properties by titular
- COMPAÑÍA MINERA MILPO S.A.A.
- COMPAÑÍA MAGISTRAL S.A.C.
- COMPAÑÍA MINERA ATACOCHA S.A.A.
- OTHER TITULARS
- TERCEROS - Extinguidos

- MINES / PROJECTS
- TOWN
- AFFIRMED ACCESS
- NOT AFFIRMED ACCESS
- OTHER ACCESS
- RIVER
- LAKE
- URBAN AREAS
- DEPARTAMENT

Figure 4-2

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Property Map

August 2017

Source: Milpo ,2017.

None of the mineral concessions that comprise the Project are located within urban expansion areas and natural protected area.

Thirty-one of the mineral rights comprising the Project overlap the Yanacancha-Cucullo archaeological site. Hence, the mineral rights holder will not be able to carry out exploration and/or mining activities on the overlapping areas unless due archaeological clearance is obtained.

Mineral concessions MAGISTRAL 16 2007, MAGISTRAL 17 200, MAGISTRAL 18 2007, MAGISTRAL 20, MAGISTRAL 21, MAGISTRAL 25, MAGISTRAL 26, MAGISTRAL 27, MILAGROS Y VIOLETA B M, MILAGROS Y VIOLETA M overlap public roads, rivers, lagoons and a power transmission line. If any of such infrastructure or water body will be affected by exploration and/or mining activities, will be necessary obtain the applicable governmental licenses, permit and/or authorization prior to executing any activities.

Of the 34 mineral rights comprising the Project, 21 are currently held in the name of Milpo. Milpo holds eight mineral concessions related to the Project by means of a lease agreement entered into with Compañía de Minas Magistral S.A. (Minas Magistral), the title holder of 21 concessions. Three mineral concessions are currently held in the name of Minas Ancash Cobre S.A (Ancash Cobre, now Compañía de Minas Magistral S.A.), a company controlled directly or indirectly by Milpo. Finally, two mineral concessions are currently held in the name of Compañía Minera Atacocha S.A.A., a company which is controlled directly or indirectly by Milpo.

Minas Magistral has leased 18 mineral concessions to Milpo for a term of 20 years as of May 10, 2012. Mineral concessions MAGISTRAL 15, MAGISTRAL 23, MAGISTRAL 26, and MAGISTRAL 19 do not have a lease agreement registered to the name of Milpo.

Mineral concession MAGISTRAL 31 is pending registration in the Public Registry.

If Milpo wishes to perform exploration and/or mining activities over mineral concessions held by entities controlled directly or indirectly, or respect to which it does not have title or a lease agreement, it will first have to acquire or lease such concessions prior to executing any such activities.

MINING RIGHTS

In Peru, mining and mining related activities are regulated by the General Mining Law of Peru. Mining concessions are granted using UTM coordinates based on UTM Zone 18S (datum PSAD 1956) to define areas generally ranging from 100 ha to 1,000 ha in size. Mining titles are irrevocable and perpetual, as long as the titleholder maintains payment of the annual maintenance fees up to date to the Ministry of Energy and Mines (Ministerio de Energía y Minas, or MEM).

A holder must pay an annual maintenance fee (*vigencia*) of US$3/ha (for metallic mineral concessions) for each concession actually acquired, or for a pending application (*petitorio*), at the time of acquisition and then by June 30 of each subsequent year to maintain the concession.

Holders of mineral concessions must meet a Minimum Annual Production Target after a statutory term. When such target is not met within the term, a penalty must be paid. There are currently two systems in force:

(i) Mineral concessions granted on or before October 10, 2008 must meet Minimum Annual Production Target of US$100.00 per hectare per year for metallic concessions, within a statutory term of six years since the concession was granted. The applicable penalty is US$6.00 per hectare per year from year 7 to year 11 inclusive. Starting in year 12, the applicable penalty is US$20.00 per hectare per year.

(ii) Mineral concessions granted after October 10, 2008 must meet the Minimum Annual Production Target of one Tax Unit *(Unidad Impositiva Tributaria – UIT*) per hectare per year, within a statutory term of ten years. For 2017, one UIT equals US$1,210.00. The applicable penalty is equal to 10% of the Minimum Annual Production Target per hectare per year.

The concession holder can be exonerated from paying the penalty if it can demonstrate that during the previous year it has invested an equivalent of no less than ten times the penalty for the total concession. This investment must be documented along with the copy of the annual tax statement *(declaración jurada de impuesto a la renta*) and the payment of the annual maintenance fees.

Mineral concessions may not be revoked as long as the titleholder complies with the Good Standing Obligations described below. According to such obligations, mineral concessions will lapse automatically if any of the following events takes place:

(i) The annual fee is not paid for two consecutive years.

(ii) The applicable penalty is not paid for two consecutive years.

(iii) The Minimum Annual Production Target is not met within 30 years following the year after the concession was granted.

Twenty-seven mineral concessions related to the Project are subject to the payment of penalties since the minimum required levels of production or exploration expenditures have not been met. With the exception of ten concessions, all penalties applicable to the mineral concessions comprising the Project have been paid in full when due.

Table 4-2 lists the fees related to the Project concessions. Holding costs for the Magistral Project for 2017, including penalties, are US$228,280.32.

The holder of a mining concession is entitled to all the protection available to all holders of private property rights under the Peruvian Constitution, the Civil Code, and other applicable laws. A Peruvian mining concession is a property-related right; distinct and independent from the ownership of land on which it is located, even when both belong to the same person. The rights granted by a mining concession are defensible against third parties, are transferable and chargeable, and, in general, may be the subject of any transaction or contract.

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

A sliding scale mining royalty of 1% on concentrate sales of up to $60 million per year, 2% on $60 million to $120 million per year, and 3% on over US$120 million per year to the Peruvian government applies.

TABLE 4-2 MAGISTRAL PROJECT HOLDING COSTS
VM Holding S.A. - Magistral Project

Name	Area (ha)	Date Granted	2016 Annual Fees (US$)	2016 Non-Producing Penalties	2017 Annual Fees (US$)	2017 Non-Producing Penalties (US$)	Amount Owed (US$)
MAGISTRAL	10.0	06/06/1934	0.00	0.00	30.00	200.00	230.00
MAGISTRAL Nº 1	60.0	30/10/1945	0.00	0.00	180.00	1,200.02	1,380.02
MAGISTRAL Nº 2	60.0	15/11/1945	0.00	0.00	180.00	1,200.00	1,380.00
MAGISTRAL Nº 3	60.0	15/11/1945	0.00	0.00	180.00	1,199.99	1,379.99
MAGISTRAL Nº 4	60.0	15/11/1945	0.00	0.00	180.00	1,200.00	1,380.00
MAGISTRAL 11	383.6	31/10/1996	0.00	0.00	1,150.79	7,671.92	8,822.71
MAGISTRAL 12	466.4	21/04/1997	0.00	0.00	1,399.21	9,328.09	10,727.30
MAGISTRAL 13	643.0	19/05/1999	0.00	0.00	1,928.96	12,859.70	14,788.66
MAGISTRAL 14	933.1	29/10/1996	0.00	0.00	2,799.16	18,661.07	21,460.23
MAGISTRAL 15	200.0	28/04/1995	600.00	4,000.00	600.00	4,000.00	9,200.00
MAGISTRAL 16 2007	800.0	26/03/2007	0.00	0.00	2,400.00	4,800.00	7,200.00
MAGISTRAL 17 2007	900.0	26/03/2007	0.00	0.00	2,700.00	5,400.00	8,100.00
MAGISTRAL 18 2007	200.0	22/03/2007	0.00	0.00	600.00	1,200.00	1,800.00
MAGISTRAL 19	415.0	01/06/2007	1,244.85	2,489.70	1,244.85	2,489.70	7,469.10
MAGISTRAL 20	1,000.0	22/05/2007	3,000.00	6,000.00	3,000.00	6,000.00	18,000.00
MAGISTRAL 21	900.0	04/05/2007	2,700.00	5,400.00	2,700.00	5,400.00	16,200.00
MAGISTRAL 22	200.0	16/04/2007	600.00	1,200.00	600.00	1,200.00	3,600.00
MAGISTRAL 23	799.3	04/05/2007	1,748.20	3,496.39	2,397.89	4,795.77	12,438.25
MAGISTRAL 24	800.0	05/06/2007	0.00	0.00	2,400.00	4,800.00	7,200.00
MAGISTRAL 25	1,000.0	16/04/2007	3,000.00	6,000.00	3,000.00	6,000.00	18,000.00
MAGISTRAL 26	200.0	23/04/2007	600.00	1,200.00	600.00	1,200.00	3,600.00
MAGISTRAL 27	950.0	24/05/2007	2,485.60	4,971.20	2,850.00	5,700.00	16,006.80
MAGISTRAL 28	100.0	21/04/2008	0.00	0.00	300.00	600.00	900.00
MAGISTRAL 29	100.0	19/06/2008	298.56	597.12	300.00	600.00	1,795.68
MARITA DOS 2002	600.0	03/02/2003	0.00	0.00	1,800.00	12,000.00	13,800.00
MARITA UNO 2002	400.0	21/04/2003	0.00	0.00	1,200.00	8,000.00	9,200.00
MILAGROS Y VIOLETA A M2	92.8	22/07/2015	0.00	0.00	300.00	0.00	300.00
PLAYRONES M1	200.0	23/07/2015	0.00	0.00	600.00	0.00	600.00
FLOR DEL ANDE M	1,000.0	21/05/2014	3,000.00	0.00	3,000.00	0.00	6,000.00
MAGISTRAL 31	200.0	29/10/2013	600.00	0.00	600.00	0.00	1,200.00
MILAGROS Y VIOLETA B M	335.2	31/12/2014	0.00	0.00	1,005.58	0.00	1,005.58
MILAGROS Y VIOLETA M	72.0	23/07/2015	0.00	0.00	216.00	0.00	216.00
POTOSI N° 2	100.0	25/05/2000	0.00	0.00	300.00	2,000.00	2,300.00
QORIWAYRA 1 M	100.0	30/04/2014	300.00	0.00	300.00	0.00	600.00
							228,280.32

SURFACE RIGHTS

Surface rights are not included in mineral rights, and permission must be obtained from owners and local leaders (when surface rights are owned by local communities) in writing, before commencing drilling activities. Companies must obtain a government permit prior to commencing any drilling or major earth moving programs, such as road and drill pad construction. Depending on the scale of work intended, exploration programs must be presented to the Ministry of Mines, which then will grant an approval to initiate activities as long as the paperwork is in order. All major ground disturbances must be remediated and recontoured following completion of the work activities.

ROYALTIES AND OTHER ENCUMBRANCES

RPA is not aware of any other royalties, back-in rights, or other obligations or any other underlying agreements.

PERMITTING

Under Peruvian law, mineral exploration activities require Exploration Environmental Impact Assessments (EIASD). The EIASD for the Magistral Project exploration activities was approved in November 2013. In 2012 and 2013, installation of a total of 203 groundwater monitoring wells in the Conchucos River watershed was approved by the local water authority (Administración Local the Agua Santa-Lacramarca Nepeña).

VMH will require additional permits to construct and, eventually, build the Project.

RPA is not aware of any environmental liabilities on the Property. VMH reports that it has all required permits to conduct the proposed work on the Property. RPA is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the Property.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESSIBILITY

The Project is located approximately 140 km east of the port city of Trujillo in the Districts of Conchucos, Pampas and Lacabamba, Province of Pallasca, Ancash Region. From Lima, the Property can be reached by driving north along the Pan-American Highway through Chimbote to Trujillo, a distance of approximately 550 km, then easterly through the communities of Simbal, Quiruvilca, Quesquenda, and Alto de Tamboras to the Project. The total distance by road from Trujillo to the Property is 272 km. Much of the route from Trujillo to the Property consists of secondary, poorly maintained roads that traverse steep topography. Trujillo benefits from having an international airport, which is serviced by daily flights to and from Lima.

CLIMATE

In the Peruvian Andes, ambient temperature is related to altitude, varying from temperate (annual average of 18°C) in the low-lying valleys to frigid (annual average below 0°C) in the highest elevations. The maximum temperature is often steady throughout the year, the low varying due to the presence of clouds in the rainy season.

The Project area is considered to have a high mountain dry tundra climate. The Project is strongly affected by a microclimate that typically produces measurable monthly precipitation throughout the year. The dry season (winter) is from May to October, and the wet season (summer) is from November to April. In dry years, rains may not begin until January.

The average annual precipitation at Conchucos village, seven kilometres from the Project, is 704 mm and the annual average temperature is 12ºC. Average monthly precipitation ranges from 9 mm to 140 mm, with the heaviest rainfall in January, February, and March. Average monthly temperatures vary little from month to month; the lowest average monthly temperature is 11.6°C and the highest is 12.3°C. The elevation of the Conchucos meteorological station is nearly 1,000 m lower than the Magistral camp.

Work can be performed year-round.

LOCAL RESOURCES

Local resources are minimal. The nearest population centres of significance are Santiago de Chuco and Huamachuco, 100 km and 102 km from the Property, respectively. Santiago de Chuco has basic medical services, telephone service, electricity and a National Police (PNP) post serving a population of approximately 53,000. Huamachuco has similar services and a population of approximately 21,500.

INFRASTRUCTURE

The closest electric power substation connected to the national grid is at Pallasca (69 kV/22.9 kV).

The exploration camp and core storage buildings are in the Magistral valley near the deposit.

PHYSIOGRAPHY

The Magistral property is near the northern limit of the Cordillera Blanca, and is situated just west of the major drainage divide that separates the basin of the Rio Marañon to the east (Atlantic Ocean drainage) from the Rio Santa to the west (Pacific Ocean drainage).

Topographic relief at the Property is moderate to very steep. There are deeply incised glacial valleys in rocky, mountainous terrain. The deposit underlies the flanks and floor of the Magistral valley near its headwaters. Prominent glacial morphological features are abundant, including tarns and lateral and terminal moraine deposits.

RPA is of the opinion that, to the extent relevant to the mineral project, there is a sufficiency of surface rights and water.

Figure 5-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Access Map

August 2017

Source: L.A. Dick, 2004.

6 HISTORY

EXPLORATION AND DEVELOPMENT HISTORY

The following is compiled from Dick (2002), Dick (2004), Simon, Reddy and Blower (2004), Sivertz, Ristorcelli and Hardy (2005), Ristorcelli et al (2006), and Ristorcelli et al (2008).

The Pasto Bueno - Conchucos district, of which Magistral is a part, was known early in the colonial era as a gold-silver producing district. Early records report the production of 22,000 ounces of gold and 44,000 ounces of silver between 1644 and 1647 (Salazar Suero, 1997). The prominent outcrops of copper oxides at Magistral were probably known at this time, but the first modern records of exploitation date to 1915 when the Garagorri Mining Company built a small smelting furnace to exploit high-grade surface ores from shallow workings in the Arizona and El Indio outcrops. This operation continued until 1919.

In 1920, engineer D.H. McLaughlin of Cerro de Pasco Corporation (Cerro de Pasco) conducted a thorough study of the deposit area, which included topographic and geologic mapping. A total of 854 meters of underground workings were accessible in 1920. The Property was examined and explored intermittently between 1924 and 1953, mainly by representatives of Cerro de Pasco, however, no records of large-scale exploration programs exist for this period. Cerro de Pasco purchased the Magistral concessions in 1950, but no significant work was done until 1969. From 1969 to 1973, Minera Magistral conducted a surface and underground exploration program that focused on copper-bearing skarn mineralization on the south side of Magistral valley, at and above the valley floor level. Buenaventura Ingenieros S.A. (BISA) conducted a thorough evaluation of the Magistral deposit in 1980-1981.

In 1997, Minero Peru S.A. (Minero Peru) began the process to privatize Magistral by inviting open bidding. An option to purchase the titles to the five Magistral mining concessions was awarded to Inca Pacific Resources Inc. (Inca Pacific) on February 18, 1999. Inca Pacific agreed to a three-year, option-to purchase agreement contract with Minero Peru. In November 2000, Inca Pacific and Minera Anaconda Peru S.A. (Anaconda Peru) formed Ancash Cobre, as a holding company to carry out exploration and development at Magistral.

Anaconda completed 2,491.5 m of diamond drilling in eight holes in 1999 and 6,167.7 m in 19 holes in 2000. A further 15,980.38 m in 49 holes were completed in 2001. In March 2004, Inca Pacific acquired Anaconda Peru's 51% interest in Ancash Cobre for $2.1 million, thus restoring its 100% interest in Magistral.

In 2004, Ancash Cobre completed a 7,984.85 m, 34-hole, diamond drill hole program, a geotechnical review, and initiated environmental baseline studies. In 2005, Inca Peru entered into a joint venture with Quadra Mining (Quadra).

In 2005 Ancash Cobre (funded by Quadra) drilled 14,349.35 m in 60 holes. In October 2005, Quadra withdrew from the joint venture and retained no interest. In 2006 Ancash Cobre completed a 7,073.5 m, 49-hole, diamond drilling program, and a positive preliminary feasibility study was issued by SRK in October 2006 (Ristorcelli et al., 2006). In 2007, Ancash Cobre drilled 18,222.35 m in 116 drill holes, prepared a new mineral resource estimate, and completed a final feasibility study.

In December 2009, the Peruvian government agency responsible for administering the contract to develop the Magistral property with Ancash Cobre announced that it was terminating the contract. In April 2011, Milpo was awarded the contract to develop Magistral by making an initial US$8.02 million payment. Milpo's interest in the Project is subject to a 2% NSR royalty upon production. In September 2011, Milpo announced that it had entered into an agreement to acquire all the issued and outstanding common shares of Inca Peru.

HISTORICAL RESOURCE ESTIMATES

In 1981, BISA estimated a historic "resource estimate" of 1.7 Mt grading 1.78% Cu, 0.33% Mo, and 0.28 oz/t Ag at 1.0% Cu cut-off grade for the San Ernesto, Arizona, and Sara zones (Ristorcelli et al., 2006).

In 1996, Minero Peru estimated a historic "geological resource estimate" of 371 Mt grading 0.74% Cu, 0.03% Mo and 0.14 oz/t Ag for the Chavin, San Ernesto, Arizona and Sara zones. RPA is not aware of the cut-off grade used (Ristorcelli et al., 2006).

In 2000, Anaconda Peru completed two historic resource estimates; a sectional polygonal estimate and a geostatistically based block model estimate. Both were based on 27 drill holes totalling 8,669.2 m. The results of the polygonal estimate were published for a range of cut-off grades. No subdivision by geologic domains or mineralisation types was completed. At a 0.5% Cu cut-off grade, the resource consisted of 190.5 Mt grading 0.80% Cu and 0.06% Mo. The geostatistical resource estimate used six geological units as controls (Skarn, Mixed, San Ernesto Porphyry, Sara Porphyry, Marble, and Limestone). The results of the estimate were published for a range of cut-off grades and contained combined Measured, Indicated, and Inferred categories. At a 0.5% Cu cut-off grade, the estimate consisted of 146.1 Mt grading 0.76% Cu and 0.05% Mo (Simon, Reddy and Blower, 2004).

In 2001, Anaconda Peru completed a new geostatistically based block model estimate based on 76 drill holes totalling 24,639.6 m and 972 m of underground channel samples. Eight lithological units were modelled and kriging was used to interpolate grades. At a 0.5% Cu cut-off grade, Measured and Indicated Resources totalled 63.158 Mt grading 0.78% Cu, 538 ppm Mo, and 4.1 ppm Ag. An additional Inferred Resource of 42.216 Mt grading 0.68% Cu, 497 ppm Mo, and 3.6 ppm Ag was reported (Simon, Reddy and Blower, 2004).

In 2004, AMEC Americas Limited (AMEC) was commissioned to complete an updated geostatistically based block model estimate based on 110 drill holes totalling 32,624.6 m and 972 m of underground channel samples. Six lithological/mineralogical domains were modelled. Cu and Mo grades were interpolated using ordinary kriging and Ag grades were interpolated using the inverse distance method. At a 0.5% Cu cut-off grade, Measured and Indicated Resources totalled 75.974 Mt grading 0.76% Cu, 551 ppm Mo, and 4.1 ppm Ag. An additional Inferred Resource of 39.393 Mt grading 0.71% Cu, 394 ppm Mo, and 2.9 ppm Ag (Simon, Reddy and Blower, 2004).

In 2005, Inca Pacific commissioned Mine Development Associates (MDA) and Orequest Consultants Ltd. (Orequest) to complete an updated resource estimate based on 184 holes totalling 48,261.58 m of drilling. Using a 0.40% Cu equivalent cut-off grade, Measured and Indicated Resources totalling 189.048 Mt grading 0.51% Cu, 0.05% Mo, and 2.5 g/t Ag and Inferred Resources totalling 55.979 Mt grading 0.58% Cu, 0.02% Mo, and 1.8 g/t Ag were estimated (Sivertz, Ristorcelli and Hardy, 2005).

In 2008, Samuel Engineering, Inc. (Samuel Engineering) completed a Feasibility Study on the Magistral Project on behalf of Inca Pacific which included an updated resource estimate based on 286 drill holes totalling 65,214 m. Using a 0.40% Cu equivalent cut-off grade, Measured and Indicated Resources totalling 195.555 Mt grading 0.51% Cu, 0.05% Mo and 2.6 g/t Ag and Inferred Resources totalling 55.399 Mt grading 0.49% Cu, 0.05% Mo and 2.57 g/t Ag were estimated (Ristorcelli et al., 2008).

The above estimates are considered to be historical in nature and should not be relied upon. These estimates are relevant as they indicate the mineralization on the Property. A qualified person has not completed sufficient work to classify the historical estimates as a current Mineral Resources or Mineral Reserves and VMH is not treating the historical estimates as current Mineral Resources or Mineral Reserves.

PAST PRODUCTION

Early records report the production of 22,000 ounces of gold and 44,000 ounces of silver between 1644 and 1647 from the Pasto Bueno - Conchucos district. The Garagorri Mining Company is reported to have exploited high-grade surface “ores” from shallow workings in the Arizona and El Indio outcrops from 1915 to 1919. There has been no recorded production from the Project since that time.

7 GEOLOGICAL SETTING AND MINERALIZATION

REGIONAL GEOLOGY

The South American Platform is mainly composed of metamorphic and igneous complexes of Archean/Proterozoic age and makes up the continental interior of South America. The Platform consolidated during Late Proterozoic to Early Paleozoic times in the course of the Brasiliano/Pan-African orogenic cycle during which the amalgamation of different continents and micro continents with closure of several ocean basins led to the formation of the Supercontinent Gondwana. Archean and Proterozoic rocks are exposed in three major shield areas within the framework of Neoproterozoic fold belts (Guiana, Central Brazil, and Atlantic shields). The western continental margin of the South American Plate developed at least since Neoproterozoic to Early Paleozoic times and constitutes a convergent margin, along which eastward subduction of Pacific oceanic plates beneath the South American Plate takes place. Through this process the Andean Chain, the highest non-collisional mountain range in the world, developed. The eastern margin of the South American Plate forms a more than 10 000 km long divergent margin, which developed as a result of the separation of the South American plate and the African plate since the Mesozoic through the opening of the South Atlantic and the break-up of Gondwana. The northern and southern margins of the South American Plate developed along transform faults in transcurrent tectonic regimes due to the collision of the South American Plate with the Caribbean and the Scotia plates. The South American Plate reveals a long and complex geologic history (Engler, 2009).

Most of the stratigraphy, structure, magmatism, volcanism, and mineralization in Peru is spatially and genetically related to the tectonic evolution of the Andean Cordillera of the western sea board of South America. The cordillera was formed by actions related to major subduction events that have continued to the present from at least the Cambrian (Petersen, 1999) or late Precambrian (Clark et al., 1990; Benavides-Caceres, 1999). The formation of the Andean Cordillera is, however, the result of a narrower period stretching from the Triassic to present when rifting of the African and South American continents formed the Atlantic Ocean. Two periods of this later subduction activity have been identified (Benavides-Caceres, 1999): Mariana type subduction from the late Triassic to late Cretaceous; and Andean type subduction from the late Cretaceous to present.

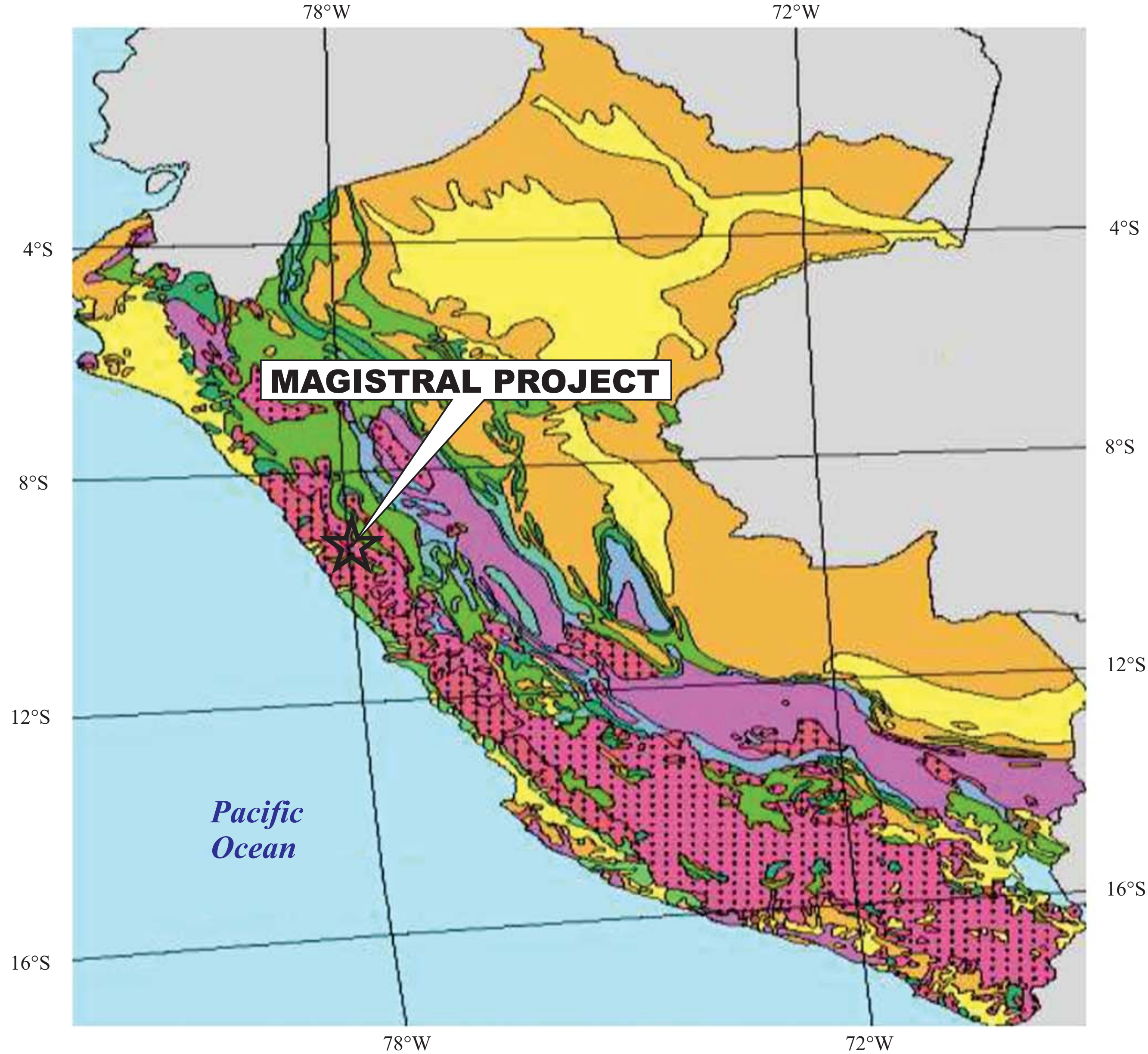
The geology of Peru, from the Peru-Chile Trench in the Pacific to the Brazilian Shield, is defined as three major parallel regions, from west to east: the Andean Forearc, the High Andes, and the Andean Foreland. All three of these regions formed during Meso-Cenozoic evolution of the Central Andes. The Property lies within the High Andes region. A simplified regional geology map of Peru is shown in Figure 7-1 and a regional morphostructural map is shown in Figure 7-2.

The High Andes can be divided into three sections, from west to east:

1. The Western Cordillera is made up of Mesozoic-Tertiary age rocks, dominated by the Coastal Batholith which consists of multiple intrusions with ages ranging from Lower Jurassic to Upper Eocene. The belt is up to 65 km across by 1,600 km long running sub-parallel to the Pacific coast, extending into Ecuador and Chile. The Project is located within the Western Cordillera.

2. The Altiplano is a high internally drained plain situated at a mean elevation of almost 4,000 m, slightly below the average altitudes of the Western and Eastern Cordillera. It is 150 km wide and 1,500 km long, extending from northern Argentina to southern Peru.

3. The Eastern Cordillera forms a 4,000 m high and 150 km wide plateau. During the Cenozoic era, the arc has been uplifted forming the Eastern Cordillera. Stratigraphically, the High Andes zone consists of, from west to east, an intra-arc trough, a deep basin, a continental shelf, and the Marañón metamorphic complex (the Marañón Complex). In general, the formations become progressively older from west to east, spanning from the mid-Tertiary to the Neoproterozoic-Paleozoic.



Sedimentary Rocks

- Quaternary
- Tertiary
- Cretaceous
- Cretaceous Jurassic
- Jurassic
- Jurassic Triassic
- Permian Carboniferous
- Precambrian Devonian

Igneous Metamorphic Rocks

- Cretaceous - Volcanics Tertiary
- Mesozoic - Cenozoic Intrusives
- Precambrian Indiferrentiated

Figure 7-1

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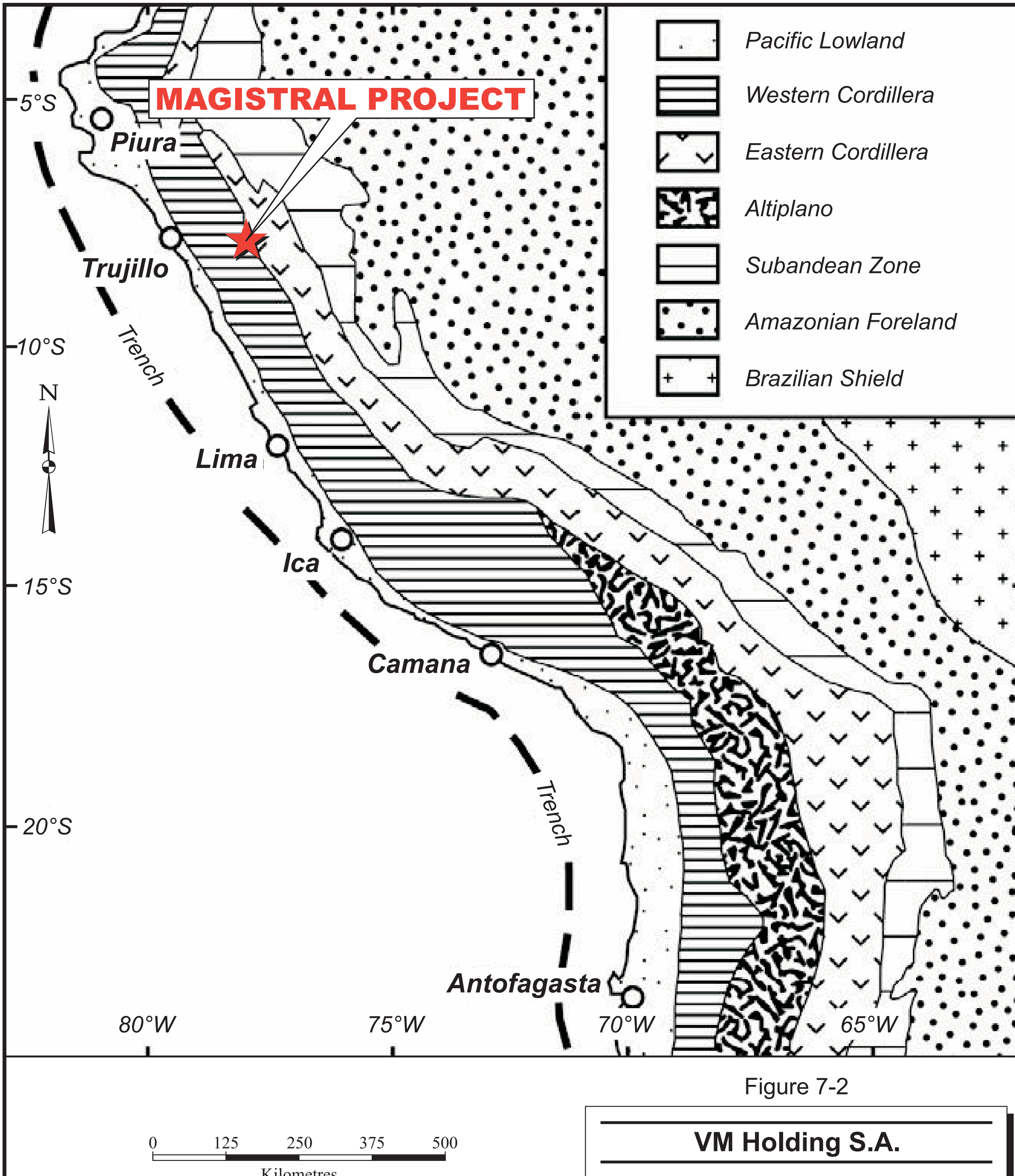
Magistral Project

Ancash Region, Peru

Regional Geology

August 2017

Source: TWP Sudamerica S.A., 2013.



Source: After Jaillard et al., 2000 and Sebrier et al., 1988.
In Wipf, 2006. PGS Pacific Geological Services.

August 2017

Figure 7-2

VM Holding S.A.

Magistral Project
Ancash Region, Peru
Morphostructural Map

LOCAL GEOLOGY

The following is taken from Ristorcelli et al. (2006).

The Magistral property is near the northeastern end of the Cordillera Blanca, a region that is underlain predominantly by Cretaceous carbonate and clastic sequences. These units strike north to northwest and are folded into a series of anticlines and synclines with northwest-trending axes.

The Cretaceous sedimentary rocks are bounded to the east by an early Paleozoic metamorphic terrane composed mainly of micaceous schist, gneissic granitoid, and slate. The Cretaceous sedimentary sequence unconformably overlies these metamorphic rocks. The Cretaceous rocks are structurally overlain by black shale and sandstone of the Upper Jurassic Chicama Formation that were thrust eastwards along a prominent regional structure. The Chicama Formation was intruded by granodiorite and quartz diorite related to the extensive Cordillera Blanca batholith, which has been dated at 8.2 +/- 0.2 Ma (Dick, 2004).

The Cretaceous sedimentary sequence is divided into a lower member dominated by clastic sedimentary rocks (sandstone, quartzite, shale, and minor carbonate) and an upper dominantly calcareous member (limestone, marlstone, sandstone, and calcareous shale). The clastic sedimentary rocks of the lower member include the Chimu, Santa, Carhuaz, and Farrat Formations, which make up the Goyllarisquizga Group. The upper calcareous units include the Pariahuanca, Chulec, Pariatambo, Jumasha, and Celendin Formations.

Several major structural features are evident in the Cretaceous sedimentary rocks in the Magistral region, including anticlines, synclines, and thrust faults. The trend of the fold axes and the strike of the faults change from northwest to north near Magistral. The following is taken from Dick (2004).

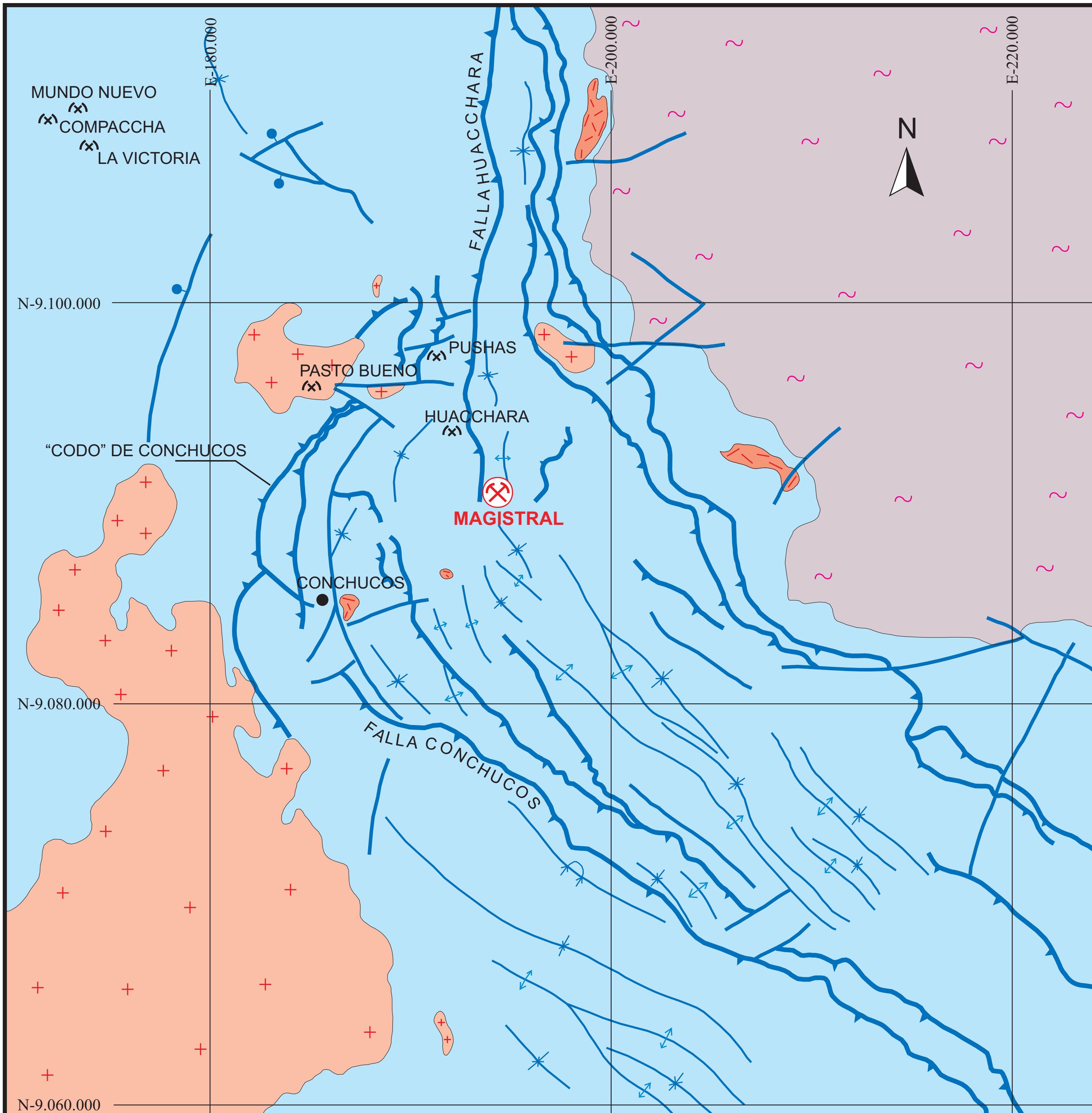
Regional-scale faults and folds constitute part of the Imbricated Tectonic Unit of Wilson and Reyes (1967). The leading edge of this Unit is the Conchucos Fault. The imbricate tectonics of the belt do not seem to have affected the basement, and the structural setting of the region consists of low-angle thrust faults and horizontal shortening in the order of 10 km east-west.

Significantly, abundant northeast-trending lineaments cut the low-angle features, resulting in disruption to fold axes, termination of folds, and the alignment of intrusive bodies along them (Figure 7-3), and appear to have had an effect on the position of Quaternary-age glacial valleys.

On the district scale, the structural setting is complex, being characterized by low angle inverse faults and upright, to overturned, north-striking folds. The Huacchara fault is one of the most important north-south trending structural features in the district and results in a vertical displacement estimated to be at least 1,000 m on the Property. This fault dips approximately 60º to the west, juxtaposing quartzites of the Chimu Formation against the carbonate-dominant Jumasha Formation. The Huacchara fault can be traced for over 25 km from Magistral towards the north.

East of the Huacchara Fault, the stratigraphy is predominantly in a series of tight, thrust-folded anticlines and synclines with axes striking and dipping to the northwest and limbs dipping between 10° and 50°. Between Laguna Pelagatos and Magistral, a large overturned fold, which is related to the Huacchara fault, is cored by Pariahuanca, Chulec, and Pariatambo formations, indicating that the stratigraphy at Magistral, and in particular the skarn-hosting Jumasha Formation, may be overturned as well.

The reverse faults in the area of Magistral vary between high angle and low angle, the latter constituting bedding plane thrusts striking northwest and affecting primarily the Jumasha and Celendin Formations.



a: Cordillera Blanca Batholith (Miocene)
b: Other Tertiary Intrusive Rocks

Sedimentary Cover (Cretaceous)

Igneous and Metamorphic Basement (Lower Paleozoic)

Thrust fault
Normal fault
Syncline
Anticline

0 2 4 6 8 10
Kilometres

Figure 7-3

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Magistral Project
Ancash Region, Peru
Local Geology

August 2017

Source: Wilson et al., 1995.

PROPERTY GEOLOGY

The Magistral porphyry intrudes carbonate rocks of the Jumasha Formation. Three intrusive bodies, San Ernesto, H porphyry, and Sara, form the Magistral porphyry.

- The San Ernesto porphyry hosts the highest grade copper mineralization. It has a well-developed network of stockwork veinlets containing clinopyroxene, epidote, specularite, chalcopyrite, magnetite, pyrite, quartz, secondary K-feldspar, molybdenite and carbonates. This intrusion has porphyritic texture composed of plagioclase, K-feldspar, and pyroxenes.

- The H porphyry postdates the San Ernesto intrusion. H porphyry has similar texture and mineralogy compared to San Ernesto, but hosts much lower grade copper mineralization. This intrusion is characterized by veinlets containing quartz, chalcopyrite, carbonate, grey copper, molybdenite, K-feldspar, and pyrite. The primary assemblage is composed of plagioclase, K-feldspars, and pyroxene, which is altered to carbonate, sericite, epidote, clay, and chlorite. Sphalerite exsolution (star-shape) is common in chalcopyrite grains, which delineate a high temperature zone.

- The Sara porphyry is a barren monzodiorite intrusion, whose texture and mineralogy are easily distinguished from the other two porphyry intrusions. It is composed of K-feldspar, plagioclase, quartz, hornblende, actinolite, and primary and secondary biotite. Hydrothermal biotite was dated at 15.0 ± 0.5 Ma (Noble et al., 2004) in the Sara porphyry.

Jumasha Formation rocks that occur at the Magistral Project consist of thick beds of limestone interlayered with thin beds of marl, siliceous limestones, and carbonate-cemented sandstones. These rocks host most of the skarn mineralization at the deposit, which is elongated parallel to the strata bedding that dips between 30° and 60° to the west.

Intrusive rocks and mineralization have not undergone faulting or significant tectonic displacement, however, structures appear to have played an important role in guiding the intrusion emplacement. The northwest-southeast fault system is the most prominent, being part of the Andean tectonics. It consists of a typical fold-and-thrust zone with thrust faults crosscutting the parallel axes of anticline and syncline folds, forming duplex structures. This system includes the Huacchara, Keith Glover, and other minor faults.

Another important fault system trends northeast-southwest and is composed of steeply dipping trans-tensional shear zones that are almost perpendicular to the northwest-southeast system. This fault system also played a role in promoting weakness zones for intrusion emplacement and hydrothermal fluids circulation (and consequently mineralization precipitation). The major representative of this system is the Magistral fault, which is parallel to the topographic depression known as the Magistral valley.

The younger fault system has a north-south direction and consists of steeply dipping structures that have also contributed to formation of weakness zones prior to intrusion emplacement. Its major fault, the Chavín fault, has been intersected by drilling and is up to eight metres wide and at least 500 m deep.

Figure 7-4 illustrates the surface geological plan in the mineralized area. Figure 7-5 illustrates the stratigraphic and sedimentary column of the Magistral property.

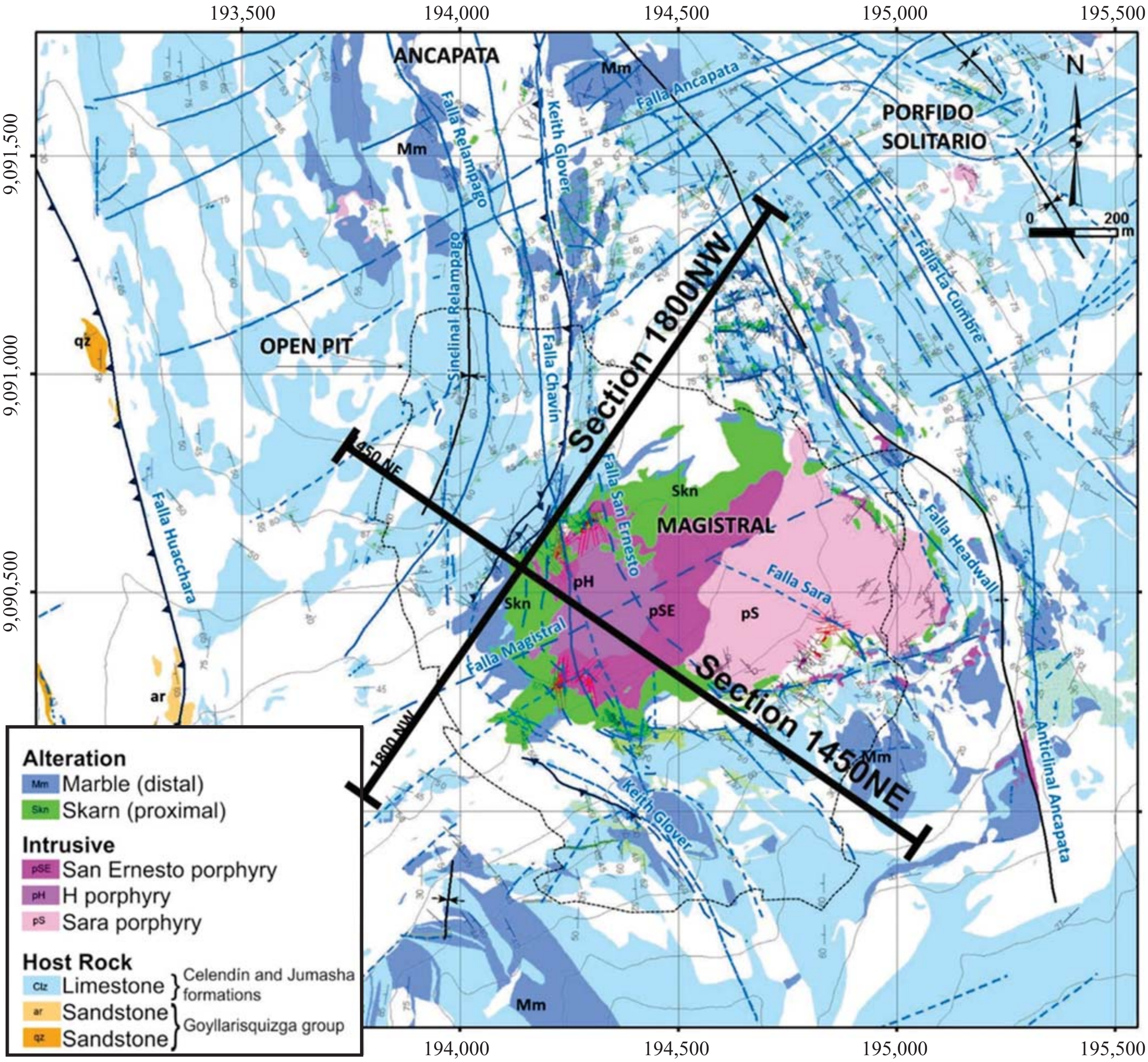

Figure 7-4

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Magistral Project

Ancash Region, Peru

Property Geology

August 2017

Source: Votorantim Metais, 2016.

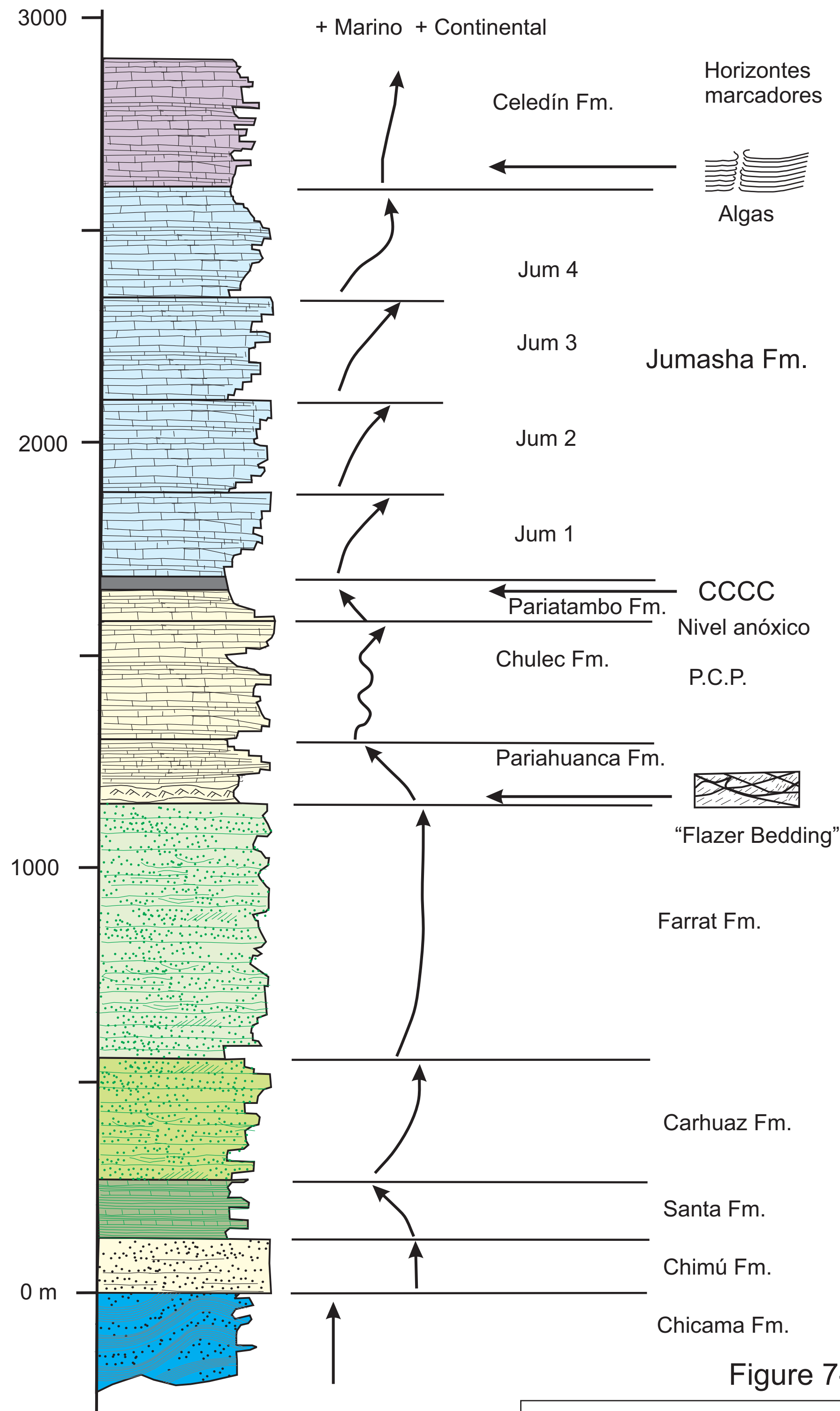

Figure 7-5

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Stratigraphic and Sedimentary Column

August 2017

Source: Noblet, 2000.

MINERALIZATION

There are three types of mineralization at the Project:

- Skarn: The skarn mineralization is of highest grade, forming a hundred-metre scale rim within the country rocks around the porphyries. Garnet (grossular at proximal and andradite at distal alterations), epidote, chlorite, hematite, magnetite, quartz and inosilicate minerals (pyroxene and amphibole) form the skarn gangue mineralogical assemblage. Centimetre-scale mineralized veinlets and massive patches of sulphide (chalcopyrite, pyrrhotite, pyrite, and minor molybdenite) crosscut the skarn gangue assemblage.

- Mixed zone: It consists of a metre-scale interlayering between the skarn and the porphyry-style mineralization. It is possibly formed by the combination of exoskarn, endoskarn, and also intrusive fingers (porphyry), making a complex and variable sort of mineralization that combines mineralogical and grade characteristics of skarn and porphyry mineralization.

- Porphyry: The porphyry mineralization is of lowest grade and is formed by several quartz, chalcopyrite, and molybdenite veinlets ("D", "B", and "A"-type veinlets), which constitute a final stockwork framework that crosscuts the intrusive porphyry.

The skarn mineralization seems to be preferentially elongated and anisotropic parallel to the strata bedding of country rocks (limestone), whereas the porphyry mineralization envelope is coincident with the limits of the San Ernesto and H porphyry intrusives, whose texture, grade, and mineralogy are apparently more isotropic than those of skarn mineralization.

Figures 7-6 and 7-7 illustrate northeast-southwest and northwest-southeast cross-sections through the deposit, respectively.

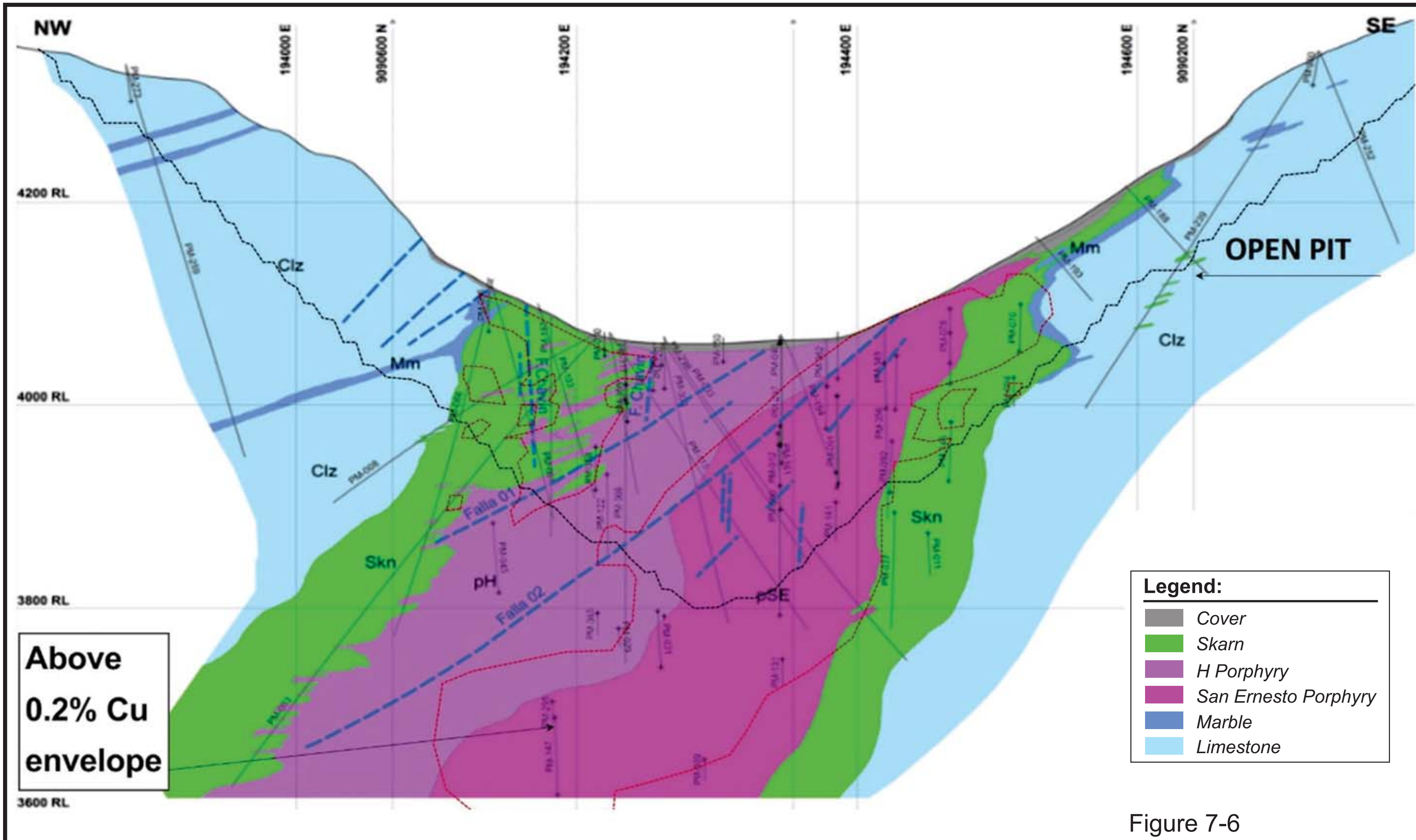

Figure 7-6

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Section 1450 NE

August 2017

Source: Votorantim Metais, 2016.

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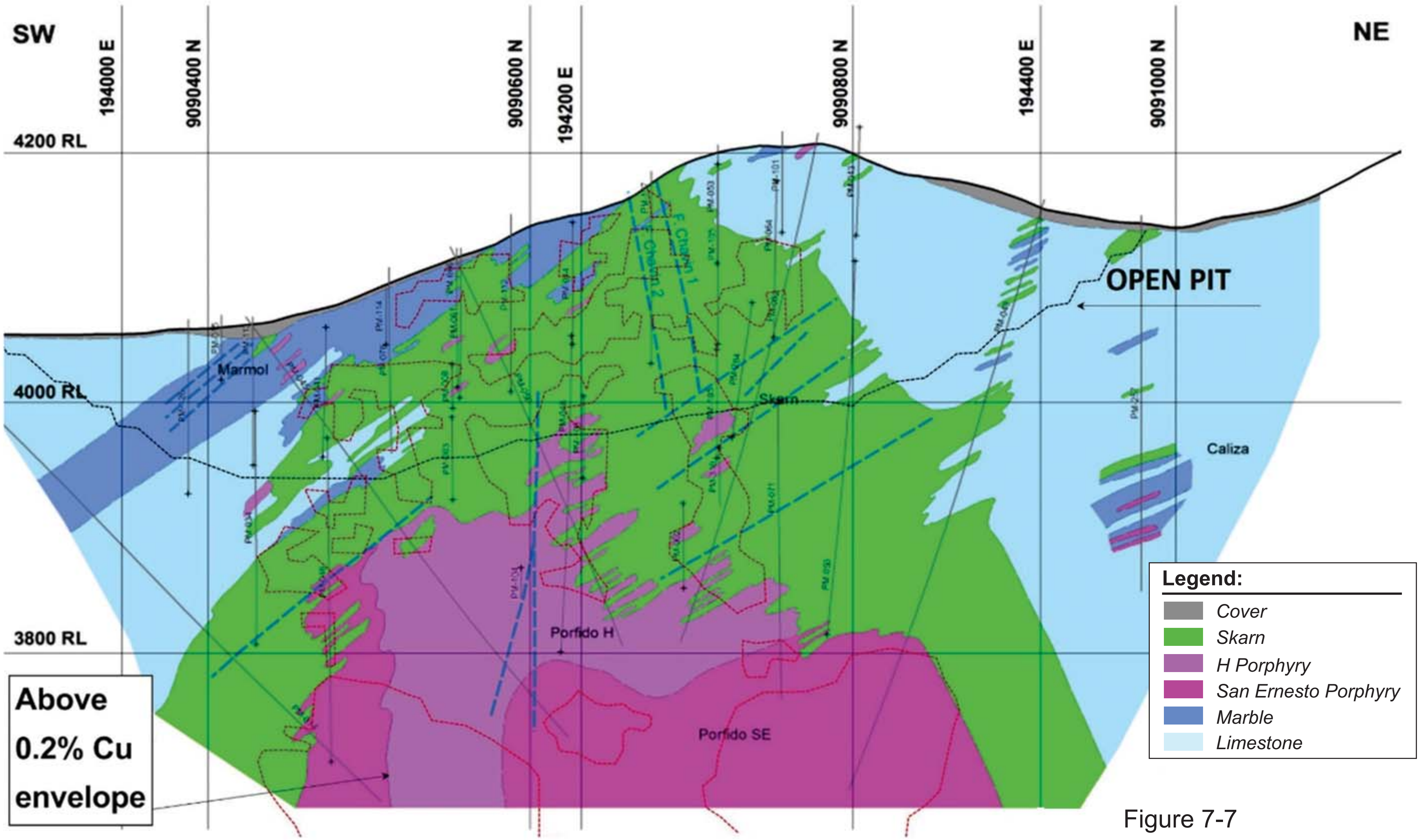


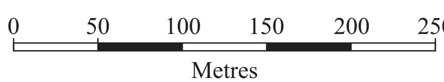


Figure 7-7

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Section 1800 NW

August 2017

Source: Votorantim Metais, 2016.

8 DEPOSIT TYPES

The Magistral deposit is a calc-alkaline, copper-molybdenum, porphyry deposit with a well-developed envelope of copper-(molybdenum) mineralized skarn (Ristorcelli et al., 2008).

PORPHYRY DEPOSITS

Porphyry deposits are large, low to medium grade deposits in which primary (hypogene) minerals are dominantly structurally controlled and which are spatially and genetically related to felsic to intermediate porphyritic intrusions (Kirkham, 1972). The large size and structural control (e.g., veins, vein sets, stockworks, fractures, “crackle zones”, and breccia pipes) distinguish porphyry deposits from a variety of deposits that may be peripherally associated, including skarns, high temperature mantos, breccia pipes, peripheral mesothermal veins, and epithermal precious metal deposits.

Porphyry deposits range in age from Archean to Recent, although most are Jurassic or younger. They occur throughout the world in a series of extensive, relatively narrow, linear metallogenic provinces. Porphyry deposits occur in close association with porphyritic epizonal and mesozonal intrusions, typically in the root zones of andesitic stratovolcanoes. A close temporal relationship between magmatic activity and hydrothermal mineralization in porphyry deposits exists (Kirkham, 1971). Magma composition and petrogenesis of related intrusions exert a fundamental control on the metal content of porphyry deposits. Intrusive rocks associated with porphyry Cu, porphyry Cu-Mo, porphyry Cu-Au and porphyry Au tend to be low-silica, relatively primitive dioritic to granodioritic plutons whereas porphyry deposits of Mo, W-Mo, W and Sn typically are associated with high-silica, strongly differentiated granitic plutons.

The overall form of individual porphyry deposits is highly varied and includes irregular, oval, solid, or “hollow” cylindrical and inverted cup shapes. Deposits may occur separately or overlap and, in some cases, are stacked. Individual deposits measure hundreds to thousands of metres in three dimensions. Deposits are characteristically zoned, with barren cores and crudely concentric metal zones that are surrounded by barren pyretic halos with or without peripheral veins, skarns, replacement manto zones, and epithermal precious metal deposits.

Complex, irregular mineralization and alteration patterns are due, in part, to the superposition and spatial separation of mineral and alteration zones of different ages.

The mineralogy of porphyry deposits is highly varied, although pyrite is typically the dominant sulphide mineral in Cu, Cu-Mo, Cu-Au, Au, and Ag deposits. The principal and associated minerals in porphyry Cu-Au deposits are chalcopyrite, bornite, chalcocite, tennantite, enargite, other Cu minerals, native Au, electrum, and tellurides. Associated minerals include pyrite, arsenopyrite, magnetite, quartz, biotite, K-feldspar, anhydrite, epidote, chlorite, scapolite, albite, calcite, fluorite, and garnet.

Hydrothermal alteration is extensive and typically zoned, both on a deposit scale and around individual veins and fractures. In many porphyry deposits, alteration zones on a deposit scale consist of an inner potassic zone and an outer zone of propylitic alteration. Zones of phyllic alteration and argillic alteration may be part of the zonal pattern between the potassic and propylitic zones, or can be irregular or tabular, younger zones superimposed on older alteration and sulphide assemblages.

Figure 8-1 is a schematic diagram through a typical porphyry system.

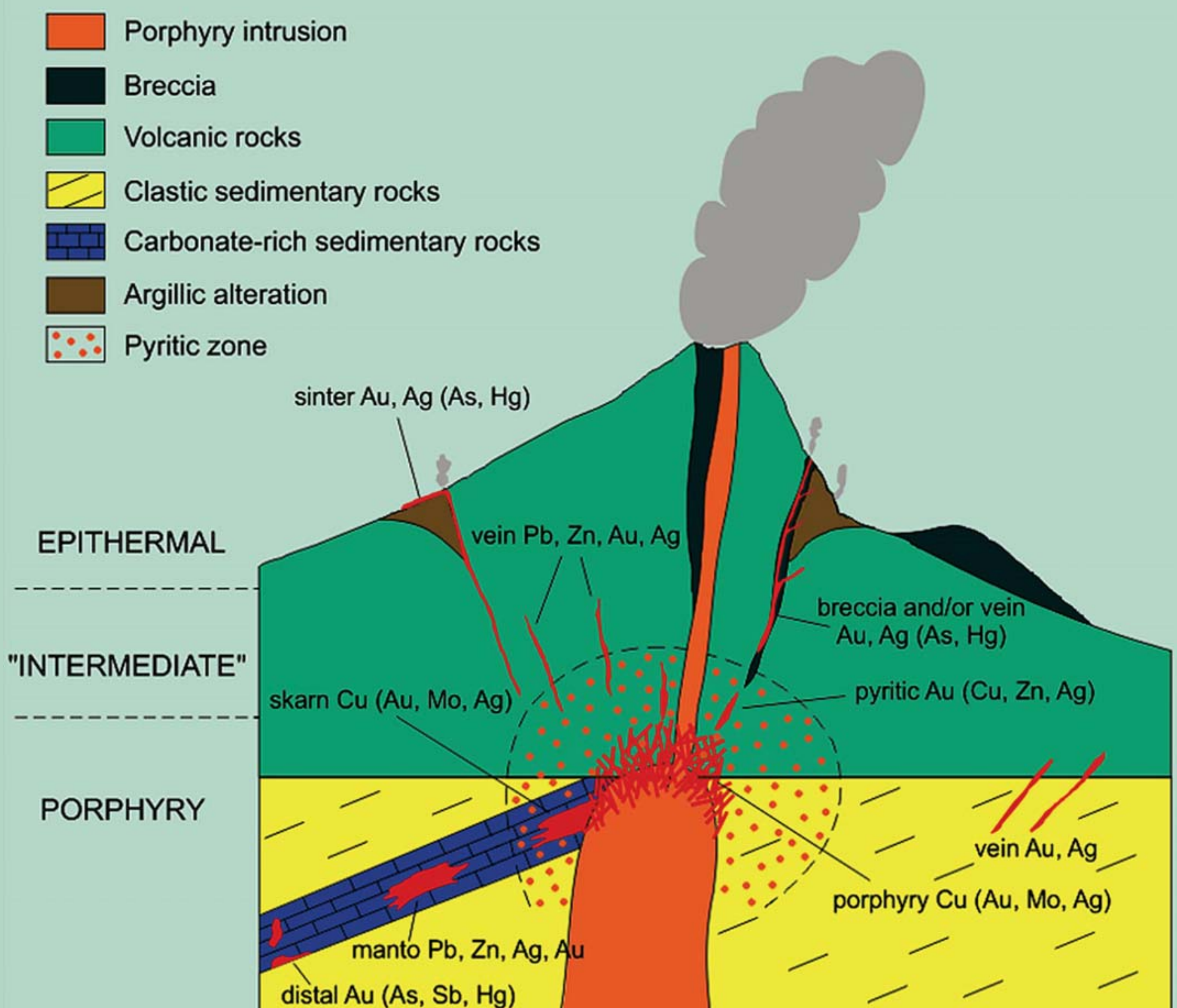


Figure 8-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Schematic Diagram Through Typical Porphyry System

August 2017

Source: Votorantim Metais, 2016.

SKARN DEPOSITS

Skarn mineralization is hosted by contact, metasomatic calc-silicate rocks proximal to intrusive rocks. They typically form by contact metamorphism of a carbonate rich rock. The reader is referred to Meinert (1993), Dawson et al. (1984) and Einaudi et al. (1991) for more detailed descriptions of skarn systems.

The following is taken from Rogers et al. (1995).

Host rocks consist of magnesian skarn and calcic skarn which were formed from the metasomatic replacement of dolomite and limestone, respectively. Metasomatized rocks consist of limestone, dolomite, and calcareous clastic sedimentary rocks. Associated intrusive rocks include gabbro to granite and diorite to syenite for Zn-Pb-Ag and W-Mo skarns and two-mica, S-type granite-granodiorite for Sn-W skarns.

Skarns are typically coarse grained, granoblastic to hornfelsic. Their associated intrusives display a variety of textures from equigranular, to porphyritic, to aphanitic. Dikes are common. They range in age from Precambrian to Recent but, on a worldwide basis, are most common in the Phanerozoic.

Generally skarns are associated with late-orogenic or post-orogenic intrusions developed in collisional, continental margin, orogenic belts. On a local scale, features such as shallow pluton/carbonate contacts, irregularities in the contact, stockwork fracturing at the contact and structural and/or stratigraphic traps in the host rock may influence the skarn formation.

Skarn mineralization varies from massive to disseminated and/or interstitial. Irregular, tabular, vein-like and peneconcordant bodies are possible. Mineralized zones may occur within the causative intrusion (endoskarn) or adjacent to the intrusion (exoskarn) up to several tens to hundreds of metres away if controlled by structural and/or stratigraphic features.

Extensive skarn mineralogy associated with contact metasomatism results in prograde Ca-Fe-Mg-Mn silicates including hedenbergite, andradite, forsterite, serpentine, spessartine, diopside, epidote, wollastonite, tremolite, idocrase, tourmaline, and greisen (quartz-muscovite-topaz-fluorite) and retrograde chlorite, actinolite, and clay minerals. Zonal alteration patterns are common.

Geological controls on skarn mineralization include relatively tick, pure and impure limey rocks; shallow-dipping pluton/carbonate traps, irregularities in the pluton/carbonate contacts; structural and stratigraphic traps or controls in the host rocks; stockwork fracturing along the pluton/carbonate contacts. Faults, contacts, bedding, breccias, crosscutting dikes, or structures control the location of the deposits at a distance from the pluton.

Cu ± gold skarns may be zoned from a Cu-Au-Ag rich inner zone to Au-Ag rich to a Zn-Pb-Ag outer zone. Copper skarn mineralogy may consist of chalcopyrite, magnetite, bornite, molybdenite, pyrite, and pyrrhotite plus a variety of lesser sulphides.

9 EXPLORATION

Since acquiring the Project in 2011, Milpo has initiated a comprehensive exploration program consisting of geological mapping, prospecting and sampling, ground geophysical surveying, and diamond drilling.

Information related to Milpo's drilling activity on the Property can be found in Section 10 of this report.

GEOLOGICAL MAPPING AND SURFACE SAMPLING

Geological mapping at a scale of 1:2,000 was completed in the Ancapata area and the area north-northeast of Magistral over an area of 386.50 ha. The objective was to verify and supplement the information available from Ancash Cobre's exploration.

GROUND GEOPHYSICAL SURVEYS

From October 2012 to January 2014, Arce Geofisico SAC was contracted to complete ground magnetic and Induced Polarization (IP) surveying over an area of 520 ha covering the Magistral deposit and the adjoining Ancapata area. The objective was to characterize the geophysical signature of the Magistral deposit and to survey the Ancapata area. Work was completed on 100 m spaced lines oriented at N125°W. An initial 30 line-km survey was expanded to 55.1 line-km of IP and 57.25 ln-km of ground magnetics in order to delineate chargeability and resistivity anomalies.

EXPLORATION POTENTIAL

Porphyry systems are generally formed by multi-pulse intrusive porphyry centres distributed in clusters. Seven exploration targets occur in a radius of two kilometres from San Ernesto, H, and Sara porphyries. The targets are identified by country rock alteration (e.g., marble, skarn), porphyry intrusions, and anomalous rocks identified from rock chip sampling. Of the seven targets, only two were drilled. VMH provided the following description of the targets:

- Ancapata porphyry – 150 m x 60 m aerial exposure of a monzodiorite porphyry intrusion with a skarn alteration rim. This target contains five (of a total of 22) mineralized (+1,000 ppm Cu) rock chip samples, which have ranges of 0.42% Cu to 2.49% Cu, 48 ppm Mo to 433 ppm Mo, 0.17 ppm Au to 5.42 ppm Au, and 44 ppm Ag to 149 ppm Ag. The intrusive mineral assemblage is composed of plagioclase (partly altered to sericite and epidote), K-feldspar (with plagioclase exsolution), quartz, and altered mafic minerals (possibly primary biotite, amphibole, and pyroxene altered to biotite and chlorite). Additionally, rutile, pyrite, pyrrhotite, and magnetite occur filling voids throughout the identified samples. No drilling was performed at this target.

- Huacchara porphyry – 600 m x 500 m surface exposure of a micro-quartz monzodiorite porphyry intrusion, which contains more than 300 rock chip samples that do not indicate significant mineralization (16 ppm Cu to 1,305 ppm Cu, 1 ppm Mo to 410 ppm Mo, 0.01 ppm Au to 0.12 ppm Au, and 0.2 ppm Ag to 1.0 ppm Ag). The intrusive mineral assemblage is composed of primary plagioclase (slightly altered to sericite), K-feldspar, and mafic minerals (biotite, amphibole, and pyroxene). As a secondary (hydrothermal) group of minerals, biotite and magnetite were identified. Drill hole PM-215 crosscut this intrusion, which suggests it has a sill geometry.

- Yuracocha porphyry – 370 m x 200 m surface exposure of a granodiorite porphyry intrusion with a localized skarn rim. This target contains five (of a total of 22) mineralized (+1,000 ppm Cu) rock chip samples, which have ranges of 0.11% Cu to 5.81% Cu, 2 ppm Mo to 89 ppm Mo, 0.01 ppm Au to 0.11 ppm Au, and 2 ppm Ag to 694 ppm Ag. No drilling was performed at this target.

- Satellite porphyry – 330 m x 170 m surface exposure of a diorite porphyry intrusion with a skarn rim to the western contact with the country rocks. This target contains 29 rock chip samples were barren (2 ppm Cu to 128 ppm Cu, 1 ppm Mo to 8 ppm Mo, lower detection limit for Au (0.01 ppm), and 0.2 ppm Ag to 3.0 ppm Ag). This intrusion is characterized by the abundance of hornblende and disseminated magnetite. No drilling was performed at this target.

- Solitario porphyry – 95 m x 85 m surface exposure of a quartz-diorite porphyry intrusion with no identified skarn at vicinities. Assays from the six rock chip samples were barren (9 – 23 ppm Cu, lower detection limit for Mo (1 ppm), Au (0.01 ppm), and Ag (0.2 ppm)). Silicification and chloritization was alteration identified at the intrusive. No drilling was performed at this target.

- Lechecocha porphyry – 130 m x 70 m surface exposure of a diorite porphyry intrusion with a 20 km wide skarn rim. This target contains 14 (of a total of 18) mineralized (+1,000 ppm Cu) rock chip samples, which have ranges of 0.11% Cu to 2.82% Cu, 1 ppm Mo to 166 ppm Mo, 0.02 ppm Au to 0.75 ppm Au, and 1 ppm Ag to 59 ppm Ag. No drilling was performed at this target.

- San Ernesto porphyry dykes – several dykes of the same composition and alteration of the San Ernesto porphyry at Magistral occur in an area of 1,300 m x 150 m. This target returned 76 (of a total of 128) mineralized (+1,000 ppm Cu) rock chip samples, which had ranges of 0.11% Cu to 9.88% Cu, 1 ppm Mo to 2,180 ppm Mo, 0.01 ppm Au to 1.27 ppm Au, and 1 ppm Ag to 588 ppm Ag. This target lies at the eastern edge of the planned pit and, at depth, the San Ernesto dykes may potentially connect with the main intrusive body of Magistral. The target was investigated with seven exploration drill holes and further systematic drilling is required prior to estimation of a mineral resource.

In RPA's opinion, there is good potential to increase the resource base at Magistral by additional exploration of the above targets. A regional UAV-borne magnetometry survey associated with 3D inversion could help identify skarn mineralization at depth, as the mineral assemblage at Magistral contains appreciable amounts of magnetite. In addition, high grade mineralization has been delineated at the San Ernesto dykes, Lechecocha, Yuracocha, and especially Ancapata targets, which should be followed up with systematic drilling.

10 DRILLING

Through the end of 2015, a total of approximately 101,900 m of surface diamond drilling have been completed in 486 drill holes. In addition, 14 short underground diamond holes were drilled for a total of 1,298.8 m, in the San Ernesto, Arizona, and Sara zones between 1969 and 1973. In 1999, 2000, and 2001, Anaconda drilled 76 diamond drill holes totalling 24,640 m. All surface drilling from 2000 onward was carried out on northeast (035°) and northwest (305°) oriented sections. In 2004, Ancash Cobre (Inca Pacific) completed 34 drill holes, totalling 7,985 m, and in 2005 Ancash Cobre (Quadra) drilled 14,349 m in 60 holes (Ristorcelli et al., 2008). Table 10-1 summarizes the Magistral Project drilling.

TABLE 10-1 SUMMARY OF DRILLING
VM Holding S.A. – Magistral Project

Years	Operator	Drilling Type	No. of Holes Drilled	Hole Numbers	Meterage Drilled
1969-1973	Minera Magistral	DDH	14	M-1 to M-14	1,298.8
1999-2001	Anaconda	DDH	76	PM-1 to PM-76	24,639.6
2004	Ancash Cobre (Inca)	DDH	34	PM-77 to PM-110	7,984.9
2005	Ancash Cobre (Quadra)	DDH	60	PM-111 to PM-170	14,349.4
2006-2008	Ancash Cobre (Inca)	DDH	123	PM-171 to PM-293	19,003.1
2012-2015	Milpo	DDH	179	PM-293 to PM-472	34,629.1
	Total		**486**		**101,904.9**

Figure 10-1 illustrates the location of the Magistral drill holes.

Milpo's drilling in 2012 was contacted to Redrilsa Drilling S.A. (Redrilsa). Since 2012, the drilling has been contracted to Geotecnia Peruana S.R. Ltda. (Geotecnia Peruana). Of the 71 holes drilled in 2013, six were drilled to gain geotechnical information and the remainder were infill holes. Drilling in 2014 consisted of a combination of infill, geotechnical, and metallurgical holes. The 2015 drilling consisted entirely of infill holes. There has been no drilling at the Project since 2015.

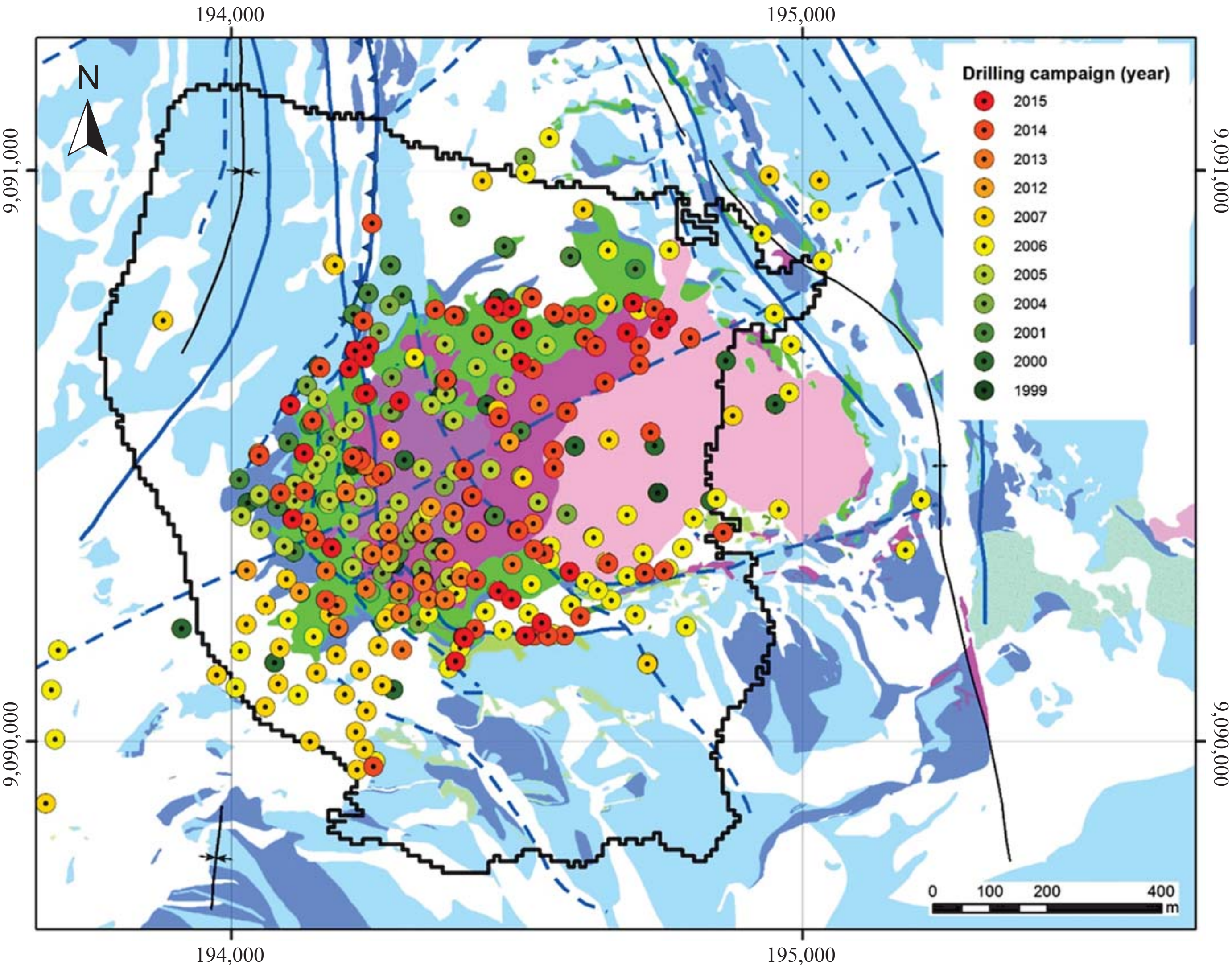


Figure 10-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Location of Drilling

August 2017

Source: Votorantim Metais, 2016.

Surface drill hole collars were spotted using a handheld GPS instrument. The azimuth and dip of the holes were established using a compass and inclinometer. The attitude of the holes with depth was determined using a variety of tools over time with readings taken by the drillers. During the 2012 and 2013 drilling programs, the attitude of the holes was surveyed with a Reflex Maxibor instrument; in 2014, a Devico Deviflex instrument was used; and in 2015, a Reflex Gyro instrument was used. The interval between readings varied from 2 m to 5 m, depending on the year in which the holes were drilled.

Upon completion of the surface holes, casings were pulled, PVC pipe was inserted, and the collar filled with concrete. Hole locations were surveyed.

Drill core is placed sequentially in plastic core boxes at the drill by the drillers. The core is delivered to Milpo's secure logging facility by the drilling contractor on a daily basis where depth markers and core box numbers are checked and the core is cleaned and reconstructed.

The core is logged geotechnically, including the calculation of the core recovery, core loss, and rock quality designation (RQD). The fracture type and density is recorded. Core recovery is generally very good in fresh rock, typically in the 90% to 100% range. RQD is generally good to very good, typically 75% or better.

The core is descriptively logged and marked for sampling by Milpo geologists with particular attention to lithologies, structure, alteration, and mineralization. Logging is initially on paper and entered into a spreadsheet based template for integration into the Project digital database later.

The core is photographed wet with a digital camera after logging but before sampling.

Samples for bulk density determination are taken regularly. Samples of representative material of approximately 10 cm length are selected for testing using the water immersion method. Porous samples are oven dried, weighed, and covered with a thin layer of paraffin prior to weighing again both in air and water.

Core samples are taken by sawing the core in half length-wise where indicated by the logging geologist. Samples are typically two metres long in mineralized intervals. A two metre long sample is commonly taken at 10 m intervals in barren intervals. Samples typically do not cross geological boundaries. Half the sampled core was returned to the box and the other half was placed in plastic bags. Split core samples are tracked using three-part ticket books. One tag is stapled into the core box at the beginning of the sample interval, one tag is placed in the sample bag with the sample, and the last tag is kept with the geologist's records.

Core boxes are stored on racks at the core logging facility for later retrieval if required.

Milpo personnel deliver the split core samples to Trujillo on a regular basis where they are transported by a bonded carrier to Lima for analysis.

RPA is of the opinion that the drilling, core handling, logging, sampling, security, and shipping procedures are adequate for the purposes of this report.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

VMH SAMPLING METHOD AND APPROACH

From the drill site to the sample preparation facility, the following protocol was followed:

- Drill core was collected from the drill platform and transported by vehicle to the Magistral camp.
- Lithology, structure, mineralogy, alteration were logged graphically onto gridded paper by company geologists and sample intervals were marked on the core. Quality assurance and quality control (QA/QC) sampling is also marked onto the core at this stage. RQD, structural, and fracture logging is also performed at the logging stage.
- Sample length is generally from 0.5 m to 2.0 m, except when hard, geological boundaries were reached, the sample might be slightly less, or slightly more, than two metres long.
- Core photos are taken with a digital camera.
- Core was sawed lengthwise, down the core axis, by a diamond saw. One half is put in plastic sample bags and labeled with the sample number assigned by the geologist. Bagged split samples are then packed in larger bags and then sent to the assay laboratory.
- Sample lots were transported by vehicle to the sample preparation facility and to the laboratory.
- Sample rejects (i.e. >10 mesh fraction) were stored at the laboratory.

DENSITY MEASUREMENTS

Senior geotechnical staff reviewed core logs produced by the geologist and selected appropriate ~10 cm intervals for density measurement. The geotechnician ensured that the measurement apparatus was set up for optimal stability and cleanliness and that the scale was calibrated before each session. Dry samples representative of logged interval lithology, mineralization, alteration, and structure were visually selected from core boxes and brushed to remove debris, marked for their location in the core box, and transferred to a temporary holding box before being moved to the specific gravity measurement station.

Samples were weighed dry and then weighed suspended in water. A formula using the two measurements was then applied to determine the density of the sample.

Where samples are permeable or friable, geotechnicians dried them, weighed them, coated them in paraffin wax, weighed them again, and finally weighed them in water. Samples were then returned to their original core boxes.

The formula used for dry samples was:

$$PE = (\text{dry weight}) / (\text{dry weight} - \text{weight in water})$$

The specific gravity of wax coated samples was calculated via:

$$PE = Ps / (Pt - Pw - ((Pt - Ps)/0.865))$$

Where:

Ps = oven-dried weight
Pw = dry wax-coated weight
Pt = weight of wax-coated sample submerged in water.
0.865 = average density of the paraffin

SAMPLE PREPARATION

CERTIMIN/CIMM

Batches of samples are dried in stainless steel trays in an oven at either 60°C or 100°C until humidity reaches a desired level. They are then crushed in a jaw crusher using quartz flushes and compressed air to clean the equipment between samples. Secondary crushing is then performed with a roller crusher which is cleaned in the same manner. Secondary crushed samples are then run three times through a Jones riffle splitter to homogenize and the split positions switched before selection of the subsample for pulverisation. Pulverizers use a ring and bowl design. Compressed air and occasionally quartz flushes are used to prevent sample contamination and industrial alcohol is added to prevent samples from adhering to the bowl walls. Pulps are run through a secondary splitter and reject pulp duplicates are packed and stored for future usage.

ALS GLOBAL

The sample was logged in the tracking system, weighed, dried, and finally crushed to greater than 70% passing a 2 mm screen. A split of up to 250 g was taken and pulverized to more than 85% passing a 75 micron screen. This sample preparation package was coded PUL-31 by ALS Global. Following preparation, samples were ready for analysis at the same facility in Lima, Peru. ALS Global is accredited to ISO/IEC 17025 (ALS, 2012) for all relevant procedures.

These laboratories are independent of VMH. In RPA's opinion, the sample preparation methods are acceptable for the purposes of a Mineral Resource estimate.

SAMPLE ANALYSIS

Magistral samples were analyzed at three laboratories:

1. Certimin/CIMM in Trujillo and Lima. Certimin is accredited to ISO 9001:2008 and ISO 17025 accredited by the Instituto Nacional de Calidad (INACAL), Peru (Registration Number LE-022).
2. ALS Global in Lima, which is accredited to ISO/IEC 17025 (ALS, 2012).
3. ACME Analytical Laboratories Ltd. in Vancouver, British Columbia, Canada, which is accredited to ISO9001.

Table 11-1 outlines the assay methods for copper analysis used at each laboratory. These laboratories are independent of VMH. In RPA's opinion, the sample analysis methods are acceptable for the purposes of a Mineral Resource estimate.

TABLE 11-1 COPPER ASSAY METHODS BY LABORATORY
VM Holding S.A. – Magistral Project

Laboratory	Method	Element	Units	LDL	UDL	Method Description
CIMM PERU S.A	ICP	Cu	ppm	<1	>10,000	Multi-element analysis, multiacid digestion - ICP (Inductively Coupled Plasma)
CIMM PERU S.A	AAS	Cu	%	<0.0001	2.5	Atomic Absorption Spectrometry (AAS)
ALS	ME-ICP41	Cu	ppm	<1	>10,000	Multi-element analysis, aqua regia Digestion - ICP (39 elements)
ALS	Cu-AA46	Cu	%	<0.001	>50	Aqua regia digestion, AAS

Laboratory	Method	Element	Units	LDL	UDL	Method Description
ALS	ME-ICP41	Cu	%	<0.0001	>1	Multi-element Analysis, Aqua Regia Digestion - ICP (39 elements)
ALS	ME-ICP61	Cu	ppm	<1	>10,000	Four acid digestion, ICP-AES (Inductively Coupled Plasma Atomic Emission Spectroscopy), (33 elements)
ALS	Cu-AA62	Cu	%	<0.001	>50	Four acid digestion, AAS
ALS	ME-ICP41	Cu	%	<1	>10,000	Multi-element analysis, aqua regia digestion - ICP (39 elements)
ACME	Group 1D	Cu	ppm	<1	>10,000	Aqua regia digestion, ICP
ACME	Group 7AR	Cu	%	<0.001	10	Aqua regia digestion, ICP-ES (Inductively coupled plasma emission spectroscopy)

DATABASE MANAGEMENT

Database management is carried out by a dedicated onsite geologist under the supervision of the Project Geologist. Logging sheets prepared by the geologist are transcribed to the database management system GeoExplo. Original drill logs, structural logs, geotechnical logs, and details related to the hole are stored on site in a folder, specific to each drill hole. Folders are clearly labelled and stored in a cabinet in the office.

Assay certificates are mailed to the site by ALS Global and emailed to appropriate VMH employees. Certificates are reviewed by geologists prior to uploading to GeoExplo.

SAMPLE CHAIN OF CUSTODY AND STORAGE

Core boxes are transported every day to the core shed by personnel from the drilling company. Samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas.

Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

QUALITY ASSURANCE/QUALITY CONTROL

DEFINITIONS

The following is taken from AMEC (Simon et al., 2004).

Exploration Best Practices Guidelines and NI 43-101 regulations state that a program of data verification should accompany an exploration program to confirm validity of exploration data, and that a QA/QC program be in place. A QA/QC program should include the insertion of various control sample types. The corresponding terms for the QA/QC sample types are used in this report as follows:

- Twin samples (also referred to as “half-core samples or “core re-sampling”) are samples obtained by repeating the sampling in the proximity of the original location. In the case of core drilling, such samples are obtained by re-splitting the half-core samples, representing therefore ¼ of the core, or by taking the remaining half-core. These samples should be assayed by the same laboratory as the original samples, and are mainly used to assess the sampling variance.

- Coarse duplicates (also referred to as “coarse rejects” or “preparation duplicates”) are splits of sample rejects taken immediately after the first crushing and splitting step. These samples should be assayed by the same laboratory as the original samples, and provide information about the sub-sampling variance introduced during the preparation process.

- Coarse blanks are coarse samples of barren material, which provide information about the possible contamination during preparation; the coarse blanks should be inserted into the sample sequence immediately after highly mineralized samples.

- Pulp duplicates (also called “same-pulp duplicates”): are second splits or resubmission of the prepared samples that are routinely analyzed by the primary laboratory. These samples are resubmitted to the same laboratory under a different sample number; these samples are indicators of the assay reproducibility or precision.

- Pulp blanks (also called “fine blanks”): are pulverized samples of barren material, which provide information about the possible contamination during assaying; these samples should be inserted into the sample sequence immediately after highly mineralized samples.

- Standard samples are samples with well-established grades, prepared under special conditions, usually by certified commercial laboratories (Certified Reference Materials, or CRMs). These samples are used to estimate the assay accuracy, together with the check samples.

- Twin, coarse, and pulp check samples are equivalents of the above defined twin samples, coarse and pulp duplicates, re-submitted in this case to an external certified laboratory (secondary laboratory). These samples are used to estimate the accuracy, together with the standards. Check sample batches should also include pulp duplicates of some of the samples included in the batch, as well as standard samples and pulp blanks, in reasonable proportions, in order to assess the precision, accuracy, and possible assay contamination, respectively, at the secondary laboratory.

PREVIOUS OWNERS 1999-2012

Sample preparation, analyses and security are outlined to varying degrees of detail in several previous reports by AMEC (Simon et al., 2004), Dick (2004), MDA (Sivertz et al., 2005), SRK (Ristorcelli et al., 2006), Samuel Engineering (Ristorcelli et al., 2008), and Golder (2016). This section draws heavily on these reports for historical review. RPA found that the reports were in general agreement with respect to the information presented in this section.

CHECK SAMPLES

Anaconda (2001b) and Dick (2002) concluded that the check assay procedures carried out during the course of the Magistral exploration were accomplished with a high degree of diligence and that a very high degree of confidence should be given to the geochemical data that have been used in the interpretations and resource estimations. Dick (2002) also concluded that:

- No significant differences in copper values could be observed between the two laboratories.
- When compared with the originals, the duplicates show high correlation coefficients for Cu (0.999) and for molybdenum (0.994).
- With respect to Mo, only those values greater than 1,500 ppm showed even a minor deviation from a perfect correlation.

AMEC conducted a check re-sampling program of old core, rejects and pulps in 2004, to evaluate the accuracy of assays taken during the initial exploration program. AMEC observed high variability for Cu and Mo in twin check samples, due to the underlying sampling variance, but the value of the coefficient of correlation R2 was acceptable (above 0.985) for both elements in coarse and pulp check samples. With the exclusion of a few outliers, bias values never exceeded ±5%. As a result of the re-sampling program and other verification work, AMEC concluded that the Anaconda assays were sufficiently accurate to be used for resource estimation purposes (Simon et al., 2004).

IN-HOUSE QA/QC PROGRAM (1999)

In 1999, pulp duplicates and pulp check assays were performed after the drilling was completed. This program consisted of re-analyzing 5% of the samples at the same laboratory, CIMM Tecnologias y Servicios S.A. (CIMM, now Certimin) in Lima, Peru, and 2.5% in a separate laboratory, ITS-Bondar Clegg in North Vancouver, Canada. The results indicated that the precision and accuracy of the Cu and Mo analyses were within the confidence levels accepted by the exploration and mining industry. Anaconda did not insert any standards, blanks, or duplicates into the regular sample stream during this phase of exploration (Ristorcelli et al., 2008).

1999-2001 ANACONDA

During this program, Anaconda drilled 24,639.58 m in 76 holes. Beginning with the 2000 drilling program, a more stringent QA/QC program was put into place, designed to follow the precision and accuracy of the results as the program proceeded. During the 1999-2000 program, samples were shipped in lots of 42, consisting of 40 samples and two blanks (Dick 2004). During 2001, 47 samples were shipped in each lot, consisting of the above plus three standards and two duplicates (Dick, 2004). Two pulp duplicate samples were also added to each lot to verify laboratory precision.

Core samples from the 1999 program were analyzed at CIMM for Cu, Mo, Pb, Zn, and Ag by multi-acid attack followed by atomic absorption (AA), and for Au by fire assay with an AA finish (Simon et al., 2004).

Core samples from the 2000 program were subjected to two procedures. The first 1,120 samples were analyzed at CIMM for Cu, Mo, Ag, Pb, Zn, Sb, Bi, and As by the acid attack/AA method, while an additional 1,391 samples, submitted later, were analyzed for Cu, Mo, Ag, Pb, and Zn by the same acid attack/AA method and also for 33 elements by Inductively Coupled Plasma (ICP). Gold was not included in the analyses (Simon et al., 2004).

Anaconda's analyses indicated that 90% of the duplicate samples had a relative error of 10% copper and 14% for molybdenum. The accuracy of Cu was found within an acceptable range and Mo contents were outside the recommended range. AMEC indicated that this behaviour was typical for analysis and that Mo QA/QC results remained acceptable for Mineral Resource estimation (Ristorcelli et al., 2008).

2004 ANCASH COBRE

Ancash Cobre drilled 7,984.85 m in 34 holes with AMEC supervision. QC sample insertion rates are shown in Table 11-2.

Pulverized samples were shipped by Acme by air courier freight to its principal laboratory facility in Vancouver, B.C. Canada for assaying. Acme (Vancouver) was used as the primary laboratory, and ALS Peru (Callao, Peru) was designated as the secondary (check) laboratory. All samples were analyzed at Acme by ICP for Ag, As, Cu, and Mo, using a high-precision ore grade method (Acme Procedure 7AR, aqua regia digestion). For the first half of the drill program, all samples were also assayed for copper by AAS. After testing 2,223 samples, AMEC concluded that the ICP method offered reliable results, and the AAS method was subsequently discontinued (SRK 2006).

During the 2004 drilling program, 4,670 samples were analyzed at Acme (Vancouver), including 904 QA/QC samples (twin samples, preparation duplicates, pulp duplicates, standards, and blanks). An additional 492 “check” analyses, including both primary and QA/QC samples, were performed at ALS (Ristorcelli et al., 2006).

TABLE 11-2 2004 DRILL PROGRAM: SAMPLE INSERTION RATES.
VM Holding S.A. – Magistral Project

Samples QA/QC	Insertion Rate	Total
Twin samples	1 in 30	152 (3.3%)
Duplicates -coarse	1 in 30	149 (3.2%)
Duplicates - pulp	1 in 30	151 (3.2%)
Standard - low	1 in 30	45 (0.96%)
Standard - avg	1 in 30	44 (0.94%)
Standard - high	1 in 30	44 (0.94%)
Coarse blank	1 in 30	160 (3.4%)
Fine blank	1 in 30	154 (3.3%)
Check Samples (CS)	1 in 30	123 (2.6%)

AMEC concluded that:

- Sampling and subsampling variation was generally within acceptable limits.
- The variance of Mo was relatively high, probably due to a nugget effect commonly observed in similar projects.
- Acme precision for Ag, As, Cu, and Mo was within acceptable limits.

- There was no discernable sample contamination at Acme.
- The 2004 sampling program was suitable for resource estimation purposes.

2005 ANCASH COBRE

Ancash Cobre drilled 14,349.35 m in 60 holes with the oversight of MDA. QC sample insertion rates are presented in Table 11-3.

CIMM Lima performed multi-element ICP-AES analyses, using aqua regia digestion, and ALS Peru (Callao, Peru) carried out AAS analyses for Cu and Mo, using multi-acid digestion. All samples were analyzed by CIMM for Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, Sb, Sc, Se, Sn, Sr, Ti, V, W, Y, Zn, and Zr (Sivertz et al., 2005).

TABLE 11-3 2005 ANCASH DRILL PROGRAM QC SAMPLE INSERTION RATES
VM Holding S.A. – Magistral Project

Samples QA / QC	Insertion Rate	Total
Core cuts	1 in 80	84 of 7,391 (1.1%)
Field duplicates	1 in 40	166 of 7,391 (2.2%)
Duplicates- coarse	1 in 40	169 of 7,391 (2.2%)
Standard - low	1 in 120	86 of 7,391 (1.1%)
Standard - avg	1 in 120	82 of 7,391 (1.1%)
Standard - high	1 in 320	23 7,391 (0.3%)

MDA concluded that

- Variances for sampling and subsampling were within acceptable limits for Cu and Mo analyses, but the variance of Mo was relatively high.
- That ALS Peru's Cu and Mo assay accuracy was within acceptable limits.
- There was no significant sample contamination during preparation or analysis of samples.
- The 2005 trials were considered to be sufficiently precise and accurate for resource estimation purposes.

2006-2007 ANCASH COBRE

Ancash Cobre drilled 18,222.35 m in 116 holes. QC sampling records from this program were incomplete though the data present did not indicate problems. Some standards were flagged for re-analysis of the batch, but records were not located that confirmed the re-run. There was no indication that MDA actively monitored the QA/QC during the drilling project (Golder, 2016).

MDA later reviewed the QA/QC data for the program and concluded that the results were reliable enough for estimating Mineral Resources (Ronning and Ristorcelli, 2007).

MILPO 2012-2015 RPA REVIEW

A QA/QC program for Magistral was in place throughout the Milpo drilling campaigns, consisting of regular submission of blanks, field duplicates, coarse reject and pulp duplicates, CRMs, and coarse reject duplicates to an alternate laboratory. The QA/QC data is monitored and remedial action is taken for batches with poor performance.

Assay acceptance criteria followed during the QA/QC program for Magistral included the following:

- Blanks: assay value should not exceed five times the practical detection limit.
- Duplicates:
    - Field sample duplicate – relative error <30%
    - Coarse reject duplicate – relative error <20%
    - Pulp duplicate – relative error <10%
- CRMs:
    - Good – absolute values <5%
    - Acceptable - absolute values between 5% and 10%
    - Inacceptable – absolute value >10%

BLANKS

The contamination during sample processing is controlled by inserting blank samples in the sample stream. The blank material was purchased from Target Rocks Peru S.A.C. In 2013, a set of 20 coarse blank samples was sent for assaying to Activation Laboratories (Actlabs), Ancaster, Ontario, Canada. The highest recorded values were 26 ppm for Cu and 2 ppm for Mo. RPA set a threshold of 100 ppm for Cu and 20 ppm for Mo for the assessment of blank performance.

A total of 454 blanks were used, resulting in an insertion rate of approximately 3%, which is relatively low compared to the recommended 5%. RPA removed one blank sample from the data set since it was a mislabelled CRM. Figures 11-1 and 11-2 show the overall blank assays for Cu and Mo. The performance of the blank material is within expected limits, with occasional samples above the threshold; however, the values observed are very low with respect to the cut-off value, hence of no concern.

FIGURE 11-1 BLANK CU ASSAYS

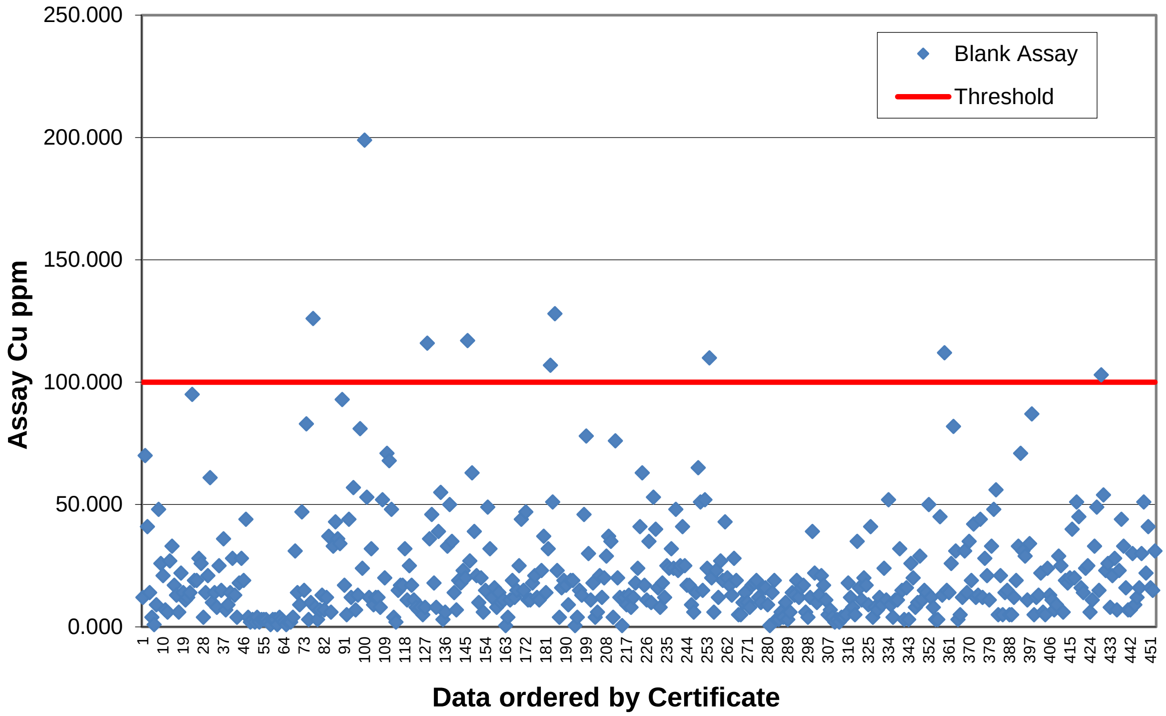
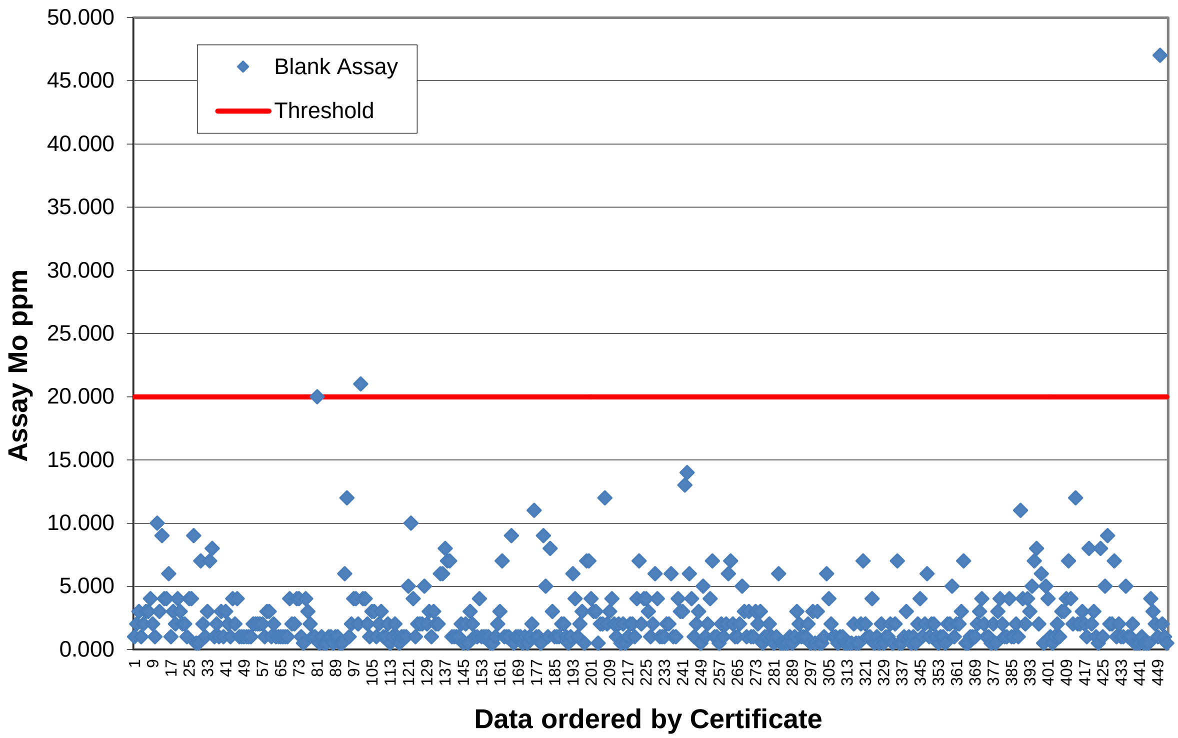


FIGURE 11-2 BLANK MO ASSAYS



CERTIFIED REFERENCE MATERIAL

Six different types of CRM were used at Magistral for low, medium, and high grades. A total of 1,115 CRMs were assayed, resulting in an insertion rate of 7%, higher than the recommended 5%. RPA identified six CRM labelling mix-ups, one switch for a blank sample, and one switch for possible field sample. The blank and field sample were removed from the data prior to analysis.

Table 11-4 lists the certified values of the CRMs for Cu and Mo and the summary of the assay performance. Silver was not part of the set of elements certified for these CRMs. The assays for Cu show virtually no bias, with the largest values of 0.7% for a low grade CRM. The bias for Mo assays was generally minimal, within 2%, with one exception for the lowest grade CRM with a certified value of 59.2 ppm Mo, where a bias of -3.6% was observed; however, due to the low value this is of no concern.

TABLE 11-4 CRM CERTIFIED VALUES AND ASSAY PERFORMANCE
VM Holding S.A. – Magistral Project

CRM	Element	Certified Value	SD	Count	Mean	Bias
OREAS 504	Cu %	1.137	0.032	338	1.142	0.5%
	Mo ppm	643	37.1	338	632.24	-1.7%
OREAS 502	Cu %	0.755	0.02	338	0.752	-0.4%
	Mo ppm	274	12.5	338	268.00	-2.2%
OREAS 501	Cu %	0.271	0.008	344	0.269	-0.5%
	Mo ppm	59.2	2.1	344	57.07	-3.6%
MPSTD Baja	Cu ppm	1,977	77	32	1,991.56	0.7%
	Mo ppm	119	5	32	121.53	2.1%
MPSTD Media	Cu ppm	6,574	183	29	6,541.38	-0.5%
	Mo ppm	253	14	29	257.72	1.9%
MPSTD Alta	Cu %	1.141	0.029	32	1.137	-0.4%
	Mo ppm	1,037	23	32	1,025.84	-1.1%

Generally, the CRM assays for both Cu and Mo showed good performance, with very rare results outside two standard deviations. Control charts of Cu assays for all CRM types used are shown in Figures 11-3 to 11-8.

FIGURE 11-3 CU CONTROL CHART OREAS502

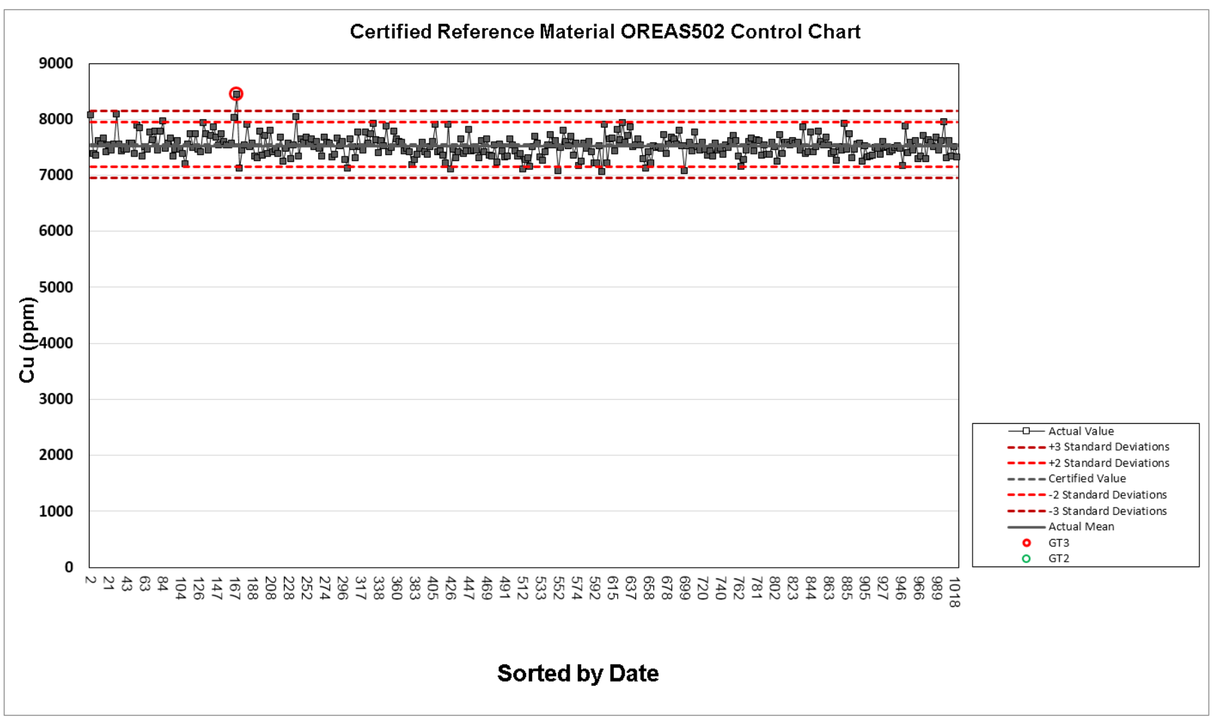


FIGURE 11-4 CU CONTROL CHART OREAS501

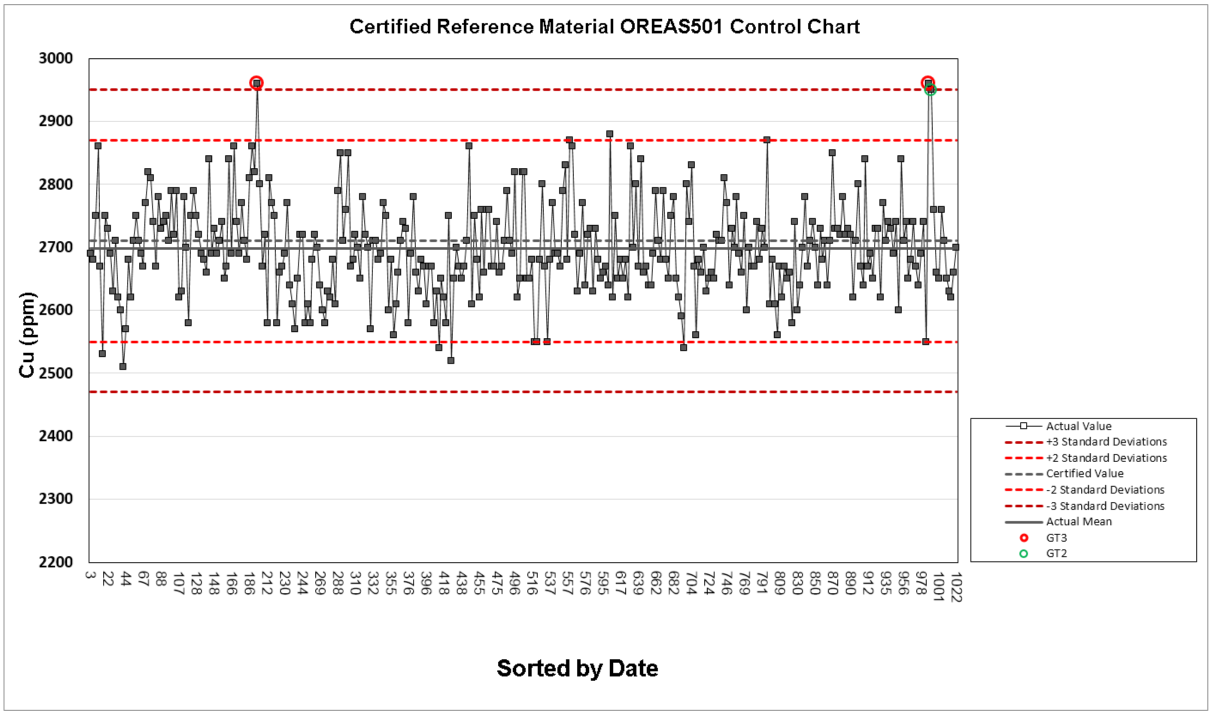


FIGURE 11-5 CU CONTROL CHART OREAS504

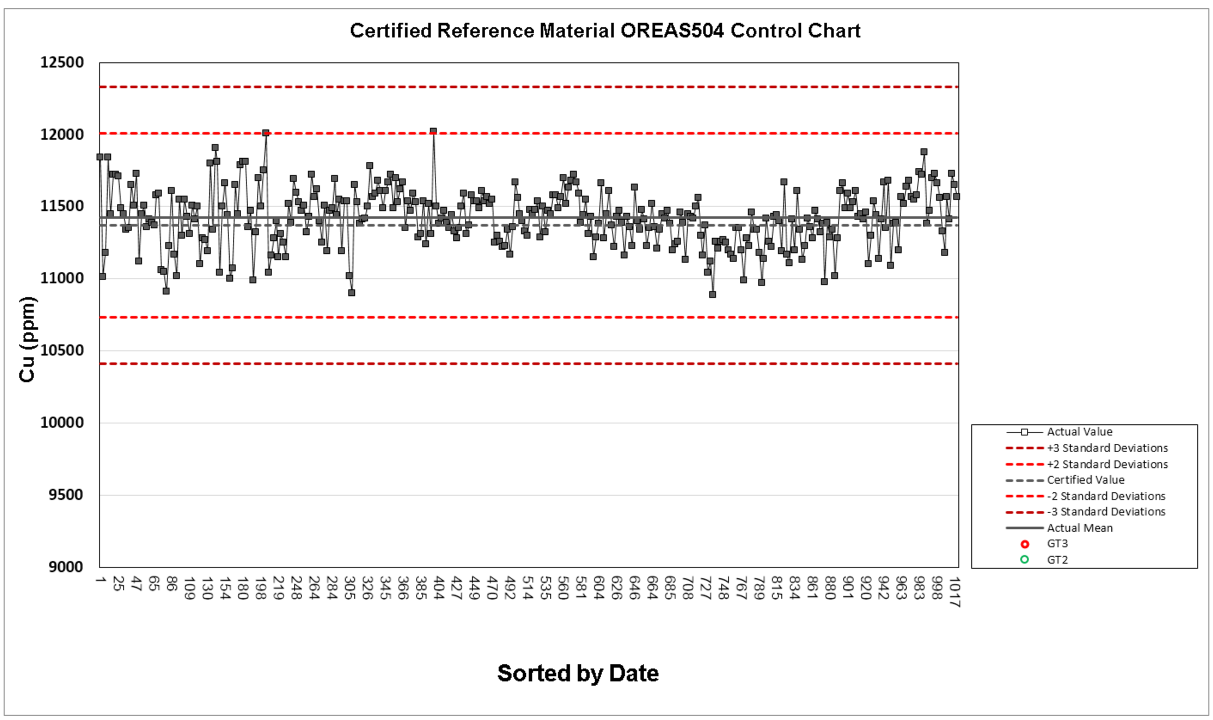


FIGURE 11-6 CU CONTROL CHART MPSTDBAJA

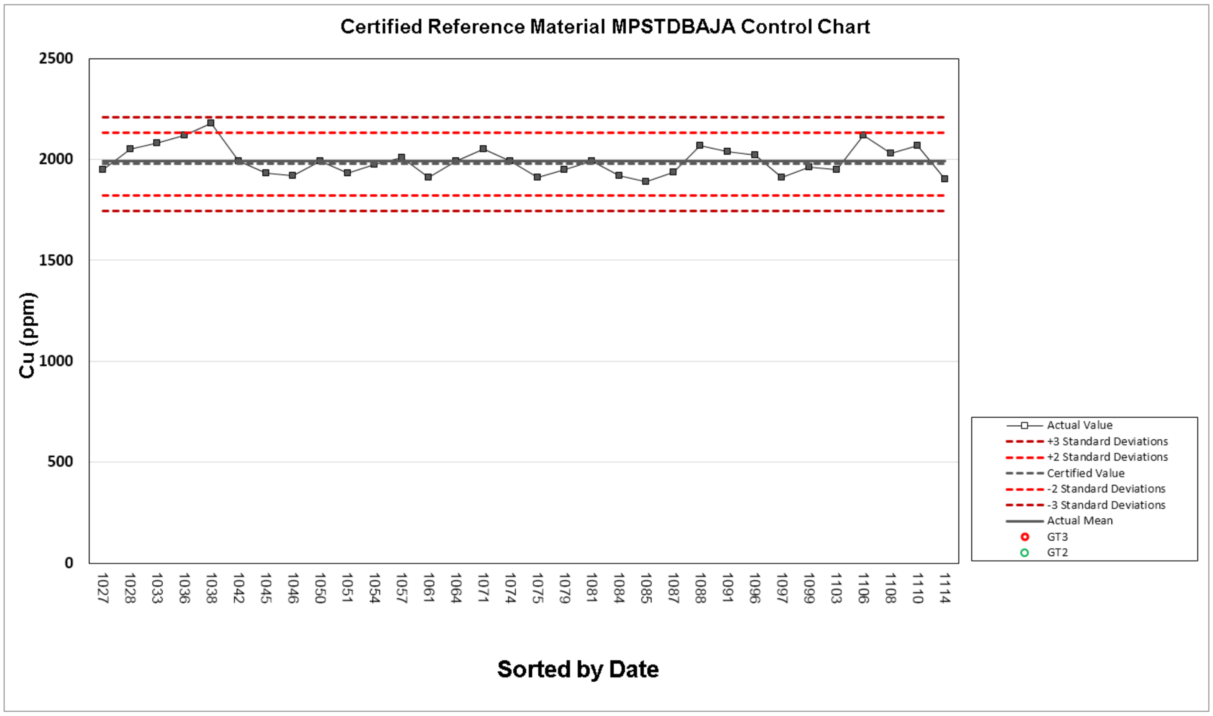


FIGURE 11-7 CU CONTROL CHART MPSTDMEDIA

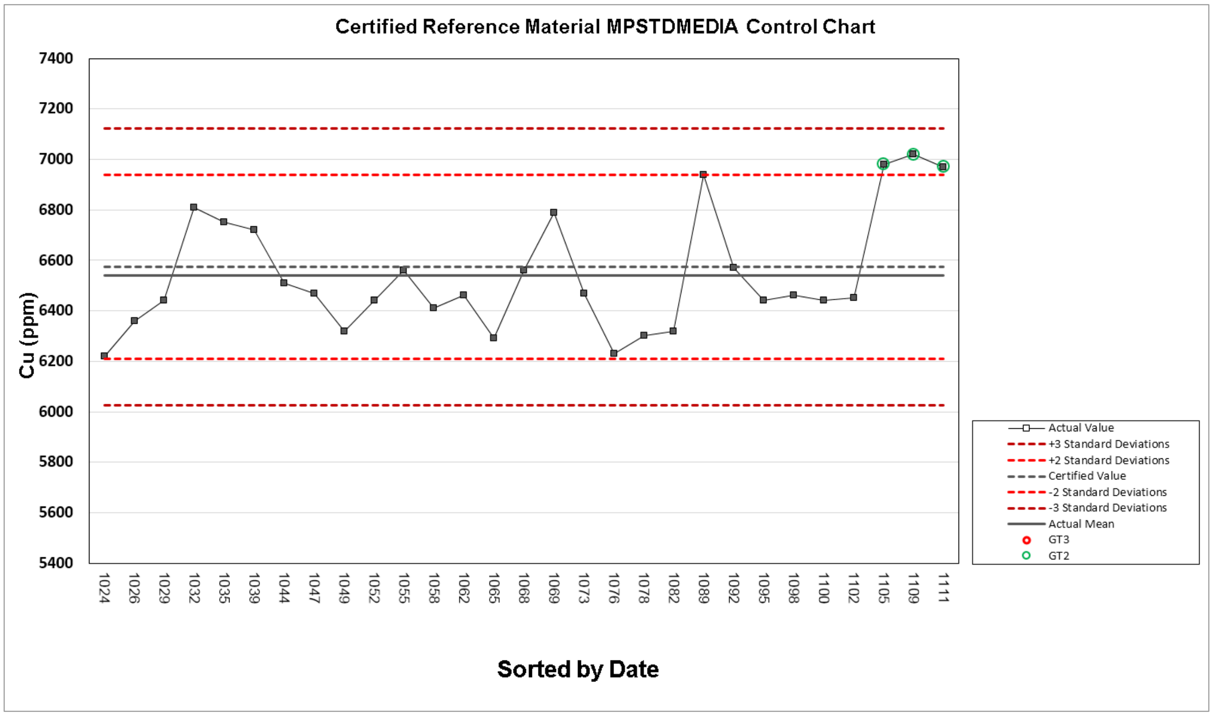
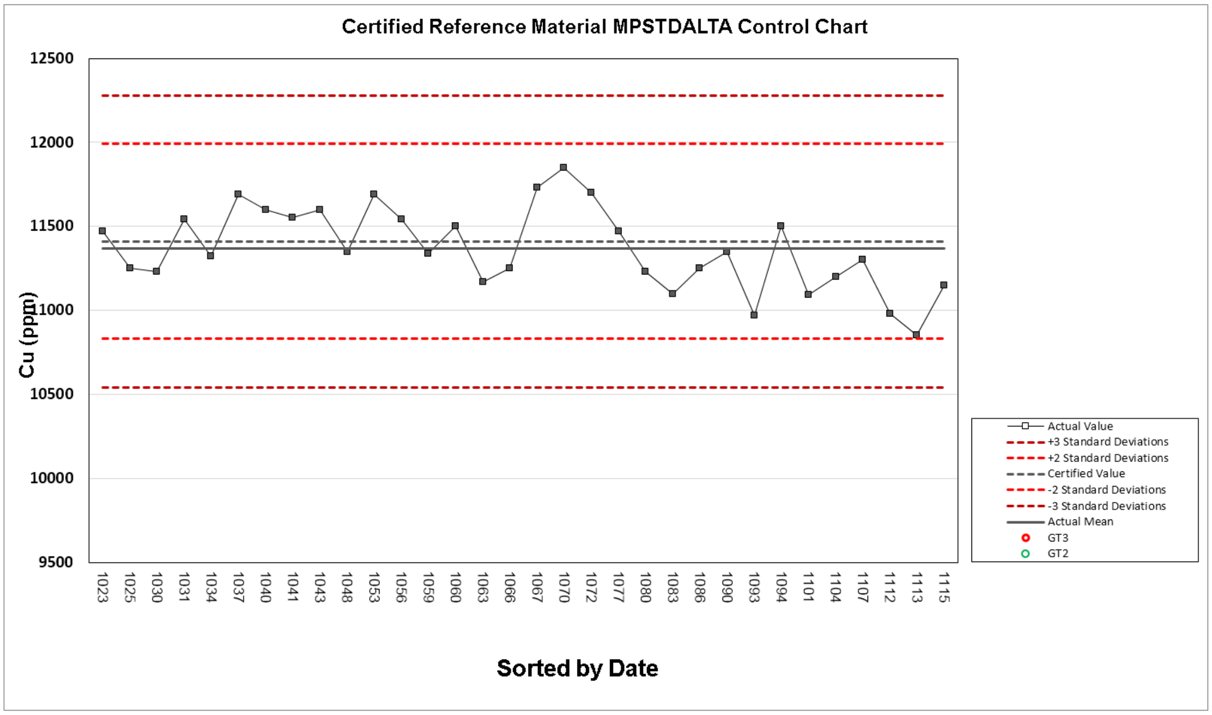


FIGURE 11-8 CU CONTROL CHART MPSTDALTA



FIELD DUPLICATE SAMPLES

Duplicate field samples consist of quartered core inserted in the sample stream following the original filed sample. A total of 432 field sample duplicates were assayed, resulting in an insertion rate of less than 3%, considered relatively low when compared to the recommended 5%.

RPA found that for the assay certificate LI13204117 the pairs of original and duplicate field samples were scrambled (10 pairs affected), however, the rest of the CRM samples in the certificate were not affected. RPA removed the ten sample pairs from the data set prior to analysis. Approximately 17% of the Cu assays and 42% of the Mo assays were outside the limit of 30% mentioned by Milpo (Figures 11-9 and 11-10). It is normal for larger relative differences to occur for the field sample duplicates.

FIGURE 11-9 FIELD SAMPLE DUPLICATE PERFORMANCE – CU

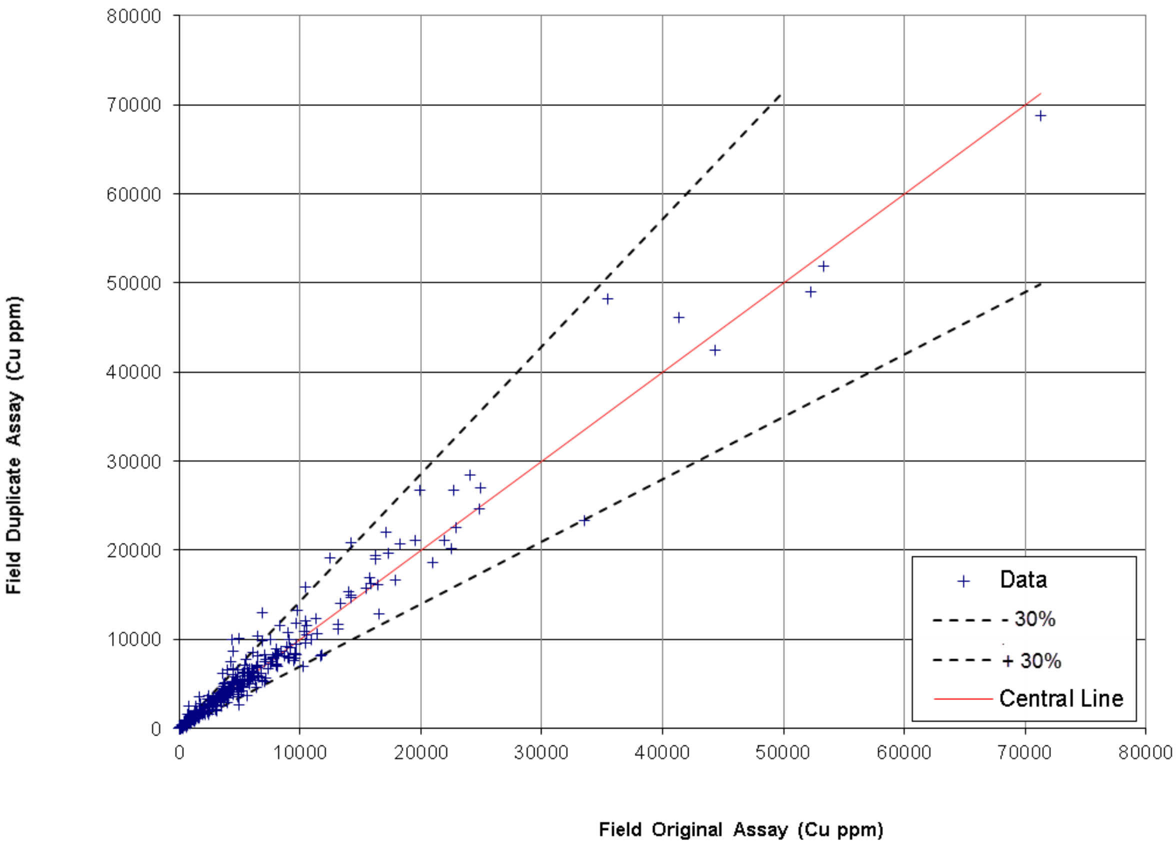
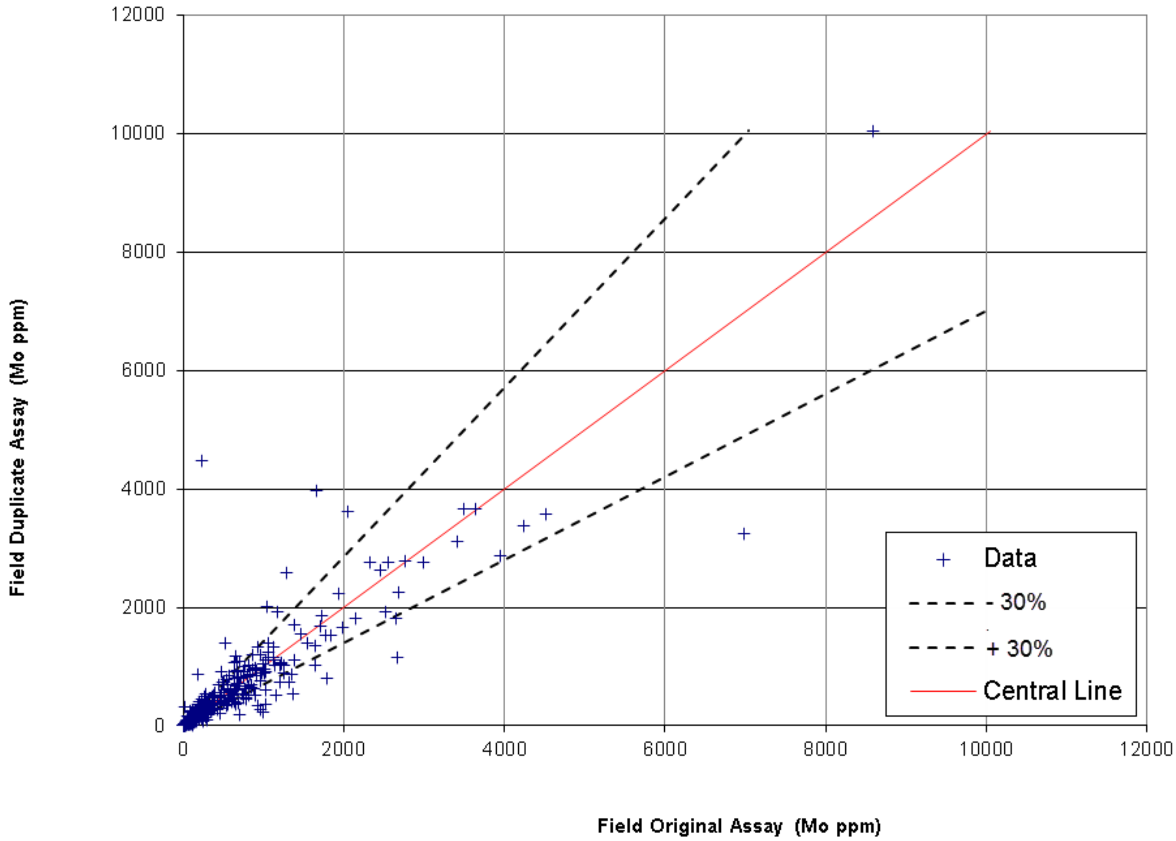


FIGURE 11-10 FIELD SAMPLE DUPLICATE PERFORMANCE - MO



COARSE REJECT DUPLICATES

A total of 141 coarse reject duplicate samples were assayed, resulting in an insertion rate of less than 1%. RPA removed one data pair as it consisted of an original sample and an OREAS501 CRM. The performance of the coarse reject duplicates was good, with a few samples outside the 20% relative error threshold. Figures 11-11 and 11-12 show the Cu and Mo coarse reject duplicate performance.

FIGURE 11-11 COARSE REJECT DUPLICATE PERFORMANCE – CU

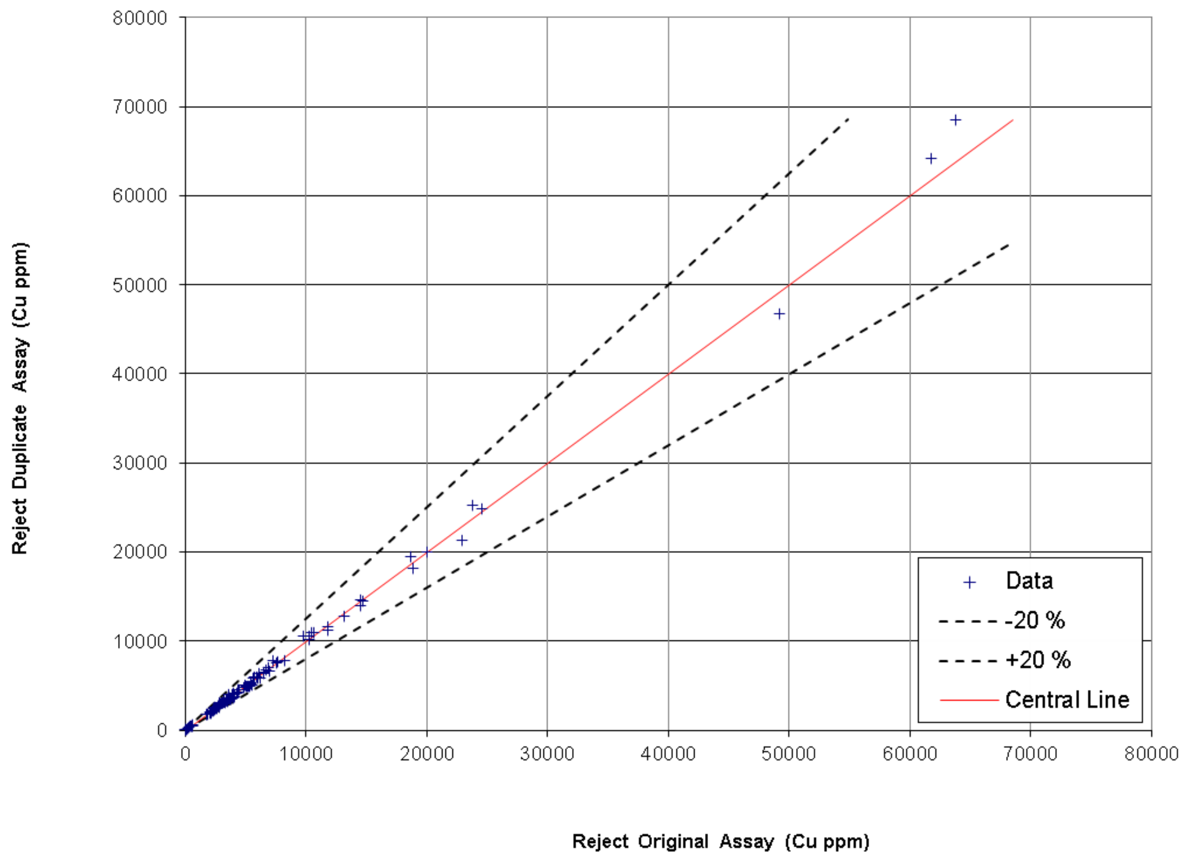
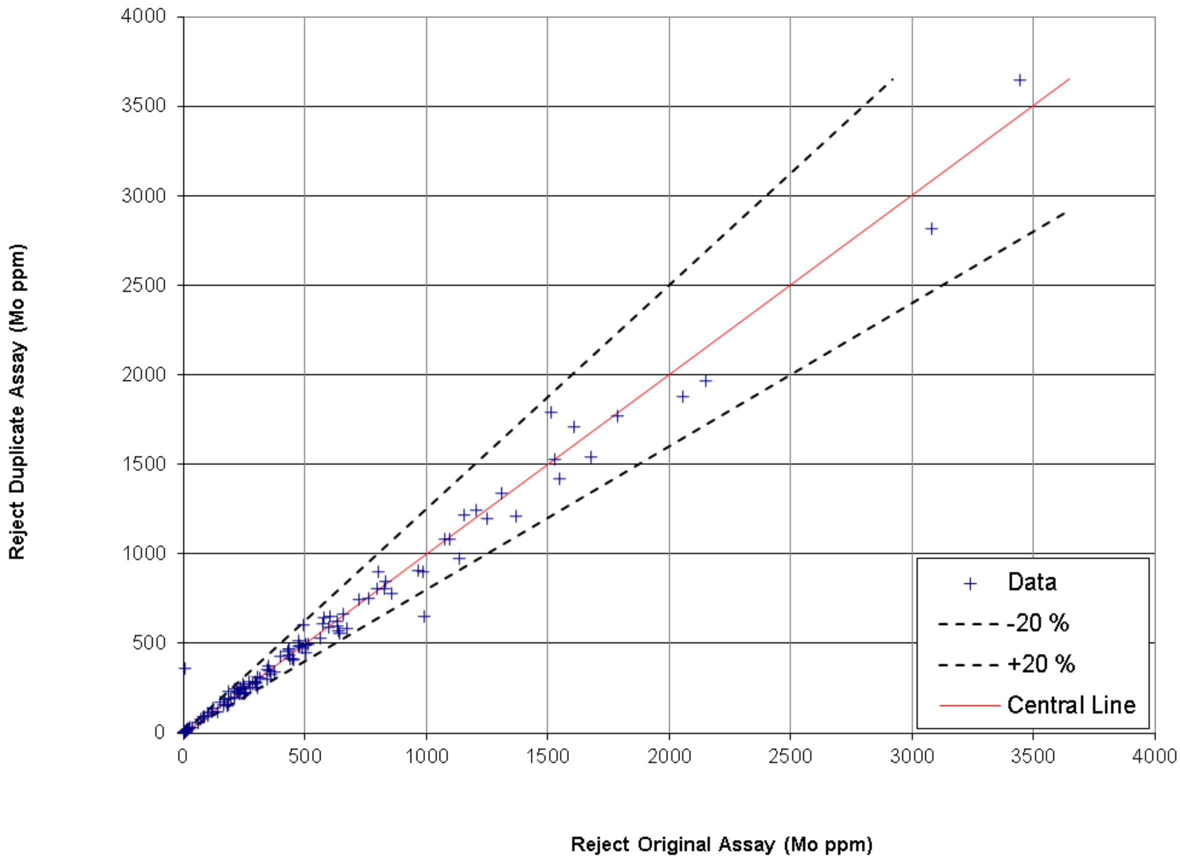


FIGURE 11-12 COARSE REJECT DUPLICATE PERFORMANCE - MO



PULP DUPLICATES

A total of 205 pulp duplicates were assayed, resulting in an insertion rate of approximately 1.5%. The pulp duplicates perform well, with few samples above the 10% relative percent difference threshold for Cu. For Mo, the behaviour was more erratic at grades lower than 50 ppm, with good behavior above 50 ppm. Figures 11-13 and 11-14 show the Cu and Mo pulp duplicate performance.

FIGURE 11-13 PULP DUPLICATE PERFORMANCE – CU

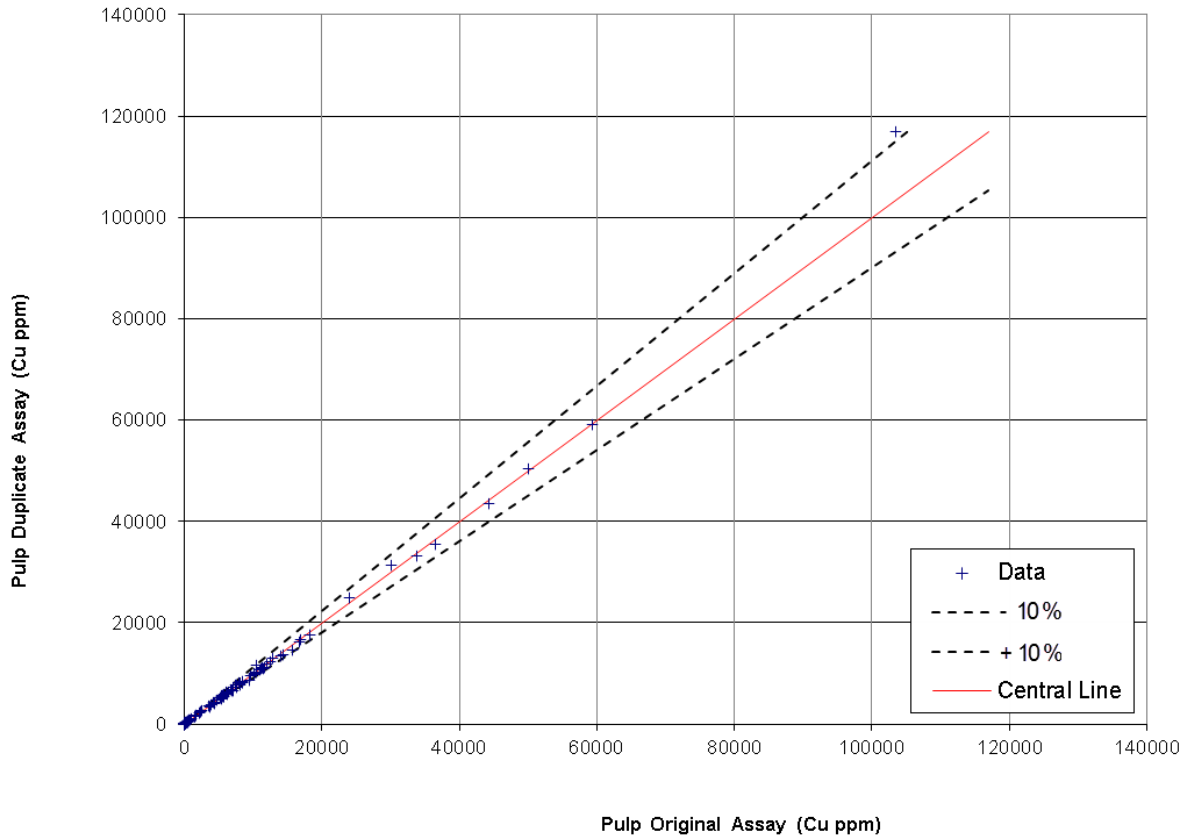
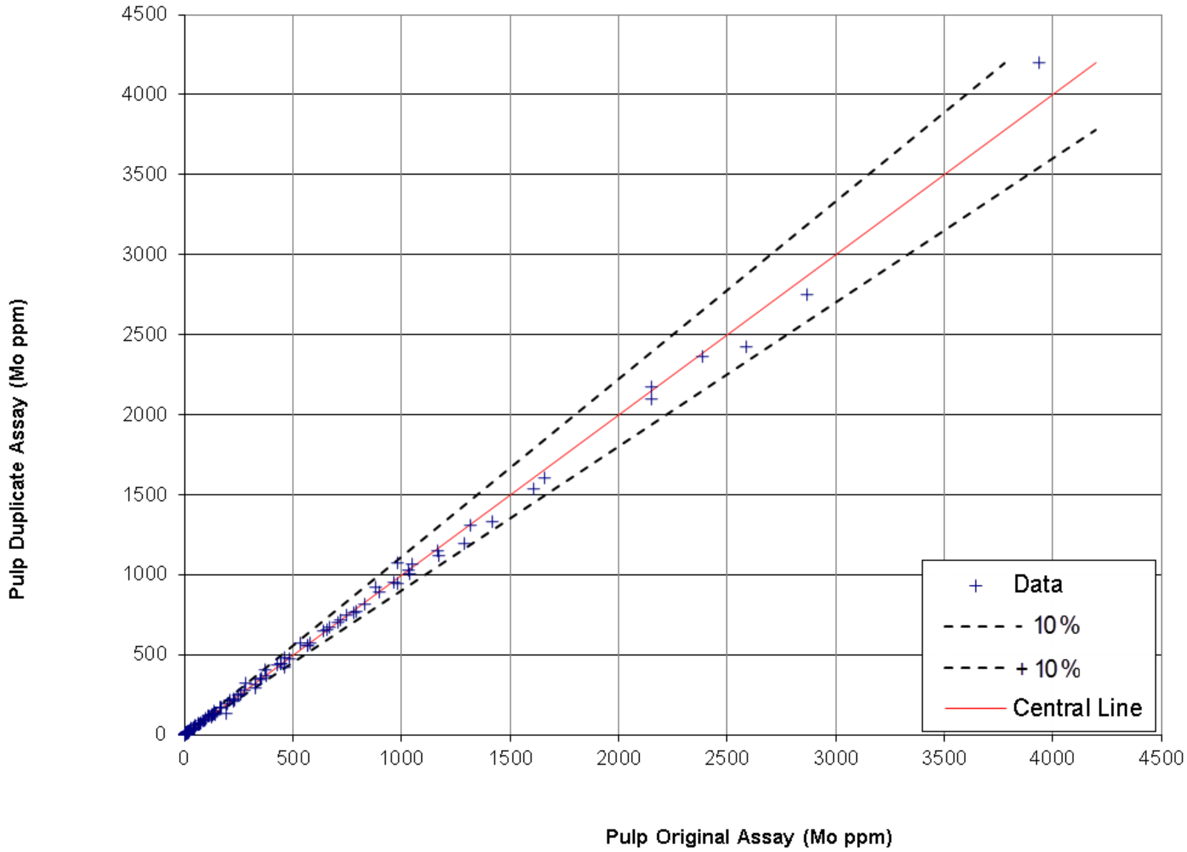


FIGURE 11-14 PULP DUPLICATE PERFORMANCE – MO



EXTERNAL LABORATORY COARSE REJECTS ASSAY CHECK

External laboratory assay checks were performed for 88 coarse reject samples. Figures 11-15 and 11-16 show the Cu and Mo assay performance of the external laboratory checks for coarse reject samples. The percent differences observed were 1.4% for Cu and 8.9% for Mo. The secondary laboratory (Certimin) appears biased low, taking into consideration the good performance of the CRMs in the primary laboratory. Check sample insertion was only performed in 2013 at a 2% insertion rate. RPA recommends incorporating a regular program of 2% to 5% laboratory check samples including CRMs and blanks.

FIGURE 11-15 SECONDARY LAB REJECT PERFORMANCE - CU

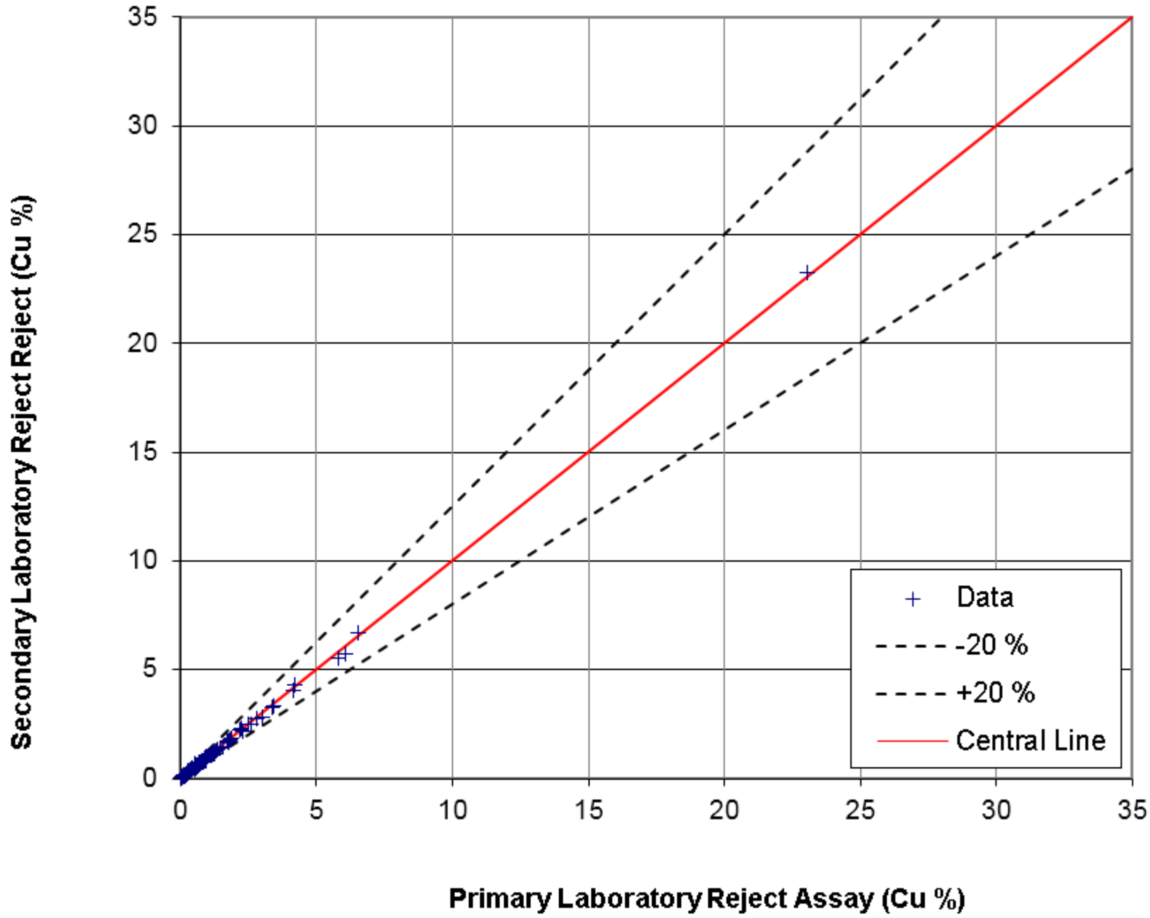
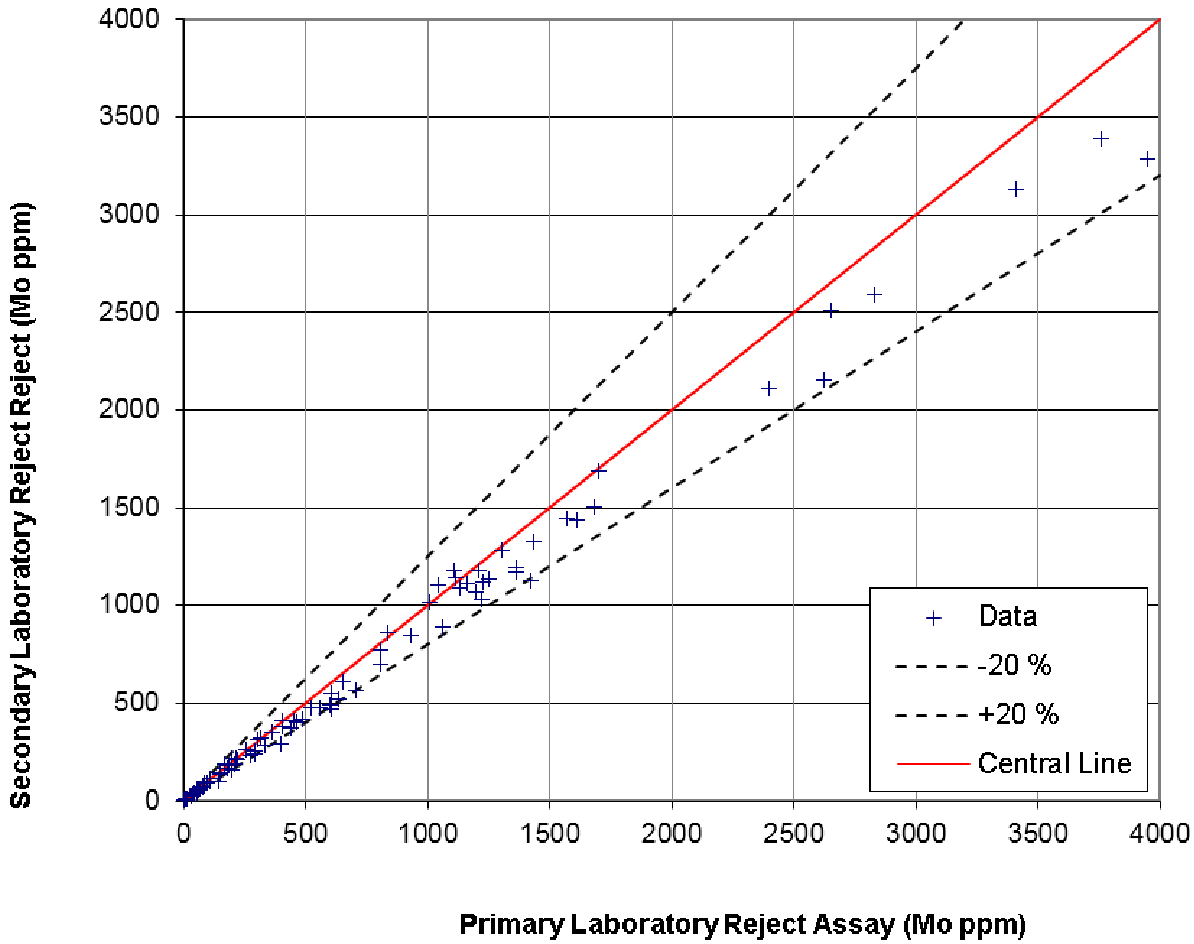


FIGURE 11-16 SECONDARY LAB REJECT PERFORMANCE - MO



CONCLUSIONS

- In RPA's opinion, the QA/QC program as designed and implemented by VMH is adequate and the assay results within the database are suitable for use in a Mineral Resource estimate.
- Grades of selected CRM materials adequately cover the distribution of Cu grades in the assay populations.

RECOMMENDATIONS

- RPA recommends that QA/QC programs be continued at Magistral and that tighter controls on the QA/QC data management be imposed.
- Check sample insertion rates should be increased to approximately 5% or one in 20 samples.

12 DATA VERIFICATION

Rosmery Cardenas, Senior Geologist with RPA, and an independent QP, visited Milpo's offices in Lima on June 12 and 13, 2017 and travelled to the Magistral property on June 16, 2017. During the site visit, Ms. Cardenas examined exposures of mineralization, reviewed plans and sections, visited the core shack, and reviewed core logging and sampling procedures. As part of the data verification process, she checked the databases against copies of the assay certificates, checked a selection of drill hole collars and drill hole core photos, and reviewed QA/QC data collected by VMH.

RPA found a few discrepancies in drill hole collar coordinates with respect to the topography. RPA recommends that VMH review drill holes with collar coordinates that do not correspond to the topographic surface.

CERTIFICATE CHECKS

RPA conducted database checks against original assay certificates. RPA was provided with 98 assay certificates from Acme laboratory for samples submitted for assaying in 2004, 166 certificates from ALS laboratory from 2007 to 2015, and 310 certificates from Certimin laboratory from 2001. Data from all the Acme and ALS certificates, as well as data from 31 randomly selected Certimin certificates were assembled and compared with the resource assay database. Samples in the database corresponded to 3,629 Acme assays, 30,397 ALS assays, and 1,111 Certimin assays. A total of 35,137 samples was checked, representing 72% of the database. The database values overall matched the assay certificate data, although slight differences were observed. This is most likely due to not accounting for re-assayed batches, which would produce similar values, yet not identical. No major issues were identified.

DATABASE AND GEOLOGICAL INTERPRETATION CHECKS

Some digital data included in the Magistral mineralized zones were also checked against original logs for discrepancies in lithology records. RPA inspected the drill holes in section and plan view to review geological interpretation related to drill hole and channel database, and found good correlation. RPA queried the database for unique headers, unique samples, duplicate holes, overlapping intervals, blank and zero grade assays, and long interval samples. RPA did not identify any significant discrepancies but noted a few minor database errors such as missing lithology records, unpicked-up collar locations, incorrect lithology codes, and a few differences between database assay values and certificate assay values, however, these inconsistencies were corrected prior to the resource estimation work.

RPA RECOMMENDATIONS

- Sample all core intervals immediately adjacent to mineralization, as undersampling of a few mineralized “shoulders” was noted. These unsampled intervals should also be reviewed after assays have been returned.

- Incorporate structural data in the database to assist in the fault interpretations and guide the preparation of future updates of the Mineral Resources.

- Carry out and document data verification programs semi-annually.

- Develop a wireframe modelling procedure which includes wireframe model validation.

- Revisit the assay database to address minor issues. The database should contain tracking information for re-assayed batches and a proper control for values below and above detection limits. The assay certificates should be revisited and all available data for deleterious elements added to the database.

In RPA’s opinion, the assay database is adequate for the purposes of Mineral Resource estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

INTRODUCTION

Metallurgical test work was completed using samples from the Magistral Project starting in 2000. The testing was conducted by:

- 2000 – Lakefield Research
- 2001 – CIMM Tecnologias y Servicios S.A.
- 2005 and 2007 – G&T Metallurgical Services
- 2013 – Laboratorio Metalúgico Chapi SAC (Chapi)
- 2015 – Certimin
- 2016 and 2017 – C.H. Plenge & CIA. S.A.

The early test work (i.e., 2000 through 2007) has been reported in a number of Technical Reports that were completed for Inca Pacific Resources (Dick, 2004; Simon et al., 2004; Sivertz et al., 2005; Ristorcelli et al., 2006; and Ristorcelli et al., 2008). This work indicated that the mineralization was amenable to sulphide flotation, excellent recoveries were achieved for both copper and molybdenum, and it was possible to separate the molybdenum and the copper from the bulk flotation concentrate into individual concentrates using standard flotation conditions and reagents. The difficulty with the early test work was that the resulting flotation concentrates contained elevated levels of arsenic and antimony that would result in high smelter penalties or may possibly make it difficult to market the concentrates. Therefore, when Milpo initiated metallurgical test work in 2012, the emphasis was to utilize more selective flotation reagents in order to minimize the arsenic and antimony that reported to the flotation concentrates while maintaining the concentrate grades and metal recovery.

In general, the samples were identified according to the three geological domains in the deposit. They are:

- Skarn
- Porphyry
- Mixed

Designations of the sample types were not included for the Certimin testing program.

CHAPI TESTING

The work conducted by Chapi in 2012 and 2013 is reported in *Pruebas Metalúrgicas Estudio de Factibilidad del Proyecto Magistral, 5 Muestras de sulfuros de Cobre y Molibdeno*, Proyecto 1223M, Marzo del 2013. Six samples were utilized to conduct chemical, mineralogical, physical, and metallurgical tests. The program included flotation and comminution tests and mineralogical studies.

CHEMICAL PROPERTIES

The sample designations and the results of the significant chemical analyses for each of the five samples is reported in Table 13-1.

TABLE 13-1 CHEMICAL ANALYSES FOR THE CHAPI METALLURGICAL SAMPLES
VM Holding S.A. – Magistral Project

Samples	Type	Cu, %	Mo, %	Fe, %	Au, g/t	Ag, g/t	As, %	Sb, %
MAG1	Porphyry High As	0.547	0.053	2.81	0.03	2.3	0.049	0.005
MAG2	Porphyry Low As	0.518	0.062	2.52	<0.01	2.3	0.011	<0.004
MAG3	Mixed High As	0.572	0.051	7.77	0.03	2.9	0.067	0.014
MAG4	Mixed Low As	0.681	0.056	9.89	0.02	2.6	0.010	<0.004
MAG5	Skarn High As	0.693	0.048	14.74	0.03	4.0	0.061	0.006
MAG6	Skarn Low As	0.577	0.049	15.19	<0.01	3.4	0.009	<0.004
LOM Plan		0.528	0.049			3.1	0.042	

MINERALOGY

The mineralogical studies were conducted using Quantitative Evaluation of Minerals using Quantitative Scanning Electron Microscopy (QEMSCAN). The major copper mineral was identified as chalcopyrite and molybdenite was the major molybdenum mineral. The samples contained 3.0% to 6.5% pyrite. Quartz, plagioclase, and potassium feldspar were the major gangue minerals for the porphyry and mixed samples while garnet and diopside/salite were the major gangue minerals for the skarn samples with the mixed samples falling in between the two, as expected. Other sulphide minerals included enargite (Cu_3AsS_4) and tennantite ($Cu_{12}As_4S_{13}$), which are sources of arsenic.

COMMINUTION

The physical testing included a series of comminution tests, including Bond Ball Mill Work Index (BW_i), Impact Work Index (W_i), Semi-autogenous grinding (SAG) Power Index (SPI), JK Drop Weight Tests (DWT), and Abrasion Index (A_i) tests. The results of these tests are summarized in Table 13-2.

TABLE 13-2 CHAPI COMMINUTION TEST RESULTS
VM Holding S.A. – Magistral Project

Samples	Bw_i, kWh/t	Impact W_i, KWh/t	SPI, min	DWT A x b	A_i, g	Apparent Density, t/m^3
MAG1	12.72		48.70		0.1567	1.49
MAG2	12.88	7.54	43.30	52.4	0.1572	1.54
MAG3	13.87		55.40		0.1042	1.63
MAG4	13.17	5.82	44.71	67.5	0.0996	1.66
MAG5	12.46		40.99		0.0730	1.84
MAG6	11.71	5.9	33.61	82.6	0.0609	1.78

The results indicate that the samples have low abrasiveness and medium hardness.

FLOTATION TESTS

The flotation tests included bulk rougher and bulk cleaner flotation tests to optimize the variables followed by two sets of locked cycle tests (LCTs) to estimate the final metallurgical results and confirm that the results could be replicated.

The optimum conditions were determined to be a primary grind of 80% passing (P_{80}) 150 µm, regrind of P_{80} 45 µm, pH 9 in rougher flotation and 10.5 in cleaner flotation using lime, collectors ester xanthate allyl (AP3302), isopropyl sodium xanthate (Z-11), and diesel (D-2), plus methyl isobutyl carbinol (MIBC) and Dowfroth 250 for frothers. The slurry density in rougher flotation is 30% solids by weight.

The optimized results from LCT 2 for all of the samples are provided in Table 13-3.

TABLE 13-3 CHAPI LOCKED CYCLE TEST 2 RESULTS
VM Holding S.A. – Magistral Project

Samples	Grade, % Cu	Recovery, % Cu	Grade, % Mo	Recovery, % Mo	P_{80}, µm	Regrind P_{80}, µm	Mass Recovery, %
MAG1	26.29	93.59	2.54	88.81	150	45	1.87
MAG2	26.61	94.67	3.10	90.77	150	45	1.78
MAG3	27.43	90.20	2.35	82.73	150	38	1.73
MAG4	28.93	91.07	1.84	76.41	150	38	1.99
MAG5	24.63	88.36	1.61	78.70	150	38	2.19
MAG6	27.22	88.17	1.93	73.43	150	38	1.67

COPPER – MOLYBDENUM SEPARATION TESTS

The copper concentrate results from the copper-molybdenum separation tests are provided in Table 13-4 and the molybdenum concentrate results are shown in Table 13-5.

TABLE 13-4 CHAPI COPPER CONCENTRATE RESULTS
VM Holding S.A. – Magistral Project

Sample	Grade, % Cu	Grade, % Mo	As, %	Sb, %	Bi, ppm	Hg, ppm
MAG1	28.17	0.088	0.961	0.318	22	7
MAG2	30.48	0.020	0.114	0.078	21	0.86
MAG3	28.81	0.014	1.070	0.653	32	18
MAG4	24.29	0.021	0.119	0.096	< 20	2
MAG5	24.78	0.019	0.284	0.197	< 20	7
MAG6	27.39	0.011	0.041	0.027	50	1

TABLE 13-5 CHAPI MOLYBDENUM CONCENTRATE RESULTS
VM Holding S.A. – Magistral Project

Samples	Recovery, % Mo	Cu, %	Mo, %	As, %
MAG1	80.18	0.960	45.53	1.05
MAG2	94.57	0.921	51.88	0.015
MAG3	90.28	0.832	50.76	0.092
MAG4	74.02	0.840	45.73	0.010
MAG5	91.80	1.590	32.33	0.080
MAG6	98.28	0.806	42.28	0.011

CERTIMIN TEST RESULTS

Certimin completed a series of bench scale flotation tests, pilot scale flotation tests, settling tests, and comminution tests as well as mineralogical evaluations. The results are reported in a report titled *Informe Integral del Proyecto Magistral – Fase I Pruebas Metalúrgicas a Nivel Laboratorio Y Planta Piloto Para Minerales de Cobre – Molibdeno*, February 2015.

SAMPLES

Two composite samples, designated M1 and M3 were used to conduct the tests. M1 consisted of 218 sub-samples that weighed 1289.1 kg and M2 included 191 sub-samples that weighed 1125.9 kg.

CHEMICAL PROPERTIES

The analytical results for the two samples are shown in Table 13-6.

TABLE 13-6 CHEMICAL ANALYSES FOR THE CERTIMIN METALLURGICAL SAMPLES
VM Holding S.A. – Magistral Project

Sample	Cu, %	Cu(Ox), %	Mo, %	Fe, %	Au, g/t	Ag, g/t	As, %	Sb, %
M1	0.807	0.063	0.065	8.028	0.032	3.9	0.063	0.007
M3	0.759	0.030	0.064	7.281	0.047	3.5	0.023	0.007
LOM	0.528		0.049			3.1	0.042	

MINERALOGY

BISA completed a mineralogical study to determine the degree of liberation of the minerals using a scanning electron microscope and optical microscopy. The results for Sample M1 are summarized in Table 13-7. Sample M3 is summarized in Table 13-8. One kilogram of each sample was dry ground to 100% passing 65 mesh (210 µm). This sample was then screened into four size fractions using 100 mesh (149 µm), 200 mesh (74 µm) and 325 mesh (44 µm) screens. It was then sent to an external laboratory (i.e., BISA) for the mineralogical analysis.

TABLE 13-7 MINERAL DISTRIBUTION BY WEIGHT FOR SAMPLE M1
VM Holding S.A. – Magistral Project

Mineral	+100 mesh	+200 mesh	+325 mesh	-325 mesh
Weight	11.43	33.12	20.79	34.67
Gangue	78.19	74.13	78.56	85.50
Pyrite	8.26	10.58	8.26	3.77
Arsenopyrite	0.00	0.32	0.18	0.20
Marcasite	1.77	0.68	0.17	0.33
Sphalerite	0.86	0.62	0.48	0.32
Chalcopyrite	5.65	7.15	5.69	4.58
Grey copper	0.51	0.50	0.56	1.26
Pyrrhotite	1.09	2.11	1.20	0.77
Molybdenite	0.67	0.53	0.69	0.66
Magnetite	1.76	2.91	2.97	1.63
Hematite	0.83	0.09	0.45	0.27
Fine-grained quartzite	0.35	0.37	0.17	0.28

TABLE 13-8 MINERAL DISTRIBUTION BY WEIGHT FOR SAMPLE M3
VM Holding S.A. – Magistral Project

Mineral	+100 mesh	+200 mesh	+325 mesh	-325 mesh
Weight	12.04	31.65	21.54	34.77
Gangue	76.97	75.98	76.63	69.59
Pyrite	9.07	12.21	9.86	10.35
Arsenopyrite	0.00	0.00	0.00	0.23
Marcasite	0.53	0.27	0.25	0.37
Sphalerite	0.55	0.17	0.15	0.53
Chalcopyrite	6.93	4.85	6.86	10.45
Grey copper	0.40	0.30	0.50	0.39
Pyrrhotite	0.96	0.49	0.35	0.72
Molybdenite	0.66	0.62	0.85	0.92
Magnetite	1.32	2.66	2.03	2.34
Hematite	0.63	0.73	0.59	1.16
Fine-grained quartzite	1.91	1.65	1.76	2.12
Galena	0.00	0.08	0.19	0.82

For both samples, the predominant copper mineral is chalcopyrite and the molybdenum mineral is molybdenite. The samples contained significant quantities of sulphide iron minerals (e.g., pyrite, marcasite, pyrrhotite) and lesser quantities of oxide iron minerals (e.g., magnetite and hematite). Both samples also contain a small quantity of sphalerite.

One of the purposes of the study was to evaluate the degree of liberation of the various minerals. Table 13-9 shows the degree of liberation for each mineral by particle size fraction for sample M1. The corresponding information for sample M3 is shown in Table 13-10.

TABLE 13-9 MINERAL LIBERATION FOR SAMPLE M1
VM Holding S.A. – Magistral Project

Mineral	+100 mesh	+200 mesh	+325 mesh	-325 mesh
Gangue	94.23	94.34	98.67	99.27
Pyrite	84.72	89.91	91.34	86.49
Arsenopyrite	0.00	100.00	100.00	100.00
Chalcopyrite	53.47	76.80	75.71	73.16
Grey copper	0.00	51.28	39.58	90.32
Pyrrhotite	41.67	80.00	79.01	48.00
Molybdenite	71.43	95.24	72.85	76.53
Magnetite	28.99	64.81	70.59	73.68
Hematite	60.61	0.00	34.19	61.91
Fine-grained quartzite	100.00	100.00	62.50	41.67

TABLE 13-10 MINERAL LIBERATION FOR SAMPLE M3
VM Holding S.A. – Magistral Project

Mineral	+100 mesh	+200 mesh	+325 mesh	-325 mesh
Gangue	91.97	95.66	99.48	99.41
Pyrite	66.95	94.08	92.49	99.82
Arsenopyrite	0.00	0.00	0.00	100.00
Marcasite	100.00	100.00	100.00	100.00
Chalcopyrite	39.76	67.31	92.17	99.01
Grey copper	0.00	90.91	24.69	95.24
Pyrrhotite	52.63	52.63	100.00	97.56
Molybdenite	80.00	86.96	100.00	100.00
Magnetite	85.11	86.02	82.54	100.00
Hematite	0.00	38.83	86.96	100.00
Fine-grained quartzite	100.00	94.12	100.00	100.00

The liberation analysis demonstrates that good liberation of the gangue minerals is achieved at this relatively coarse grind size which is an indication that the primary grind size can be fairly large and in the small particle size (minus 325 mesh) good liberation is achieved for all of the minerals in the M3 sample. The liberation is not as good for sample M1 which indicates that a smaller regrind size may be required for a portion of the deposit.

COMMINUTION

For this phase of testing, Bond ball mill work index (BW_i), crusher work index (CW_i), abrasion index (A_i), SAG Power Index (SPI), and SAG Mill Comminution (SMC) tests were completed. The data is summarized in Table 13-11.

TABLE 13-11 SUMMARY OF CERTIMIN COMMINUTION TEST DATA
VM Holding S.A. – Magistral Project

Sample	BW_i, kWh/t	CW_i, kWh/t	A_i, g	SPI, min	SMC Test	
					DW_i KWh/m^3	SMC A x b
M1	11.99	15.78	0.29	32.11	4.52	58.93
M3	11.58	11.86	0.28	31.84		

The data indicates that the samples are medium hard with respect to ball mill breakage, classified as medium with regard to abrasion, and soft with regard to SAG mill grinding.

FLOTATION TESTS

For each sample, Certimin completed a series of bulk flotation (i.e., copper plus molybdenum) tests. This included 11 open circuit rougher flotation tests to determine the optimum conditions, one rougher flotation kinetics test, five open circuit three stage cleaner flotation tests to optimize the test conditions, one cleaner flotation kinetics test, and one locked cycle test LCT.

The results of the optimized open circuit rougher flotation test are provided in Table 13-12.

TABLE 13-12 SUMMARY OF CERTIMIN OPTIMIZED FLOTATION TEST DATA
VM Holding S.A. – Magistral Project

Sample	Concentrate Grade, % Cu	Recovery, % Cu	Grade, % Mo	Recovery, % Mo	P_{80}, µm	Regrind P_{80}, µm	Mass Recovery, %
M1	27.14	83.12	1.87	67.01	150	45	2.32
M3	28.09	87.78	1.92	71.66	150	45	2.26

The kinetics tests indicated that the optimum flotation time for M1 was six minutes and it was eight minutes for M3.

The LCT flotation data is summarized in Table 13-13.

TABLE 13-13 SUMMARY OF CERTIMIN LCT DATA
VM Holding S.A. – Magistral Project

Sample	Concentrate Grade, % Cu	Recovery, % Cu	Grade, % Mo	Recovery, % Mo	Mass Recovery, %
M1	23.46	91.14	1.95	87.08	2.96
M3	23.66	94.84	1.85	88.95	3.09

Certimin conducted one test that added a scavenger flotation step onto the cleaner flotation circuit. Tailings from scavenger flotation are combined with the rougher flotation tailings to become the final plant tailings. The results of the test are summarized in Table 13-14.

TABLE 13-14 SUMMARY OF CERTIMIN FLOTATION LCT DATA
VM Holding S.A. – Magistral Project

Sample	Concentrate Grade, % Cu	Recovery, % Cu	Grade, % Mo	Recovery, % Mo	Mass Recovery, %
M1	25.146	89.35	1.91	79.28	2.74
M3	25.938	92.16	1.93	81.44	2.58

COPPER – MOLYBDENUM SEPARATION TESTS

Certimin conducted four copper – molybdenum separation tests. They first produced a bulk concentrate using the optimized test conditions from the early optimization test work. Then, the copper was depressed and the molybdenum was floated to produce molybdenum concentrate. The tailings from the separation are the copper concentrate. The concentrate grades for the bulk flotation test that was used to conduct the copper – molybdenum separation tests are summarized in Table 13-15.

TABLE 13-15 SUMMARY OF BULK CLEANER CONCENTRATE GRADES USED AS FEED FOR COPPER – MOLYBDENUM SEPARATION TESTS
VM Holding S.A. – Magistral Project

Samples	Ag, g/t	As, %	Sb, %	Cu, %	Mo, %	Fe, %
M1	96.4	0.348	0.152	23.70	1.90	30.23
M3	102	0.326	0.185	27.06	2.06	28.45

The results of the copper – molybdenum separation tests for the copper concentrate are summarized in Table 13-16. The molybdenum concentrate data is provided in Table 13-17.

TABLE 13-16 COPPER CONCENTRATE DATA FROM THE CERTIMIN COPPER – MOLYBDENUM SEPARATION TESTS
VM Holding S.A. – Magistral Project

Sample	Recovery, % Cu	Grade, % Cu	Grade, % Mo	As, %	Sb, %	Fe, %	Ag, g/t
M1	95.17	24.71	0.025	0.337	0.171	30.35	96
M1	95.54	24.89	0.042	0.371	0.176	30.24	100
M3	95.26	28.26	0.041	0.311	0.165	29.40	109
M3	92.95	27.75	0.047	0.328	0.202	28.15	105

TABLE 13-17 MOLYBDENUM CONCENTRATE DATA FROM THE CERTIMIN COPPER – MOLYBDENUM SEPARATION TESTS
VM Holding S.A. – Magistral Project

Samples	Recovery, % Mo	Cu, %	Mo, %	As, %
M1	88.95	1.60	40.52	0.041
M1	73.51	0.45	48.94	0.027
M3	83.68	1.83	39.39	0.055
M3	65.16	0.58	50.79	0.042

The data shows that good separations can be made while maintaining high recoveries for copper, molybdenum, and silver.

PILOT PLANT TESTS

The optimum test conditions developed in the laboratory were used to conduct pilot plant tests. The tests used sample M3 and were operated at 12 kg/h. Table 13-18 provides the chemical analysis for the sample compared to the analysis for the M3 sample used for the laboratory tests.

TABLE 13-18 CHEMICAL ANALYSES FOR THE CERTIMIN METALLURGICAL SAMPLES
VM Holding S.A. – Magistral Project

Test	Cu, %	Mo, %	Fe, %	Au, g/t	As, %
Pilot Plant	0.743	0.059	7.303	3.000	0.017
Laboratory	0.759	0.064	7.281	0.047	0.023

The results for copper and molybdenum compare favourably.

The pilot plant was configured using the optimized operating conditions that were developed during the laboratory testing phase of the program. A second pilot plant run was completed in order to verify the reproducibility of the results. Table 13-19 compares the results from the two tests. Only bulk flotation to produce a combined copper – molybdenum concentrate was completed. No copper – molybdenum separation tests were completed.

TABLE 13-19 SUMMARY OF CERTIMIN PILOT PLANT FLOTATION DATA
VM Holding S.A. – Magistral Project

Test	Concentrate Grade, % Cu	Recovery, % Cu	Grade, % Mo	Recovery, % Mo	Mass Recovery, %
Confirmation	26.39	94.06	1.93	86.71	2.63
Optimization	26.04	94.04	1.92	88.82	2.65

COMPARISON OF FLOTATION TEST DATA

Table 13-20 compares the results from the various phases of flotation tests.

TABLE 13-20 COMPARISON OF CERTIMIN FLOTATION TEST DATA
VM Holding S.A. – Magistral Project

Test	Concentrate Grade, % Cu	Recovery, % Cu	Grade, % Mo	Recovery, % Mo	Mass Recovery, %
M1 Optimized Open Circuit	27.14	83.12	1.87	67.01	2.32
M1 LCT	23.46	91.14	1.95	87.08	2.96
M1 + Cleaner Scavenger	25.15	89.35	1.91	79.28	2.74
M3 Optimized Open Circuit	28.09	87.78	1.92	71.66	2.26
M3 LCT	23.66	94.84	1.85	88.95	3.09
M3 + Cleaner Scavenger	25.94	92.16	1.93	81.44	2.58
M3 Pilot Plant Optimization	26.04	94.04	1.92	88.82	2.65

Generally, flotation results improve as the scale of the test increases. That is, LCT tests perform better than open circuit tests, pilot plant tests perform better than LCTs, and large scale operating plants tend to perform better than pilot plants. In comparing the open circuit test data to the LCT data, the recovery increased due to a higher mass recovery which, then, reduced the concentrate grades. The concentrate grade is still high and marketable so this is a desired outcome. The pilot plant tests confirm that the anticipated operational data is highly acceptable.

OTHER

Certimin also completed acid – base accounting (ABA) tests, rheology, settling, and filtration tests.

The ABA tests indicated that the tailings contain excess neutralizing potential and, therefore, should not be acid generating.

Static settling tests using a concentrate sample indicated that a density of 73% solids can be achieved with the addition of 35 g/t of flocculant at a settling rate of 0.6 t/h-m^2. Settling tests using a tailings sample indicated that a density of 67% solids can be achieved with the addition of 20 g/t of flocculant.

The rheology test showed that the yield stress was 34.4 Pa at a slurry density of 73.5% for the concentrate sample. For tailings the yield stress was 67.7 Pa at a slurry density of 72.2%.

The filtration test showed that a moisture content of 16% was achievable for the concentrate sample with a feed density of 75% solids. The tailings sample achieved a 15% moisture concentration.

PLENGE TEST RESULTS

Details of the Plenge tests and the samples used for the tests were reported by Transmin Metallurgical Consultants (2017). The testing consisted of comminution, flotation, mineralogy, and liquid solid separation tests. The tests were conducted using composite and variability samples.

SAMPLES

Twenty five comminution samples, 50 variability samples, and six composite samples were utilized for the testing program. The samples were selected to be representative of the deposit with regard to spatial distribution, mineral types, rock type, alteration, mineralization, and metal grades. Information about the comminution variability samples are provided in Table 13-21, the flotation variability samples are shown in Table 13-22, and the composite samples are shown in Table 13-23. The reported assays are from the metallurgical laboratory. They compared favorably to the assays that were estimated from the geological samples.

TABLE 13-21 PLENGE COMMINUTION VARIABILITY SAMPLES
VM Holding S.A. – Magistral Project

Sample	Type	Cu, %	Mo, g/t	As, g/t
MGCS-01	Porphyry	0.43	688	106
MGCS-02	Porphyry	0.34	281	516
MGCS-03	Porphyry	0.36	259	132
MGCS-04	Porphyry	0.47	552	280
MGCS-05	Porphyry	0.43	1,610	127
MGCS-06	Porphyry	0.39	633	129
MGCS-07	Skarn	0.30	417	143
MGCS-08	Porphyry	0.41	807	141
MGCS-09	Mixed	0.78	177	195
MGCS-10	Skarn	0.52	276	851
MGCS-11	Skarn	0.27	173	16,351
MGCS-12	Mixed	0.72	1,282	371
MGCS-13	Porphyry	0.30	153	1,584
MGCS-14	Mixed	0.39	232	1,836
MGCS-15	Porphyry	0.22	374	184
MGCS-16	Porphyry	0.26	176	141
MGCS-17	Porphyry	0.26	35	86
MGCS-18	Skarn	0.73	869	480
MGCS-19	Skarn	0.57	456	1,173
MGCS-20	Skarn	0.44	230	332
MGCS-21	Mixed	0.10	860	153
MGCS-22	Skarn	0.80	431	738
MGCS-23	Porphyry	0.37	653	78
MGCS-24	Porphyry	0.28	223	124
MGCS-25	Mixed	0.27	70	1,874

TABLE 13-22 PLENGE FLOTATION VARIABILITY SAMPLES
VM Holding S.A. – Magistral Project

Sample	Type	Cu, %	Mo, g/t	As, g/t
MGFS-01	Skarn	0.61	476	1,163
MGFS-02	Mixed	0.42	586	417
MGFS-03		2.05	1,599	450
MGFS-04		0.27	120	319
MGFS-05	Mixed	0.38	823	235
MGFS-06	Porphyry	0.63	639	232
MGFS-07	Porphyry	0.43	766	323
MGFS-08	Porphyry	0.38	455	76
MGFS-09	Porphyry	0.26	400	490
MGFS-10	Porphyry	0.17	176	199
MGFS-11		0.42	639	403
MGFS-12	Porphyry	0.37	559	128

Sample	Type	Cu, %	Mo, g/t	As, g/t
MGFS-13	Porphyry	0.38	363	122
MGFS-14	Porphyry	0.32	272	210
MGFS-15	Porphyry	0.60	634	102
MGFS-16	Porphyry	0.34	812	398
MGFS-17	Porphyry	0.38	1,061	304
MGFS-18		0.52	990	185
MGFS-19	Porphyry	0.41	711	137
MGFS-20	Porphyry	0.34	345	145
MGFS-21	Skarn	0.58	497	250
MGFS-22	Mixed	0.80	331	382
MGFS-23	Porphyry	0.28	583	75
MGFS-24		0.29	691	45
MGFS-25	Mixed	0.61	696	135
MGFS-26	Mixed	0.64	365	674
MGFS-27	Mixed	0.31	914	362
MGFS-28	Porphyry	0.28	292	283
MGFS-29	Skarn	1.04	808	571
MGFS-30		0.21	160	212
MGFS-31	Skarn	0.29	1,263	318
MGFS-32	Skarn	0.39	364	373
MGFS-33	Skarn	0.41	322	235
MGFS-34	Mixed	0.76	1,174	159
MGFS-35		0.25	158	190
MGFS-36	Porphyry	0.24	305	208
MGFS-37	Porphyry	0.66	763	197
MGFS-38	Mixed	0.34	976	317
MGFS-39	Porphyry	0.52	259	166
MGFS-40	Mixed	0.81	106	278
MGFS-41		0.34	728	651
MGFS-42		0.36	498	244
MGFS-43	Porphyry	0.30	53	371
MGFS-44	Skarn	0.81	769	234
MGFS-45		1.25	2,254	213
MGFS-46	Skarn	1.44	77	76
MGFS-47	Skarn	1.14	146	540
MGFS-48	Skarn	0.34	616	301
MGFS-49	Skarn	0.78	222	142
MGFS-50	Porphyry	0.44	400	190

TABLE 13-23 PLENGE COMPOSITE SAMPLES
VM Holding S.A. – Magistral Project

Sample	Type	Cu, %	Mo, g/t	As, g/t
MGFC-01	Porphyry Low As	0.42	486	128
MGFC-02	Porphyry High As	0.37	540	254
MGFC-03	Skarn	0.62	659	350
MGFC-04	Mixed	0.59	526	350
MGFC-05	0 to 6 years	0.68	511	250
MGFC-06	after 6 years	0.55	678	350
LOM		0.53	490	424

The locations of the metallurgical samples are shown in Figure 13-1.

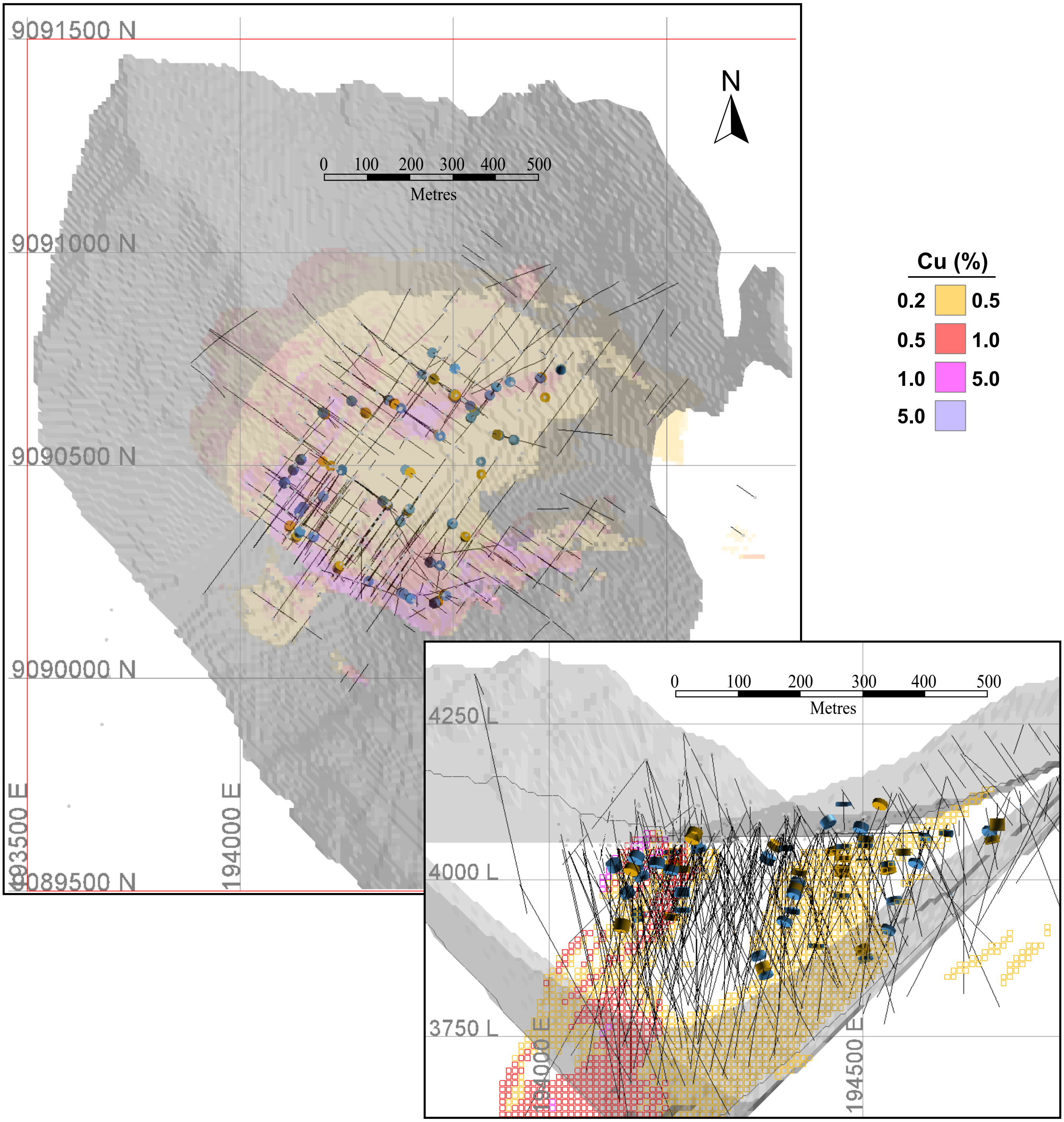


Figure 13-1

Legend:

- Comminution Sampling
- Flotation Sampling

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Metallurgical Sample Locations with Pit Shell and Blocks > 0.2 % Cu

August 2017

Source: RPA, 2017.

MINERALOGY

The mineralogy results confirmed the results from Chapi and Certimin. The major copper mineral was identified as chalcopyrite and molybdenite was the major molybdenum mineral. A small amount of covellite was identified in these samples. The samples contained 1.0% to 12% pyrite. Quartz, plagioclase, and potassium feldspar were identified as gangue minerals.

COMMINUTION TESTS

The Plenge tests included JK Drop Weight Tests (DWT), SAG Mill Comminution (SMC) tests, BW_i, and A_i tests. The results are provided in Table 13-24.

TABLE 13-24 PLENGE COMMINUTION TEST RESULTS
VM Holding S.A. – Magistral Project

Samples	Type	DWT A x b	SMC A x b	A_i, g	BW_i, kWh/t
MGCS-01	Porphyry		51.0	0.23	9.4
MGCS-02	Porphyry		38.8	0.22	10.4
MGCS-03	Porphyry		56.1	0.24	9.9
MGCS-04	Porphyry		55.0	0.21	9.9
MGCS-05	Porphyry		38.6	0.27	10.6
MGCS-06	Porphyry		41.6	0.23	11.1
MGCS-07	Skarn		73.5	0.09	10.3
MGCS-08	Porphyry		41.2	0.24	10.2
MGCS-09	Mixed		70.2	0.18	10.3
MGCS-10	Skarn		47.2	0.09	15.2
MGCS-11	Skarn		65.4	0.20	10.0
MGCS-12	Mixed		70.2	0.12	10.1
MGCS-13	Porphyry		79.8	0.15	9.5
MGCS-14	Mixed		61.3	0.16	10.9
MGCS-15	Porphyry		50.1	0.20	9.6
MGCS-16	Porphyry		46.2	0.19	11.1
MGCS-17	Porphyry		36.4	0.15	11.1
MGCS-18	Skarn		47.1	0.13	10.2
MGCS-19	Skarn		95.9	0.10	9.4
MGCS-20	Skarn		79.3	0.08	9.2
MGCS-21	Mixed	50.8	49.3	0.18	15.2
MGCS-22	Skarn	133.1	132.9	0.13	8.4
MGCS-23	Porphyry	61.3	54.2	0.26	10.1
MGCS-24	Porphyry	43.0	40.2	0.27	11.1
MGCS-25	Mixed	67.3	62.2	0.27	10.2

The test results are similar to the results from the Chapi and Certimin tests. The DWT data confirms the SMC data. The higher A x b (i.e., approximately 133) indicates softer material and some of the abrasion tests results indicate that the material may be more abrasive than the samples used for the Chapi tests.

FLOTATION TESTS

The composite samples were used to optimize the flotation conditions. After the optimum conditions were established, three LCTs were conducted. The results are shown in Table 13-25.

TABLE 13-25 PLENGE LOCKED CYCLE TEST RESULTS
VM Holding S.A. – Magistral Project

Samples	Grade % Cu	Recovery % Cu	Grade Mo g/t	Recovery % Mo	Grade As g/t	Recovery % As	Mass Recovery %
MGFC-01	27.0	93.6	31,204	91.4	1,161	16.1	1.5
MGFC-02	25.9	93.5	31,141	77.6	4,732	23.8	1.3
MGFC-03	25.8	86.1	19,540	65.7	863	5.7	2.1

The third stage cleaning concentrates that were produced in the last three cycles of the LCTs were mixed and analyzed for each composite. The low arsenic porphyry sample (MGFC-01) exceeded the penalty levels for bismuth and antimony. The high arsenic porphyry sample (MGFC-02) exceeded the penalty levels for mercury, arsenic, and antimony. The skarn sample (MGFC-03) exceeded the penalty levels for bismuth and antimony.

Rougher flotation tests were also conducted using the flotation variability samples and the optimized flotation conditions. The results are provided in Table 13-26.

TABLE 13-26 PLENGE FLOTATION VARIABILITY TEST RESULTS
VM Holding S.A. – Magistral Project

Sample	Type	Head % Cu	Head g/t Mo	Head g/t As	Grade % Cu	Recovery % Cu	Grade Mo g/t	Recovery % Mo	Grade As g/t	Recovery % As	Mass Recovery %
MGFS-01	Skarn	0.61	407	939	4.12	85.5	2,292	71.4	1,110	11.6	8.3
MGFS-02	Mixed	0.41	517	328	2.28	94.9	2,814	92.8	881	43.3	11.9
MGFS-03											
MGFS-04											
MGFS-05	Mixed	0.39	728	152	2.53	95.8	4,809	97.2	480	44.0	10.0
MGFS-06	Porphyry	0.64	705	260	3.76	97.6	4,123	96.8	764	46.7	11.7
MGFS-07	Porphyry	0.44	658	217	2.27	97.8	3,327	96.4	303	22.8	11.8
MGFS-08	Porphyry	0.38	393	55	2.63	97.0	2,664	94.1	122	27.4	9.2
MGFS-09	Porphyry	0.25	360	306	1.02	96.1	1,426	94.9	395	25.3	13.5
MGFS-10	Porphyry	0.17	154	153	1.29	95.1	1,145	95.1	343	25.4	7.7

Sample	Type	Head % Cu	Head g/t Mo	Head g/t As	Grade % Cu	Recovery % Cu	Grade Mo g/t	Recovery % Mo	Grade As g/t	Recovery % As	Mass Recovery %
MGFS-11											
MGFS-12	Porphyry	0.38	499	103	1.57	96.8	2,051	96.6	129	24.0	12.6
MGFS-13	Porphyry	0.37	316	81	2.59	96.8	2,175	94.7	265	41.6	8.6
MGFS-14	Porphyry	0.33	278	166	1.59	93.6	1,342	94.3	634	73.5	12.0
MGFS-15	Porphyry	0.61	520	75	2.71	97.9	2,308	97.5	250	72.3	14.2
MGFS-16	Porphyry	0.33	758	337	2.34	96.5	5,435	96.8	1,795	71.0	8.9
MGFS-17	Porphyry	0.38	1,016	224	2.44	96.2	6,488	95.8	928	60.8	10.3
MGFS-18											
MGFS-19	Porphyry	0.40	626	121	2.60	98.3	3,973	96.1	202	22.6	11.0
MGFS-20	Porphyry	0.35	296	118	2.89	95.3	2,411	94.8	287	25.8	7.8
MGFS-21	Skarn	0.58	430	203	5.60	91.5	4,110	91.1	243	9.5	7.1
MGFS-22	Mixed	0.82	295	342	5.66	93.7	1,999	92.4	1,321	51.3	9.8
MGFS-23	Porphyry	0.29	505	47	1.80	97.6	3,093	96.4	79	23.0	9.5
MGFS-24											
MGFS-25	Mixed	0.62	626	91	2.91	95.8	2,917	94.8	202	41.1	12.1
MGFS-26	Mixed	0.65	317	503	4.32	92.4	2,174	95.2	1,109	28.3	9.3
MGFS-27	Mixed	0.31	775	267	1.24	88.8	2,782	79.1	642	50.5	12.9
MGFS-28	Porphyry	0.29	261	262	2.30	95.1	1,973	90.3	416	16.5	7.8
MGFS-29	Skarn	1.01	602	386	4.65	61.0	1,608	30.6	368	9.0	9.0
MGFS-30											
MGFS-31	Skarn	0.28	1,363	325	2.30	85.0	11,564	87.1	727	20.3	6.1
MGFS-32	Skarn	0.40	346	480	3.34	82.8	2,566	72.3	478	7.3	6.3
MGFS-33	Skarn	0.41	326	188	2.92	89.1	1,316	49.6	185	8.3	7.7
MGFS-34	Mixed	0.77	1,346	131	5.84	95.5	9,931	93.9	743	70.6	8.8
MGFS-35											
MGFS-36	Porphyry	0.25	311	194	2.00	93.9	2,423	90.2	470	25.7	7.2
MGFS-37	Porphyry	0.66	712	174	4.98	96.8	5,215	94.3	533	36.9	8.8
MGFS-38	Mixed	0.34	1,077	266	3.52	88.6	11,032	88.3	341	8.8	5.5
MGFS-39	Porphyry	0.53	251	149	3.11	90.9	1,481	92.2	449	44.1	10.7
MGFS-40	Mixed	0.79	105	287	5.98	91.3	763	87.4	779	30.8	8.5
MGFS-41											
MGFS-42											
MGFS-43	Porphyry	0.31	69	361	2.16	92.6	446	84.4	647	20.8	7.8
MGFS-44	Skarn	0.82	863	179	6.57	82.8	7,517	89.7	245	11.7	7.2
MGFS-45											
MGFS-46	Skarn	1.42	71	57	10.14	81.1	501	78.5	134	23.3	8.1
MGFS-47	Skarn	1.15	162	516	8.90	82.0	1,140	74.0	633	9.6	8.4
MGFS-48	Skarn	0.34	624	288	3.26	73.3	5,633	68.6	490	10.7	4.4
MGFS-49	Skarn	0.81	219	114	5.42	88.7	1,213	73.3	215	22.2	9.4
MGFS-50	Porphyry	0.45	374	134	2.74	96.7	2,274	95.6	176	17.1	9.4

Four additional variability flotation duplicate tests were conducted as quality control checks. The results were very similar to the original results, which provided confirmation of the accuracy of the tests.

GEOMETALLURGICAL ANALYSIS

Transmin completed a geometallurgical analysis in order to:

- Reduce risk
- Improve profitability
- Improve flexibility for the operation
- Improve the quality of the production forecast
- Improve environmental management

The analysis showed that the copper and molybdenum recoveries were not dependent upon head grade but were dependent upon rock type. Table 13-27 summarizes that estimated copper and molybdenum recovery and concentrate grades by rock type.

TABLE 13-27 TRANSMIN GEOMETALLURGICAL SUMMARY
VM Holding S.A. – Magistral Project

Samples	Grade % Cu	Recovery % Cu	Grade % Mo	Recovery % Mo
Porphyry Low As	26.0	94.3	55.0	85.4
Porphyry High As	26.0	93.2	55.0	77.1
Mixed	26.0	91.0	55.0	78.5
Skarn	26.0	79.3	55.0	43.0

In RPA's opinion, the recovery and concentrate grade estimates are reasonable based on the available metallurgical data and the metallurgical samples are representative of the material that will be processed over the life of the mine.

LIQUID-SOLID SEPARATION TESTS

Flocculant screening, dynamic settling tests, and filtration tests were conducted to evaluate the dewatering characteristics of the tailings and the flotation concentrates and to provide data to estimate thickener and pressure filter sizing.

SUMMARY

Table 13-28 compares the optimized flotation conditions developed by Chapi and Certimin with those developed by Plenge.

TABLE 13-28 OPTIMIZED FLOTATION CONDITIONS
VM Holding S.A. – Magistral Project

Parameter	Units	Chapi Porphyry	Chapi Mixed	Chapi Skarn	Certimin	Plenge All
Primary Grind, P_{80}	µm	150	150	150	150	150
Grinding Reagents						
Lime	g/t	147	147	147		
AP-3302	g/t	5	5	5		
D-2	g/t	8.5	8.5	8.5		
Rougher Flotation						
pH		9	9	9	9	9
AP-3302	g/t	2	2	2		5
A-208	g/t				7	
Solids Concentration	%	30	30	30	33	
Rougher Flotation Reagents						
Lime	g/t	117	167	117		
Z-11	g/t	3.75	3.75	3.75	4.0	
MIBC	g/t	42.7	58	58	65	
D-250	g/t	21.3	29	29	14.3	
Time	min	10	10	10	8.6	10
Regrind, P_{80}	µm	45	45	45	45	45
Regrind Mill Reagents						
Lime	g/t	58	58	58		
AP-3302	g/t	5	1.5	1.5		
D-2	g/t	1.5	5	5		
Cleaner Flotation						
pH		10.5	10.5	10.5	11.0	10.0
Cleaner Flotation Reagents						
Lime	g/t	488	350	341		
A-208					4	
AP-3302	g/t	7.5	7.5	7.5		
Z-11	g/t	2	2	2		
MIBC	g/t	18.7	26	26	10.8	
Diesel Fuel	g/t	9.3	13	13	5.4	3
Sodium Silicate	g/t				175	

The conditions are similar for Chapi and Plenge except Plenge used more AP-3302 in rougher flotation and reduced the pH and used less diesel fuel in cleaner flotation. Certimin used A-208 collector instead of A-3302 in rougher flotation and sodium silicate in the cleaner flotation stage.

TABLE 13-29 COMPARATIVE BULK FLOTATION LOCKED CYCLE TEST RESULTS
VM Holding S.A. – Magistral Project

Sample	Type	Assayed Head Grade			Flotation Concentrate						
		Cu, %	Mo, g/t	As, g/t	Grade, % Cu	Recovery, % Cu	Grade, Mo g/t	Recovery, % Mo	Grade, As g/t	Recovery, % As	Mass Recovery, %
Plenge											
MGFC-01	Porphyry Low As	0.42	486	128	27.0	93.6	31,204	91.4	1,161	16.1	1.5
MGFC-02	Porphyry High As	0.37	540	254	25.9	93.5	31,141	77.6	4,732	23.8	1.3
MGFC-03	Skarn	0.62	659	350	25.8	86.1	19,540	65.7	863	5.7	2.1
Chapi											
MAG1	Porphyry High As	0.55	530	28,100	26.3	93.6	25,400	88.8	8,510		1.9
MAG2	Porphyry Low As	0.52	620	25,200	26.6	94.7	31,000	90.8	1,220		1.8
MAG3	Mixed High As	0.57	510	77,700	27.4	90.2	23,500	82.7	11,100		
MAG4	Mixed Low As	0.68	560	98,900	28.9	91.1	18,400	76.4	1,170		
MAG5	Skarn High As	0.69	480	147,400	24.6	88.4	16,100	78.7	1,890		2.2
MAG6	Skarn Low As	0.58	490	151,900	27.2	88.2	19,300	73.4	310		1.7
Certimin											
M1		0.807	650	630	23.46	91.14	19,533	87.08	2,960	15.51	2.96
M3		0.759	640	230	23.66	94.84	18,505	88.95	2,930	41.25	3.09
LOM Plan		0.528	0.049	424	26.00	87.83	550,000	66.88			1.8

14 MINERAL RESOURCE ESTIMATE

The Mineral Resource estimate for the Magistral Project was completed by VMH with an effective date of June 30, 2017. The estimate was reviewed and accepted by RPA, and is summarized in Table 14-1.

TABLE 14-1 MINERAL RESOURCE ESTIMATE, JUNE 30, 2017
VM Holding S.A. – Magistral Project

Resource Category	Tonnage (000 t)	Grade			Contained Metal		
		Cu %	Mo %	Ag g/t	Cu M lb	Mo M lb	Ag (000 oz)
Measured	84,238	0.56	0.06	2.96	1,033	104	8,020
Indicated	121,076	0.50	0.05	2.96	1,321	120	11,530
Total Measured + Indicated	**205,314**	**0.52**	**0.05**	**2.96**	**2,354**	**224**	**19,550**
Inferred	50,571	0.43	0.05	2.57	474	52	4,180

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are reported using a 0.2% Cu cut-off grade for the material inside the pit shell design.
3. Mineral Resources are estimated based on metal prices of US$2.68 per lb Cu, US$7.30 per lb Mo and US$18.94 per ounce Ag.
4. Density was assigned based on rock type.
5. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.
6. Numbers may not add due to rounding.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

The Mineral Resource was completed using MineSight, Leapfrog Geo, and Supervisor software. Wireframes for geology and mineralization were constructed in Leapfrog Geo based on geology sections, assay results, lithological information, and structural data. Assays were composited to five metre lengths, then interpolated using a high yield restriction for anomalously high grades instead of capping. Grade was interpolated into a 10 m by 10 m by 10 m regular block model. Blocks were interpolated with grade using Ordinary Kriging (OK) and checked using Inverse Distance Squared (ID^2) and Nearest Neighbour (NN) methods. Block estimates were validated using industry standard validation techniques. Classification of blocks was based on distance based criteria.

Mineral Resources are based on a 0.2% Cu cut-off grade inside a pit shell. RPA concurs that it is more reasonable to declare the Mineral Resource based on Cu grade than NSR, because molybdenum and silver grades are low relative to copper.

RPA reviewed the Mineral Resource modelling methods and parameters and accepted the results.

RESOURCE DATABASE

VMH maintains the resource database in GeoExplo software. RPA received data from VMH in comma separated values (.csv) format, ARANZ Leapfrog 4.0 and Snowden Supervisor format. Data were amalgamated and parsed as required and imported by RPA into Maptek Vulcan version 9.1.8 for review.

VMH did not create composites in the country rock, as MineSight assigns zero values to length fields for composites outside of boundary solids. For grade estimation, unsampled data were replaced with zero grades to prevent overestimation. Detection limit text values (e.g. "<0.05") were replaced with numerical values that were half of the absolute value of the detection limit.

EXPLORATORY DATA ANALYSIS

VMH performed exploratory data analyses (EDA) based on the lithological domains created by dividing lithology into sectors based on different skarn and mixed rock orientations.

VMH performed univariate statistical analysis (Table 14-2) on assay values flagged by lithological domain. Results were used to help validate the modelling process.

The Mineral Resource database provided contains drill hole information available as of June 16, 2017. According to this database, the last drill hole in the database was completed on May 18, 2015. The drill hole database comprises a total of 474 drill holes amounting to 98,952 m of drilling. A summary of records directly related to the resource estimate is listed below.

- Drill holes 453
- Channels 21
- Surveys 12,268

- Assays 45,698
- Lithology 26,948
- Density 11,265

TABLE 14-2 STATISTICS FOR CU MO AG BY MINERALIZED LITHOLOGY
VM Holding S.A. – Magistral Project

Column	Litho	Count	Min	Max	Mean	CV
Ag (g/t)	3	11,874	0.00	49.62	2.66	0.81
Ag (g/t)	4	3,429	0.00	52.00	1.44	1.46
Ag (g/t)	5	3,662	0.10	51.00	1.01	1.41
Ag (g/t)	6	14,194	0.10	189.00	2.64	1.52
Ag (g/t)	7	18,632	0.00	105.00	4.58	1.66
Ag (g/t)	all	51,791	0.00	189.00	3.37	1.72
Cu (%)	3	11,874	0.00	4.43	0.51	0.63
Cu (%)	4	3,429	0.00	2.95	0.14	1.03
Cu (%)	5	3,662	0.00	1.44	0.14	0.86
Cu (%)	6	14,195	0.00	23.03	0.58	0.96
Cu (%)	7	18,636	0.00	12.72	0.64	1.62
Cu (%)	all	51,796	0.00	23.03	0.51	1.38
Mo (%)	3	11,874	0.00	2.56	0.07	0.91
Mo (%)	4	3,429	0.00	0.94	0.01	1.69
Mo (%)	5	3,662	0.00	0.35	0.02	1.36
Mo (%)	6	14,195	0.00	2.25	0.06	1.54
Mo (%)	7	18,636	0.00	2.56	0.05	1.70
Mo (%)	all	51,796	0.00	2.56	0.05	1.52

Note: CV is coefficient of variation

The resource database contains drilling information and analytical results up to May 18, 2015. Information received after this date was not used in the Mineral Resource estimate. Methods and results to verify the historic drill hole data are provided in Section 10, Drilling, of this Technical Report.

Section 12, Data Verification, describes the resource database verification steps carried out by RPA and VMH. RPA is of the opinion that the drill hole database is valid and suitable to estimate Mineral Resources for the Project.

TOPOGRAPHIC SURFACES

In 2013, Horizons South America SAC updated the topographic information with contour lines at half metre vertical intervals using survey stations and aerial photographs. The resulting digital terrain surface (DTM) was made available in AutoCAD Drawing Exchange (DXF). The surface has been validated using survey control points and drill hole collars.

The topographic surface is shown in Figure 14-1. A plan view of the proposed pit shell is shown with drill holes in Figure 14-2.

RPA reviewed the topographic surface and found that it coincided well with the drill hole collars. RPA notes that the topographic surface sufficiently covers the Mineral Resource estimation area and provides sufficient accuracy for the current stage of the Project.

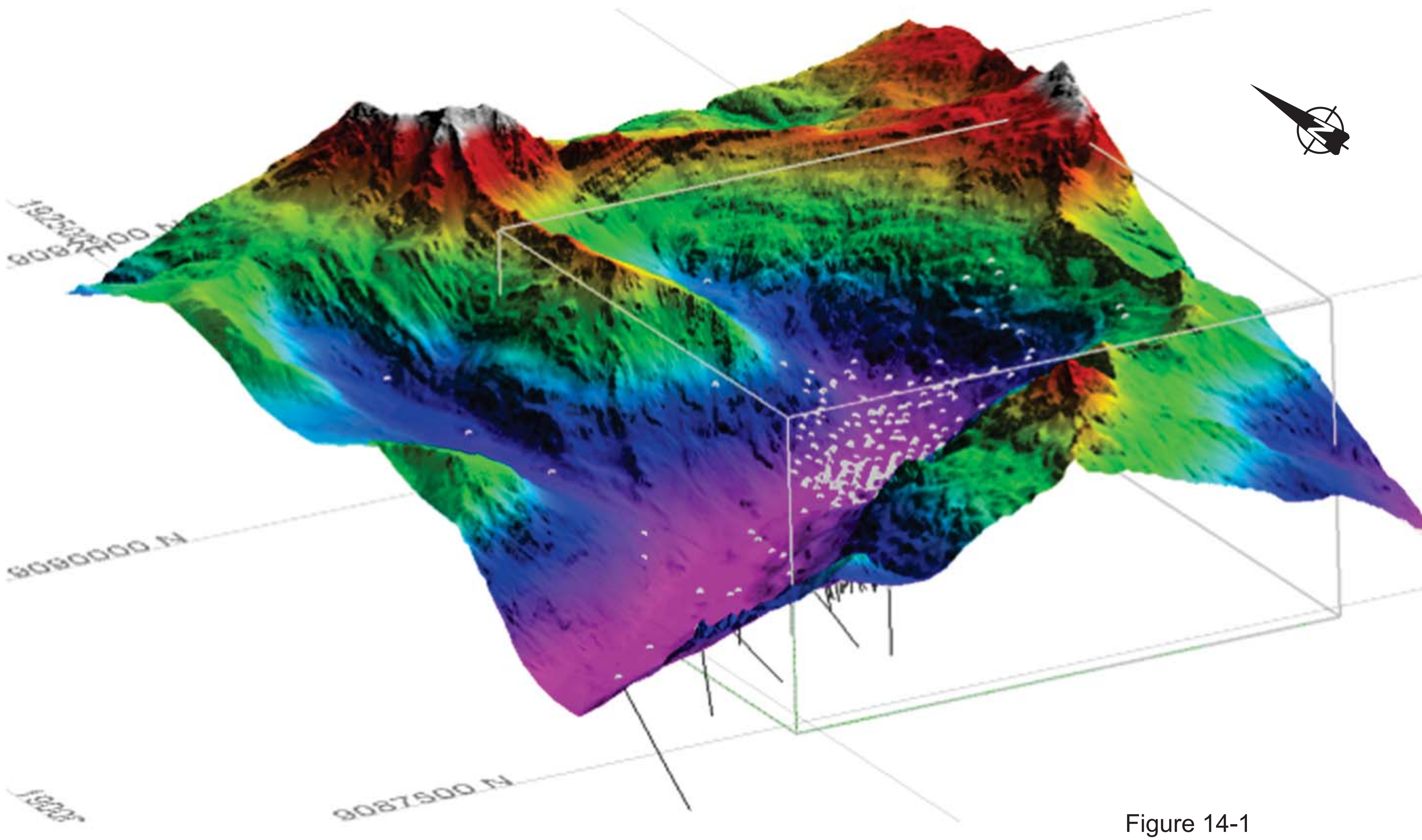


Figure 14-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Isometric View of Project Topography

August 2017

Source: RPA, 2017.

RPA

www.rpacan.com

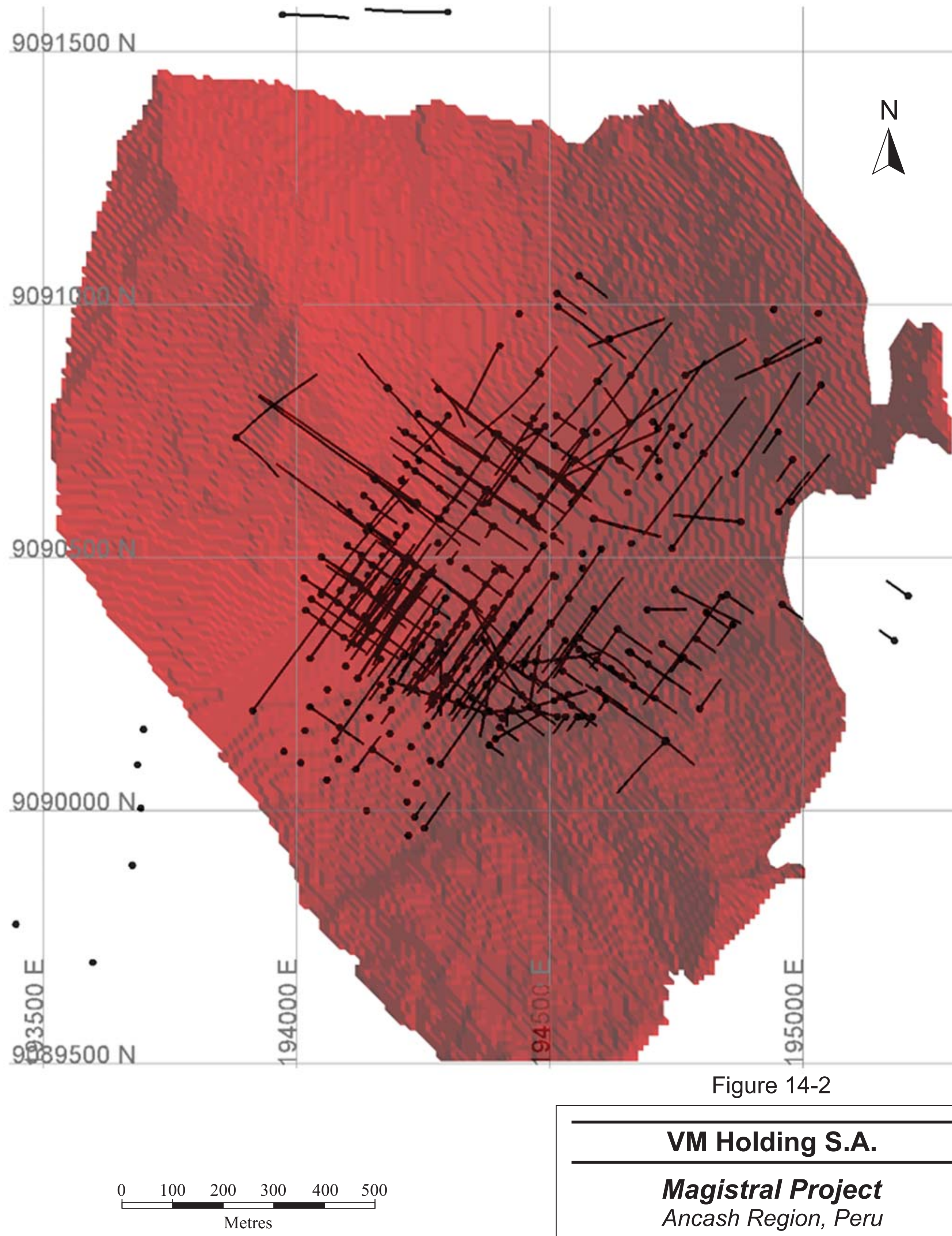


Figure 14-2

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Plan View of Pit Shell with Drilling

August 2017

Source: RPA, 2017.

GEOLOGICAL INTERPRETATION

The geological interpretations were constructed by VMH staff. Initial interpretations were created on paper cross sections. This work was then imported into Leapfrog to guide creation of three-dimensional solids. The Mixto (Mixed) Domain is a mix of skarn and porphyry rocks where the contact is indistinct.

VMH staff did not construct separate solids for the mineralization, but interpolated grade inside each lithology using the lithological boundaries as hard boundaries.

The following wireframes were completed by VMH:

- A total of eight lithology solids (Table 14-3).
- Ten fault surfaces.
- Five sector solids (shown as large black numbers in Figure 14-3) to partition skarn and mixed lithologies for discrete search orientations (Figures 14-4 and 14-5).

TABLE 14-3 LITHOLOGIES AND ASSIGNED DENSITIES
VM Holding S.A. – Magistral Project

Lith Code	Lithology	Type	Assigned Density (g/cm^3)
0	Limestone	Waste	2.74
1	Marble	Waste	2.79
2	Cover	Waste	1.80
3	San Ernesto Porphyry	Mineralized	2.63
4	Sara Porphyry	Mineralized	2.66
5	Huacchara Porphyry	Mineralized	2.57
6	Mixed Skarn and Porphyry	Mineralized	2.86
7	Skarn	Mineralized	3.39

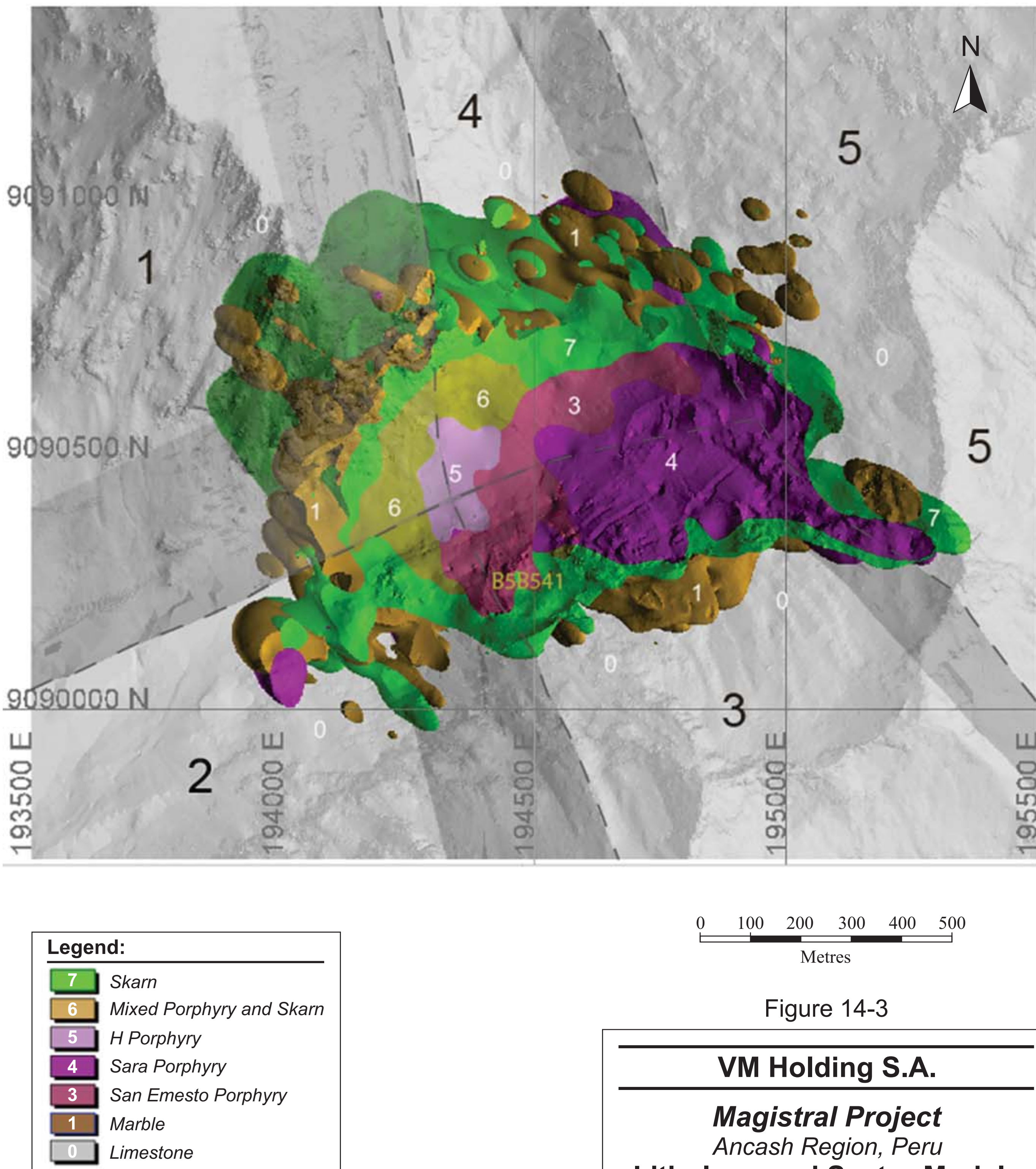


Figure 14-3

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Lithology and Sector Models with Codes

August 2017

Source: RPA, 2017.

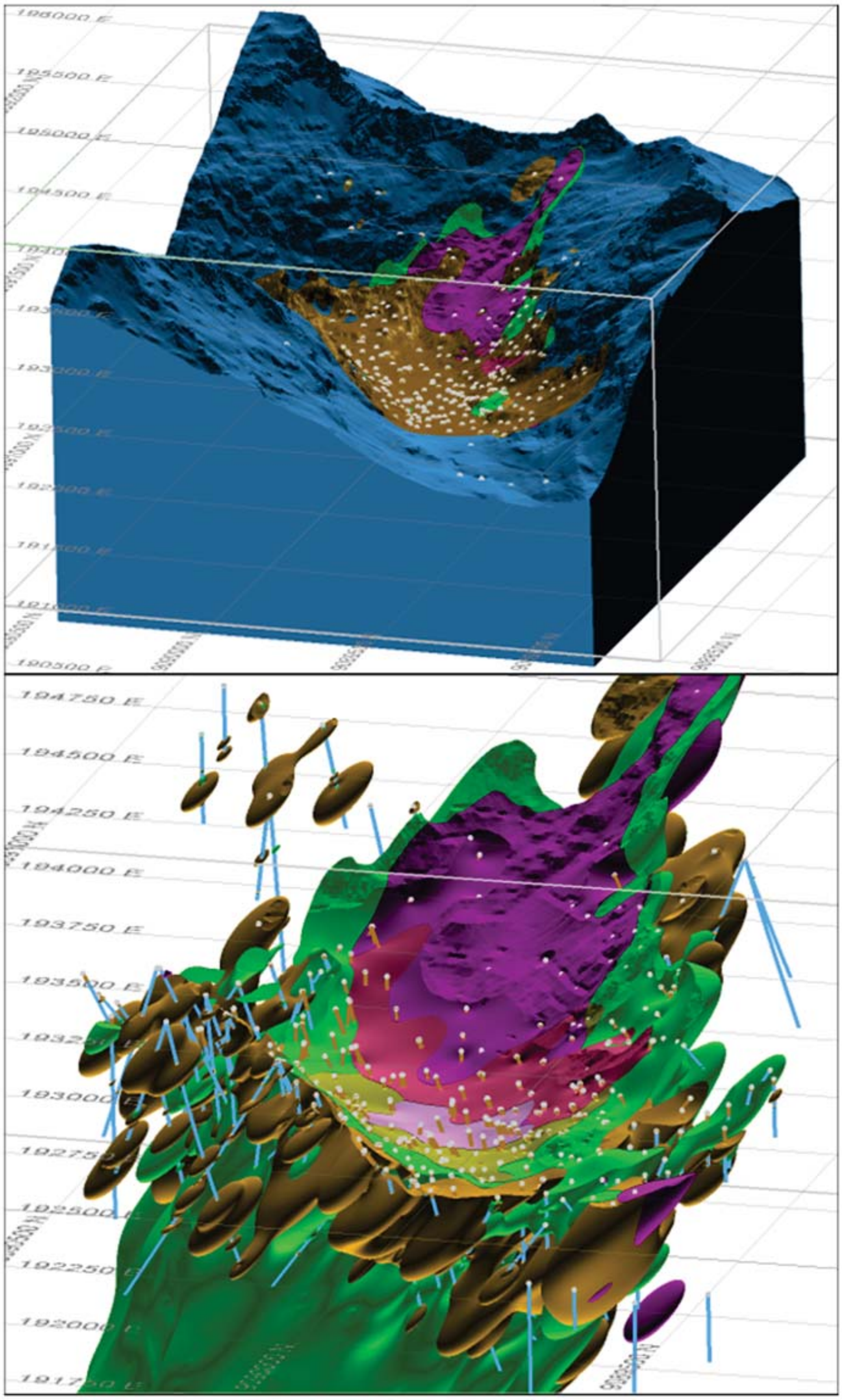


Figure 14-4

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Geological Modelling
Isometric View

August 2017

Source: RPA, 2017.

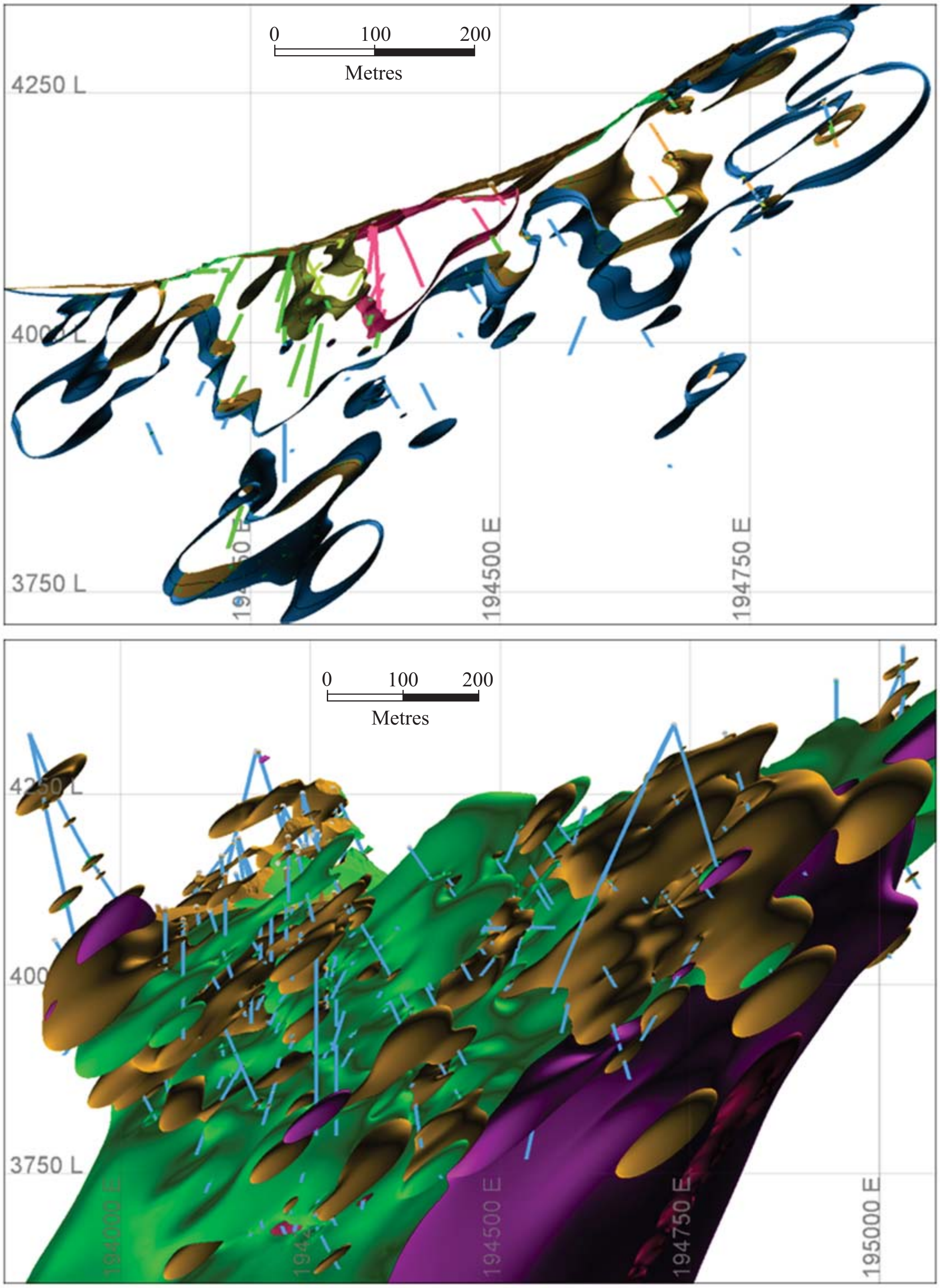


Figure 14-5

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Geological Modelling
Section View (9090250 N)

August 2017

Source: RPA, 2017.

The distribution of rock types inside the pit shell is shown in Table 14-4. With respect to the wireframes used to support the Mineral Resource estimate, RPA offers the following conclusions and recommendations:

- The wireframes have been constructed to an acceptable standard with consideration for the style of mineralization, lithology, alteration, structural controls, and interpretation by the on-site geologists.
- RPA is of the opinion that the wireframes are suitable to support Mineral Resource and Mineral Reserve estimation.
- RPA recommends that VMH staff investigate the relationships between deposit alteration, mineralization, and structure for future modelling. Although block grades reflect drilled grades at the reasonable drill spacing, there may be some risk associated with grades reporting locally to structures.
- RPA observed occasional holes with grade outside the margins of the mixed domain. Mixed domain solids could be further reviewed to refine lithological boundaries.

TABLE 14-4 DISTRIBUTION OF ROCK-TYPES INSIDE THE PIT SHELL
VM Holding S.A. – Magistral Project

Lithology	Litho Code	Resource Category	Domain CPSEC	M Tonnes
	3	1	33	46.6
San Ernesto Porphyry	3	2	33	38.5
	3	3	43	11.9
	4	1	54	1.9
Sara Porphyry	4	2	54	7.6
	4	3	34	0.5
	5	1	35	2.1
Huacchara Porphyry	5	2	45	4.0
	5	3	25	2.8
	6	1	36	14.2
Mixed Skarn and Porphyry	6	2	36	25.6
	6	3	36	10.3
	7	1	37	19.5
Skarn	7	2	57	45.5
	7	3	37	25.3

OUTLIER CONTROL AND HIGH GRADE RESTRICTION

Instead of capping raw assays, VMH applied high yield restriction (HYR) during grade estimation to limit the influence of a small number of high grade composites located in the upper tail of the grade distributions. The high yield restriction schema used by VMH is presented in Table 14-5.

VMH staff visually checked that the anomalous values were not forming high-grade clusters, and did not cover more than 5% of the total population per geological domain.

RPA performed an independent capping analysis on copper for five of the largest CPSEC domains (17, 27, 33, 37, and 46) inside the pit shell, as well as a visual validation of the block model in section and plan view. Log probability plots were inspected for each individual wireframe and RPA applied a capping grade according to inflections on log probability plots. RPA found that grade distributions were relatively continuous and capping levels applied at inflection points did not reduce metal content significantly. Table 14-6 shows block model grades for Cu inside the pit shell with and without HYR applied, and for Cu assays uncut and cut according to RPA's methodology. RPA notes that VMH HYR attenuated the grade by approximately two to three percent more than RPA applied capping.

TABLE 14-5 HIGH YIELD RESTRICTIONS
VM Holding S.A. – Magistral Project

Sector	CPSEC Domain	Cu %	Distance Restriction (m)	Mo %	Distance Restriction (m)	Ag g/t	Distance Restriction (m)	As %	Distance Restriction (m)
1	16	1.57	10	0.28	10	7.54	10	0.31	10
	17	3.38	10	0.21	10	17.34	10	0.85	10
2	26	1.47	10	0.19	10	7.26	10	0.20	10
	27	3.25	10	0.28	10	21.59	10	0.35	10
3	36	0.38	10	0.01	10	3.51	10		10
	37	2.55	10	0.21	10	29.64	10	0.11	10
4	46	1.83	10	0.17	10	8.20	10	0.26	10
	47	1.2	10	0.20	10	6.89	10	0.23	10
5	57	0.5	10	0.02	10		10		10
	3	1.34	10	0.19	10	7.10	10	1.37	10
	4	0.32	10	0.07	10	5.55	10	0.32	10
	5	0.3	10	0.07	10	2.88	10	0.35	10

TABLE 14-6 HIGH YIELD AND CU CAPPING COMPARISONS
VM Holding S.A. – Magistral Project

CPSEC Domain	Proportion of Resource	Grade HYR	Blocks HYR	Blocks No HYR	% Diff	RPA Assay Cap Level	RPA Num Capped	RPA Assays No Cap	RPA Assays Cap	% Diff	Metal Loss %
17	9%	3.38	0.587	0.602	2.56%	6.60%	9	0.79%	0.79%	0.00%	1
27	11%	3.25	0.748	0.762	1.87%	7.90%	24	0.76%	0.76%	0.00%	0
33	20%		0.393	0.396	0.76%	2.40%	16	0.47%	0.47%	0.00%	0
37	8%	2.55	0.703	0.75	6.69%	5.10%	50	0.68%	0.65%	-4.41%	4
46	8%	1.83	0.652	0.664	1.84%	3.70%	7	0.68%	0.68%	0.00%	1
	56%										

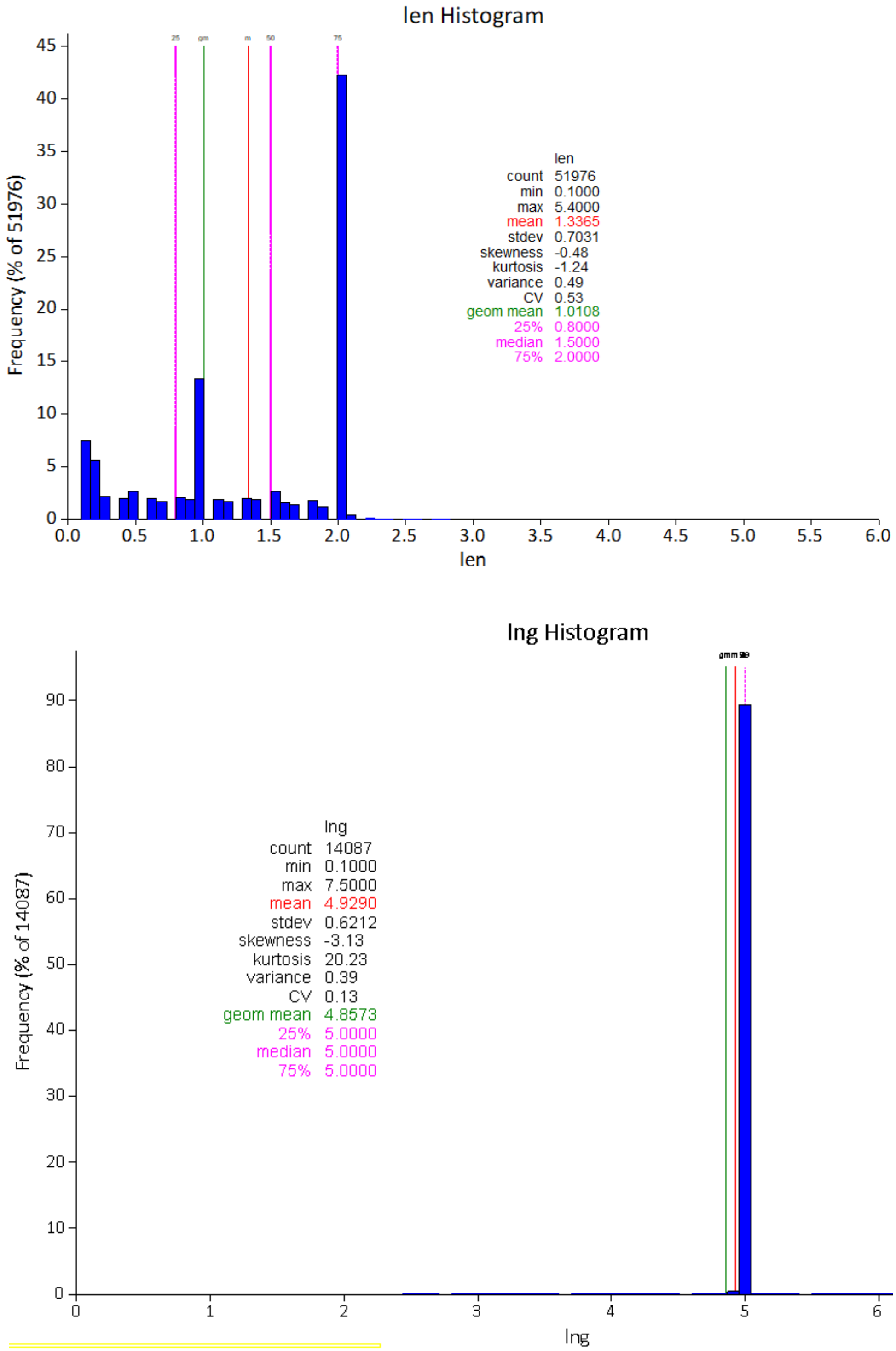
RPA offers the following conclusions and recommendations with respect to HYR:

- In general, the high yield restriction levels resulted in marginally lower copper grades than RPA's capping results, and are suitable for the estimation of Mineral Resources and Mineral Reserves.
- Visual inspection of the spatial influence of isolated high grade samples in the block model showed that block grade smearing was well controlled.
- HYR did not significantly reduce contained metal.
- RPA recommends performing capping analysis to validate HYR levels, reporting the metal loss as a result of capping high grades, and assessing the amount of metal in the upper decile and percentiles of the distribution to gain a better understanding of the amount of risk associated with outlier values in each capping domain. In general, there is 20% to 50% of the total metal within the upper decile and 5% to 10% of the total metal within the upper percentile of the metal distributions.

COMPOSITING

VMH composited the assays to five metres with a 2.5 m tolerance within the lithology solids. Small intervals were merged to the previous interval. Sample lengths range from 0.1 m to 5.4 m within the wireframe models with 42.3% taken at 2.0 m. Almost all (99%) were taken between 10 cm and 2.1 m (Figure 14-6). Composite length corresponds to half the expected bench height for the deposit. Unsampled core intervals were set to zero grade prior to compositing.

FIGURE 14-6 HISTOGRAMS FOR ASSAY (TOP) AND COMPOSITE (BOTTOM) LENGTHS



RPA reviewed the composites and offers the following conclusions and recommendations:

- The composite length is appropriate given the dominant sampling length and is suitable to support Mineral Resource estimation.
- RPA recommends investigating density weighted compositing.

VARIOGRAPHY

VMH staff performed variography in Snowden's Supervisor software, generating variography maps, downhole and directional N-score variograms. Modelled N-score variograms were back transformed to regular coordinates and were used in the OK Estimates in Minesight. Skarn and Mixed Domain variography were divided into sectors for variogram analysis.

The variogram analysis is developed for the elements of interest (copper, molybdenum, silver, and arsenic) and by geological domain via five sector solids to partition skarn and mixed lithologies for discrete search orientations (Figure 14-3). Downhole variograms were utilized to obtain the nugget effect for each variogram. Experimental variograms were calculated at 10 degree intervals in the planes that form the azimuth and average dip of the shaped bodies and with angular tolerance of 15 degrees and 50 m respectively. The variograms have been normalized to a sill of 1. Spherical modeled variograms used two structures in all cases.

Table 14-7 shows an example of variogram parameters by domain for copper. Ellipsoid values use Minesight conventions (Az N, Dip N, Dip E) with rotation (Z-Left, X-Right, Y-Left). Each axis in MineSight is: Y is Major, X is Semi, Z is Minor. Figures 14-7 to 14-9 show experimental and modelled variograms and their respective adjustments to the theoretical models.

RPA reviewed the copper variograms for the deposit and offers the following conclusions and recommendations:

- Overall, RPA is of the opinion that the variograms are reasonable.
- The variogram models do not have a wide range of nugget effects and ranges for the same style of mineralization, which suggests continuity between the different domains.
- Nuggets are high and variogram ranges tend to be high in sector 1 and 4 mixed domains. This could cause some smoothing. RPA performed a visual check through sections in Sector 1 and 4 and noticed minor smoothing, but block grades are controlled reasonably relative to drilled intercepts.

TABLE 14-7 VARIOGRAM RANGES
VM Holding S.A. – Magistral Project

Sector	Litho	Domain CPSEC	Nugget	Structure	Structure Type	Sill	Minesight Rotation Az N	Dip N	Dip E	Ranges Major	Minor	Vertical	Max # comp
1	6	16	0.46	1	Sph	0.33	139.11	47.94	-31.11	79	57	30	16
				2	Sph	0.42	139.11	47.94	-31.11	125	75	40	
	7	17	0.25	1	Sph	0.35	90.58	58.53	16.74	49	41	18	12
				2	Sph	0.43	90.58	58.53	16.74	120	90	20	
2	6	26	0.25	1	Sph	0.50	130.00	55.00	-90	70	35	35	16
				2	Sph	0.32	130.00	55.00	-90	130	50	50	
	7	27	0.24	1	Sph	0.51	130.00	55.00	90	118	60	32	12
				2	Sph	0.31	130.00	55.00	90	180	85	85	
3	6	36	0.25	1	Sph	0.61	102.76	33.83	52.995	70	35	35.00	10
				2	Sph	0.13	102.76	33.83	52.995	130	50	50.00	
	7	37	0.26	1	Sph	0.60	102.76	33.83	52.995	60	30	15.00	10
				2	Sph	0.14	102.76	33.83	52.995	130	45	25.00	
4	6	46	0.46	1	Sph	0.33	83.74	12.24	54.061	79	57	30.00	16
				2	Sph	0.42	83.74	12.24	54.061	125	75	40.00	
	7	47	0.39	1	Sph	0.35	83.74	12.24	54.061	90	40	40.00	16
				2	Sph	0.40	83.74	12.24	54.061	110	50	50.00	
5	7	57	0.39	1	Sph	0.35	128.67	54.69	-7.095	90	40	40	10
				2	Sph	0.40	128.67	54.69	-7.095	110	50	50	
	3		0.19	1	Sph	0.26	130.34	48.97	-11.692	160	96	66	12
				2	Sph	0.56	130.34	48.97	-11.692	170	150	105	
	4		0.32	1	Sph	0.30	128.67	54.69	-7.095	112	66	62.00	12
				2	Sph	0.26	128.67	54.69	-7.095	220	100	100.00	
	5		0.32	1	Sph	0.30	128.67	54.69	-7.095	112	66	62.00	16
				2	Sph	0.26	128.67	54.69	-7.095	220	100	100.00	

FIGURE 14-7 VARIOGRAM EXAMPLE MIXED SECTOR 1 CU

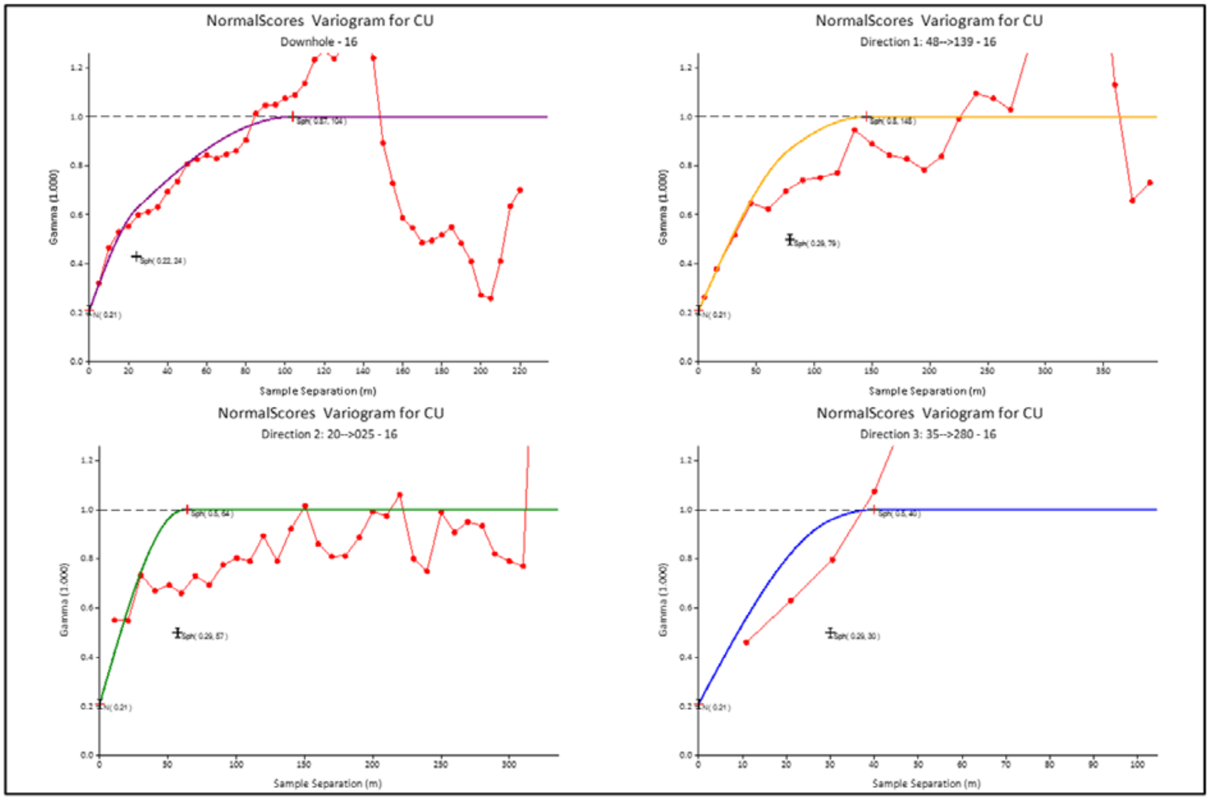


FIGURE 14-8 VARIOGRAM EXAMPLE SKARN SECTOR 1 CU

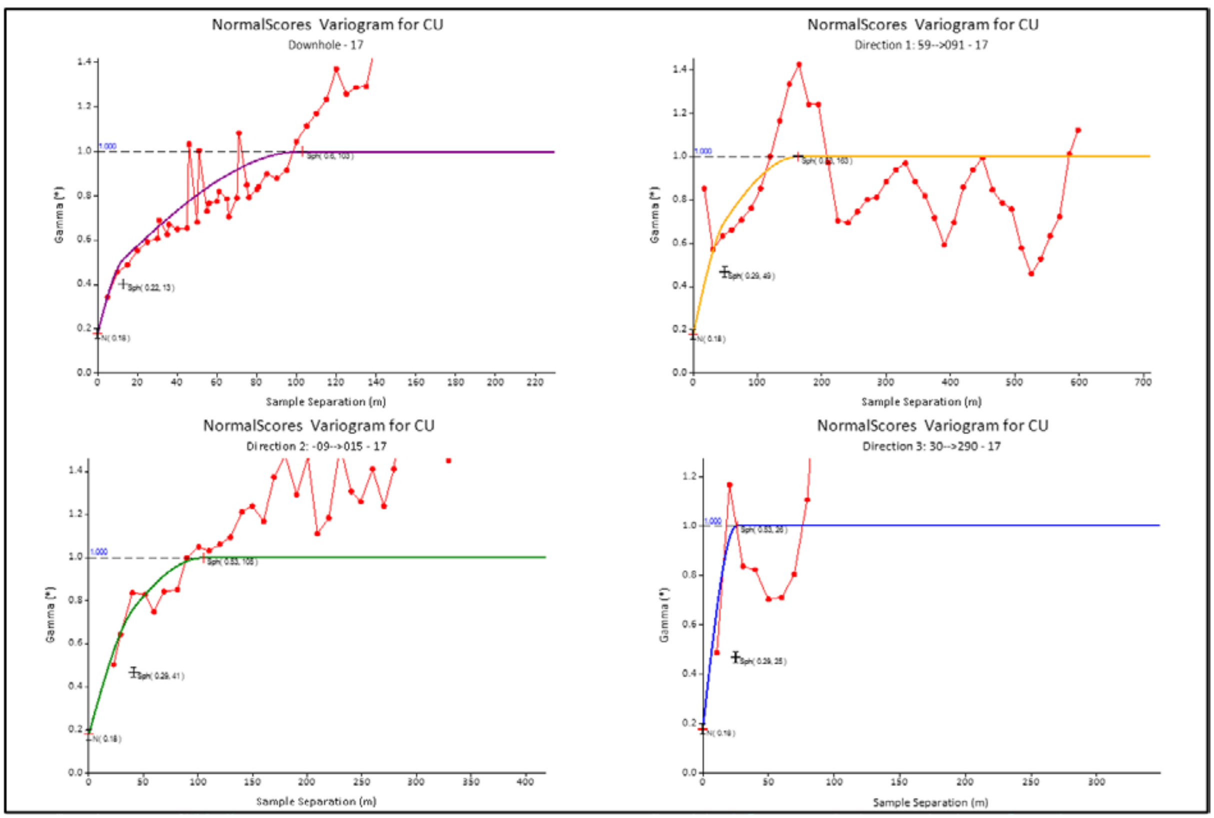
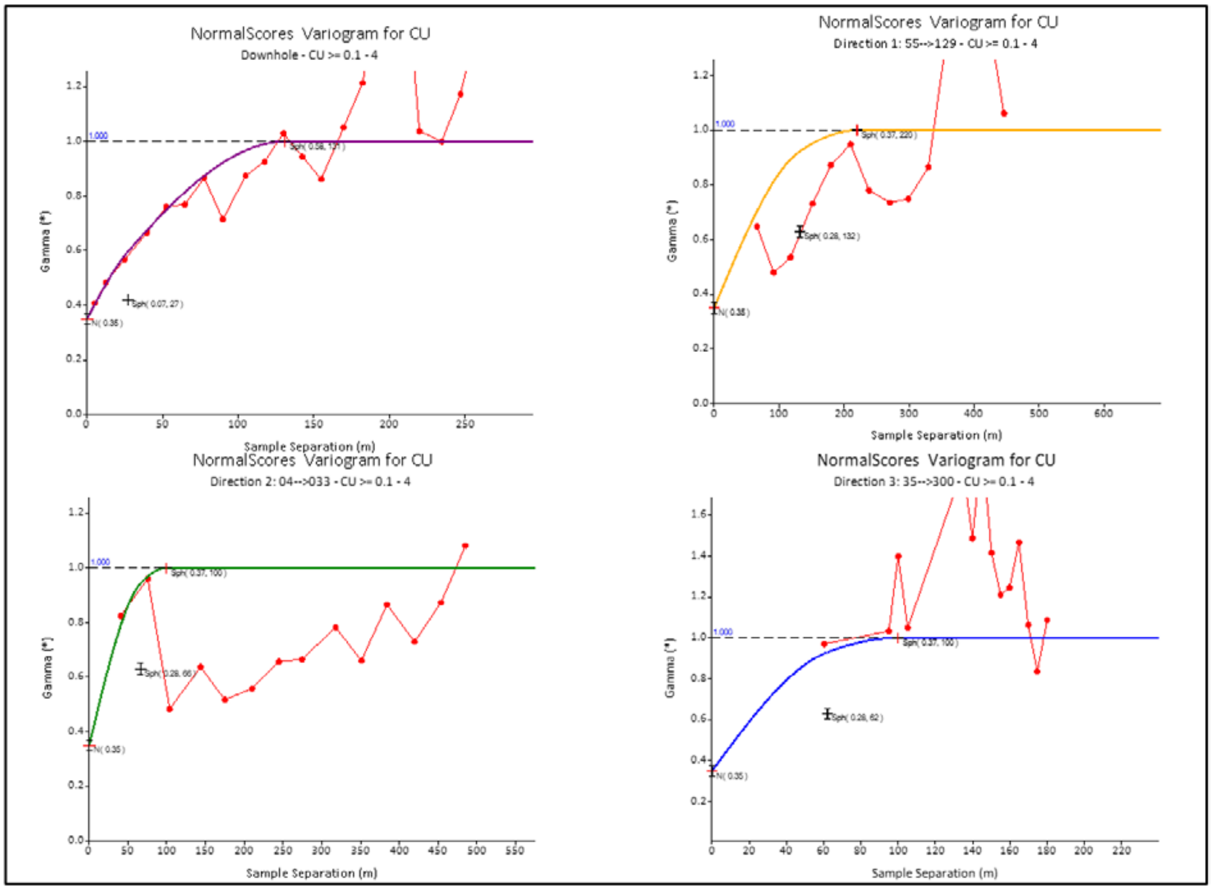


FIGURE 14-9 VARIOGRAM EXAMPLE SARA PORPHYRY CU



BLOCK MODEL

Block modelling and estimates were completed by VMH in MineSight software. Data were amalgamated and parsed as required and imported by RPA into Maptek's Vulcan software for review. The Skarn and Mixto Domains were divided by sector to represent local anisotropy and mineralization trends.

Magistral wireframes were flagged into regular blocks in MineSight software. Grade was interpolated into a 10 m by 10 m by 10 m regular block model. The block model setup is given in Table 14-8, while a description of the block model attributes is given in Table 14-9.

Grades were interpolated into blocks on a parent cell basis using OK. Variables Cu, Mo, Ag, As, Sb, Bi, and S are interpolated and estimates are not density weighted. ID^2 and NN were also used for comparison and validation purposes.

TABLE 14-8 BLOCK MODEL SETUP
VM Holding S.A. – Magistral Project

Parameter	X	Y	Z
Origin (m)	193,500	9,089,500	3,600
Block Size (m)	10	10	10
Number of Blocks	200	200	110

GRADE INTERPOLATION

Quantitative Kriging Neighbourhood Analysis (QKNA) was utilized in Supervisor to define the search strategy.

Mineralization occurs chiefly in the skarn and mixed material. To account for the varying orientations of the skarn and mixed lithologies, VMH staff partitioned the block model into five sectors. Domains were then subdivided by the rock types in each partition. Concatenation of Sector + Lithology Code results in "CPSEC" codes that are then used to define search orientations. Table 14-11, later in this section, shows the search orientation scheme for CPSEC.

A description of the main block model attributes is given in Table 14-9. There are additional flag and distance variables based on individual metals not shown. Other model variables included: arsenic, gold, magnesium, bismuth, iron, sulphur, antimony, and various flagging fields used by VMH during the block modeling process. RPA did not review all attributes.

For Mineral Resource reporting purposes, VMH added diluted grade variables to the block model which add the percent of the block inside the domain at the boundary while removing any proportion above the topographic surface.

In RPA's opinion, the block model size is appropriate for the drill hole spacing and proposed mining method, and is suitable to support the estimation of Mineral Resources and Mineral Reserves. Comparisons between wireframe and block model volumes are reasonable.

TABLE 14-9 BLOCK MODEL ATTRIBUTES
VM Holding S.A. – Magistral Project

Variable	Description
MOLE	Topography
LITO	Code of geological domains
LITO%	Percentage of geological domain in the block model
SECTO	Sectors created for skarn and mixed geological domains
CPSEC	Discretization of skarn and mixed by sector
Catge	Mineral Resource Category
CU	Final Cu % estimate
MO	Final Mo % estimate
AG	Final Ag g/t estimate
AS	Final As % estimate
MG	Final Mg % estimate
S	Final S % estimate
FE	Final Fe % estimate
SB	Final Sb % estimate
BI	Final Bi g/t estimate
DENS	Density assigned per geological domain CPSEC

INTERPOLATION STRATEGY

Grades were interpolated into blocks on a parent cell basis using OK. Secondary estimates were also constructed for validation purposes using ID^2 and NN methods. Variables Cu, Mo, Ag, Fe, S, MgO, and Sb were estimated and were not density weighted. Density was assigned by rock type.

Quantitative Kriging Neighbourhood Analysis (QKNA) was performed in Snowden's Supervisor software using search ellipsoid, minimum number of composites, maximum number of composites, and maximum number of composites per drill hole. In addition, an octant search was performed in pass two for Cu, Mo, and Ag.

VMH staff then completed a sensitivity analysis to control smoothing in the model by running six different estimates (3 OK, 3 ID^2) with variable numbers of composites per block estimate, and then comparing with the NN model. Grade estimates that best performed against visual validation and analysis of global bias were chosen for the estimate. When results were similar, the base case was chosen.

The sample selection strategy is given in Table 14-10. Search orientations and ranges are outlined in Table 14-11.

RPA performed a density analysis by merging the density and assay tables. A scatter plot of Cu grade versus density shows a positive correlation between grade and density (Figure 14-10).

With respect to the interpolation parameters, RPA offers the following conclusions and recommendations:

- Overall, the interpolation strategy is reasonable.
- RPA recommends investigating density weighted grade interpolation. Density weighting could more accurately reflect Mineral Resource tonnages.

FIGURE 14-10 GRADE VS. DENSITY IN DRILL DATABASE

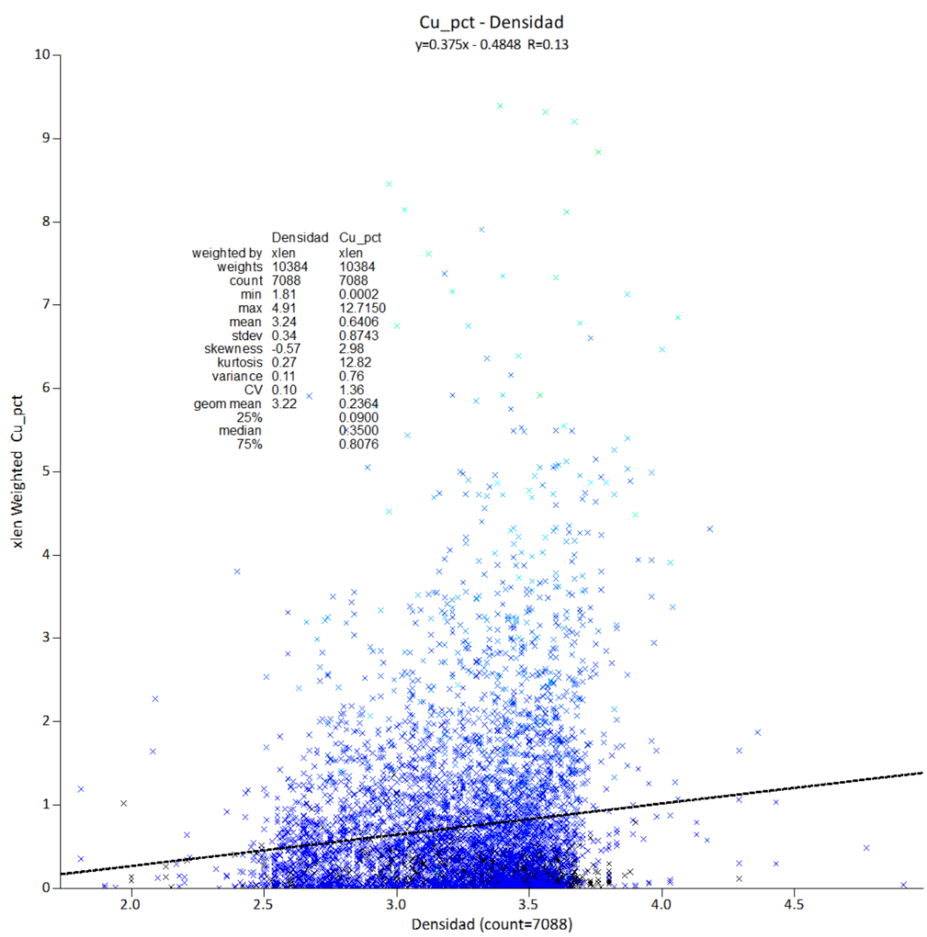


TABLE 14-10 SAMPLE SELECTION STRATEGY
VM Holding S.A. – Magistral Project

Metal	Pass	CPSEC	Sector	Cuerpo	Min Comps per Hole	Max Comps per Hole	Max Comps per Estimate	Octant Quad	Max Comps per Octant	Est Type
Cu (%)	1			3	3	14	2			OK
Cu (%)	1			4	3	18	2			OK
Cu (%)	1			5	3	18	2			OK
Cu (%)	1	16	1	6	3	18	2			OK
Cu (%)	1	17	1	7	3	14	2			OK
Cu (%)	1	26	2	6	3	14	2			OK
Cu (%)	1	27	2	7	3	20	2			OK
Cu (%)	1	36	3	6	3	12	2			OK
Cu (%)	1	37	3	7	3	14	2			OK
Cu (%)	1	46	4	6	3	16	2			OK
Cu (%)	1	47	4	7	3	18	2			OK
Cu (%)	1	57	5	7	3	10	2			OK
Cu (%)	2			3	1	14	2	2	3	OK
Cu (%)	2			4	1	18	2	2	3	OK
Cu (%)	2			5	1	18	2	2	3	OK
Cu (%)	2	16	1	6	1	18	2	2	3	OK
Cu (%)	2	17	1	7	1	14	2	2	3	OK
Cu (%)	2	26	2	6	1	14	2	2	3	OK
Cu (%)	2	27	2	7	1	20	2	2	3	OK
Cu (%)	2	36	3	6	1	12	2	2	3	OK
Cu (%)	2	37	3	7	1	14	2	2	3	OK
Cu (%)	2	46	4	6	1	16	2	2	3	OK
Cu (%)	2	47	4	7	1	18	2	2	3	OK
Cu (%)	2	57	5	7	1	10	2	2	3	OK
Mo (%)	1			3	3	14	2			OK
Mo (%)	1			4	3	14	2			OK
Mo (%)	1			5	3	14	2			OK
Mo (%)	1	16	1	6	3	20	2			OK
Mo (%)	1	17	1	7	3	14	2			OK
Mo (%)	1	26	2	6	3	16	2			OK
Mo (%)	1	27	2	7	3	20	2			OK
Mo (%)	1	36	3	6	3	12	2			OK
Mo (%)	1	37	3	7	3	20	2			OK
Mo (%)	1	46	4	6	3	18	2			OK
Mo (%)	1	47	4	7	3	18	2			OK
Mo (%)	1	57	5	7	3	12	2			OK
Mo (%)	2			3	1	14	2	2	3	OK
Mo (%)	2			4	1	14	2	2	3	OK
Mo (%)	2			5	1	14	2	2	3	OK
Mo (%)	2	16	1	6	1	20	2	2	3	OK
Mo (%)	2	17	1	7	1	14	2	2	3	OK
Mo (%)	2	26	2	6	1	16	2	2	3	OK

Metal	Pass	CPSEC	Sector	Cuerpo	Min Comps per Hole	Max Comps per Hole	Max Comps per Estimate	Octant Quad	Max Comps per Octant	Est Type
Mo (%)	2	27	2	7	1	20	2	2	3	OK
Mo (%)	2	36	3	6	1	12	2	2	3	OK
Mo (%)	2	37	3	7	1	20	2	2	3	OK
Mo (%)	2	46	4	6	1	18	2	2	3	OK
Mo (%)	2	47	4	7	1	18	2	2	3	OK
Mo (%)	2	57	5	7	1	12	2	2	3	OK
Ag (g/t)	1			3	3	14	2			OK
Ag (g/t)	1			4	3	18	2			OK
Ag (g/t)	1			5	3	18	2			OK
Ag (g/t)	1	16	1	6	3	18	2			OK
Ag (g/t)	1	17	1	7	3	14	2			OK
Ag (g/t)	1	26	2	6	3	14	2			OK
Ag (g/t)	1	27	2	7	3	20	2			OK
Ag (g/t)	1	36	3	6	3	12	2			OK
Ag (g/t)	1	37	3	7	3	14	2			OK
Ag (g/t)	1	46	4	6	3	16	2			OK
Ag (g/t)	1	47	4	7	3	18	2			OK
Ag (g/t)	1	57	5	7	3	10	2			OK
Ag (g/t)	2			3	1	14	2	2	3	OK
Ag (g/t)	2			4	1	18	2	2	3	OK
Ag (g/t)	2			5	1	18	2	2	3	OK
Ag (g/t)	2	16	1	6	1	18	2	2	3	OK
Ag (g/t)	2	17	1	7	1	14	2	2	3	OK
Ag (g/t)	2	26	2	6	1	14	2	2	3	OK
Ag (g/t)	2	27	2	7	1	20	2	2	3	OK
Ag (g/t)	2	36	3	6	1	12	2	2	3	OK
Ag (g/t)	2	37	3	7	1	14	2	2	3	OK
Ag (g/t)	2	46	4	6	1	16	2	2	3	OK
Ag (g/t)	2	47	4	7	1	18	2	2	3	OK
Ag (g/t)	2	57	5	7	1	10	2	2	3	OK

TABLE 14-11 SEARCH ORIENTATIONS AND RANGES
VM Holding S.A. – Magistral Project

Metal	CPSEC	Sector	Cuerpo	Search Pass	Type	Azimuth Rotation	Dip Rotation N	Dip Rotation E	Major Range (m)	Minor Range (m)	Vertical Range (m)
Cu (%)			3	1	OK	130.34	48.97	-11.69	170	150	105
Cu (%)			4	1	OK	128.67	54.69	-7.1	220	100	100
Cu (%)			5	1	OK	128.67	54.69	-7.1	220	100	100
Cu (%)	16	1	6	1	OK	139.11	47.94	-31.11	125	75	40
Cu (%)	17	1	7	1	OK	90.58	58.53	16.74	120	90	20
Cu (%)	26	2	6	1	OK	130	55	-90	130	50	50
Cu (%)	27	2	7	1	OK	130	55	90	180	85	85
Cu (%)	36	3	6	1	OK	102.76	33.83	53	130	50	50
Cu (%)	37	3	7	1	OK	102.76	33.826	52.995	130	45	25
Cu (%)	46	4	6	1	OK	83.737	12.24	54.061	125	75	40
Cu (%)	47	4	7	1	OK	83.74	12.24	54.06	110	50	50
Cu (%)	57	5	7	1	OK	128.67	54.69	-7.1	100	50	50
Cu (%)			3	2	OK	130.34	48.97	-11.69	680	600	420
Cu (%)			4	2	OK	128.67	54.69	-7.1	770	350	350
Cu (%)			5	2	OK	128.67	54.69	-7.1	660	300	300
Cu (%)	16	1	6	2	OK	139.11	47.94	-31.11	625	375	200
Cu (%)	17	1	7	2	OK	90.58	58.53	16.74	652	420	104
Cu (%)	26	2	6	2	OK	130	55	-90	650	250	250
Cu (%)	27	2	7	2	OK	130	55	90	720	340	340
Cu (%)	36	3	6	2	OK	102.76	33.83	53	650	250	250
Cu (%)	37	3	7	2	OK	102.76	33.826	52.995	780	270	150
Cu (%)	46	4	6	2	OK	83.737	12.24	54.061	500	300	160
Cu (%)	47	4	7	2	OK	83.74	12.24	54.06	550	250	250
Cu (%)	57	5	7	2	OK	128.67	54.69	-7.1	600	400	400
Mo (%)			3	1	OK	120	45	0	190	93	65
Mo (%)			4	1	OK	152.38	61.1	-29.03	120	120	75
Mo (%)			5	1	OK	152.38	61.1	-29.03	120	120	75
Mo (%)	16	1	6	1	OK	110	60	0	253	135	56
Mo (%)	17	1	7	1	OK	141.78	62.01	-43.22	180	180	60
Mo (%)	26	2	6	1	OK	140	44	-76	160	58	54
Mo (%)	27	2	7	1	OK	116	54	-73	150	120	85
Mo (%)	36	3	6	1	OK	75	60	-90	160	58	54
Mo (%)	37	3	7	1	OK	75	60	-90	171	69	15
Mo (%)	46	4	6	1	OK	120.893	48.59	40.893	253	135	56
Mo (%)	47	4	7	1	OK	120.89	48.59	40.89	180	65	52
Mo (%)	57	5	7	1	OK	152.38	61.1	-29.03	180	65	52
Mo (%)			3	2	OK	120	45	0	570	279	195
Mo (%)			4	2	OK	152.38	61.1	-29.03	480	480	300
Mo (%)			5	2	OK	152.38	61.1	-29.03	480	480	300

Metal	CPSEC	Sector	Cuerpo	Search Pass	Type	Azimuth Rotation	Dip Rotation N	Dip Rotation E	Major Range (m)	Minor Range (m)	Vertical Range (m)
Mo (%)	16	1	6	2	OK	110	60	0	759	405	168
Mo (%)	17	1	7	2	OK	141.78	62.01	-43.22	540	540	180
Mo (%)	26	2	6	2	OK	140	44	-76	640	232	216
Mo (%)	27	2	7	2	OK	116	54	-73	600	480	340
Mo (%)	36	3	6	2	OK	75	60	-90	800	290	270
Mo (%)	37	3	7	2	OK	75	60	-90	900	500	200
Mo (%)	46	4	6	2	OK	120.893	48.59	40.893	759	405	168
Mo (%)	47	4	7	2	OK	120.89	48.59	40.89	900	325	260
Mo (%)	57	5	7	2	OK	152.38	61.1	-29.03	900	325	260
Ag (g/t)			3	1	OK	120	50	0	145	78	50
Ag (g/t)			4	1	OK	140.75	43.08	-14.51	215	215	95
Ag (g/t)			5	1	OK	140.75	43.08	-14.51	215	215	95
Ag (g/t)	16	1	6	1	OK	170.71	29.78	-54.82	125	73	48
Ag (g/t)	17	1	7	1	OK	71.92	65.19	35.42	94	67	42
Ag (g/t)	26	2	6	1	OK	125	70	-90	153	52	41
Ag (g/t)	27	2	7	1	OK	125	55	90	185	103	40
Ag (g/t)	36	3	6	1	OK	95	50	-90	153	52	41
Ag (g/t)	37	3	7	1	OK	95	50	-90	215	100	75
Ag (g/t)	46	4	6	1	OK	75	0	50	125	73	48
Ag (g/t)	47	4	7	1	OK	86.17	28.02	67.2	100	95	62
Ag (g/t)	57	5	7	1	OK	140.75	43.08	-14.51	100	95	62
Ag (g/t)			3	2	OK	120	50	0	580	312	200
Ag (g/t)			4	2	OK	140.75	43.08	-14.51	645	645	285
Ag (g/t)			5	2	OK	140.75	43.08	-14.51	645	645	285
Ag (g/t)	16	1	6	2	OK	170.71	29.78	-54.82	500	292	192
Ag (g/t)	17	1	7	2	OK	71.92	65.19	35.42	470	335	210
Ag (g/t)	26	2	6	2	OK	125	70	-90	612	208	164
Ag (g/t)	27	2	7	2	OK	125	55	90	555	309	120
Ag (g/t)	36	3	6	2	OK	95	50	-90	612	208	164
Ag (g/t)	37	3	7	2	OK	95	50	-90	645	300	225
Ag (g/t)	46	4	6	2	OK	75	0	50	500	292	192
Ag (g/t)	47	4	7	2	OK	86.17	28.02	67.2	500	475	310
Ag (g/t)	57	5	7	2	OK	140.75	43.08	-14.51	500	475	310

VALIDATION

VMH

VMH performed validation of the block model via:

- Visual inspection of composites versus block grades
- Comparison of global average grades between NN, ID^2, and OK methods
- Swath plots comparing spatial distribution of grade for different estimation methods (NN, ID^2, and OK)

For many of the variables, areas, and mineralization types, there is a better agreement between the NN and OK means than the composite and OK means, which suggests that the composite data are clustered. Similar trends are observed on the swath plots. Cu block grades sometimes show a large deviation from both the composite and NN mean although the deviation is negative. The Cu composites versus block grades show discrepancies as high as 30% in domain 17 although the NN grades are within three percent. Mean comparisons on a wireframe by wireframe basis show much larger discrepancies between the means.

RPA reviewed the validation provided in the documents provided by VMH and offers the following conclusions and recommendations:

- The validation performed uses typical industry standard validation techniques. In general, the results presented appear reasonable.

- Many of the discrepancies between block and composite grades are due to clustering of data partly as a result of poor drilling angles.

- The swath plot results are generally good, with the possible exception of the Cu grades in blocks in domain 33.

RPA

In addition to reviewing VMH's validation, RPA performed the following validation steps:

- Comparison between composite and block grades (Table 14-12) and between OK and NN block grades (Table 14-13).
- Swath plots of composites versus blocks and NN versus OK (e.g., Figure 14-11).
- Visual inspection of the block model and composites provided (e.g., Figure 14-12).

TABLE 14-12 COMPARISON BETWEEN COMPOSITE AND BLOCK GRADES

VM Holding S.A. – Magistral Project

Domain	Column	Comp Count	BM Count	Comp min	BM min	Comp max	BM max	Comp mean	BM mean	Diff Mean pct	Comp CV	BM CV	Diff CV pct
16	Cu (%)	1169	7339	0.01	0.02	4.94	2.10	0.53	0.45	-15.34	0.79	0.51	-35.44
17	Cu (%)	952	7553	0.00	0.01	6.69	3.59	0.80	0.56	-30.03	1.16	0.74	-36.21
23	Cu (%)	547	3748	0.00	0.26	2.66	1.73	0.67	0.66	-1.63	0.58	0.31	-46.55
26	Cu (%)	1245	4499	0.03	0.11	4.05	1.83	0.54	0.54	0.19	0.74	0.42	-43.24
27	Cu (%)	1770	9832	0.00	0.01	6.14	3.45	0.76	0.66	-14.15	1.11	0.72	-35.14
33	Cu (%)	1647	20269	0.09	0.17	2.70	1.57	0.47	0.39	-16.60	0.54	0.33	-38.89
37	Cu (%)	880	7390	0.00	0.01	8.15	4.31	0.68	0.63	-7.92	1.33	0.64	-51.88
43	Cu (%)	1189	13027	0.03	0.08	2.35	1.31	0.48	0.44	-9.30	0.50	0.32	-36.00
46	Cu (%)	1079	7342	0.00	0.06	3.89	2.01	0.68	0.64	-6.75	0.70	0.45	-35.71
47	Cu (%)	954	10229	0.00	0.01	2.77	1.81	0.25	0.24	-3.59	1.26	0.70	-44.44
ALL	Cu (%)	11432	91228	0.00	0.01	8.15	4.31	0.58	0.49	-16.27	1.01	0.65	-35.64
16	Mo (%)	1169	7339	0.00	0.00	0.93	0.37	0.06	0.04	-25.93	1.45	0.84	-42.07
17	Mo (%)	952	7553	0.00	0.00	1.30	0.40	0.06	0.06	-2.83	1.05	0.43	-59.05
23	Mo (%)	547	3748	0.00	0.02	0.48	0.32	0.08	0.07	-8.45	0.80	0.40	-50.00
26	Mo (%)	1245	4499	0.00	0.01	0.94	0.37	0.06	0.05	-11.97	1.10	0.61	-44.55
27	Mo (%)	1770	9832	0.00	0.00	0.90	0.54	0.06	0.05	-8.26	1.41	0.60	-57.45
33	Mo (%)	1647	20269	0.00	0.01	0.33	0.21	0.06	0.05	-14.79	0.69	0.41	-40.58
37	Mo (%)	880	7390	0.00	0.00	0.96	0.16	0.04	0.03	-17.68	1.69	0.66	-60.95
43	Mo (%)	1189	13027	0.00	0.01	0.34	0.18	0.06	0.06	-11.62	0.66	0.54	-18.18
46	Mo (%)	1079	7342	0.00	0.00	0.48	0.18	0.05	0.04	-16.01	1.13	0.78	-30.97
47	Mo (%)	954	10229	0.00	0.00	0.38	0.19	0.06	0.06	-1.04	0.91	0.49	-46.15
ALL	Mo (%)	11432	91228	0.00	0.00	1.30	0.54	0.06	0.05	-11.64	1.10	0.57	-48.18
16	Ag (g/t)	1169	7339	0.10	0.21	41.18	8.90	2.40	2.17	-9.87	1.03	0.41	-60.19
17	Ag (g/t)	952	7553	0.10	0.29	48.29	21.57	4.15	3.27	-21.15	1.11	0.68	-38.74
23	Ag (g/t)	547	3748	0.00	1.04	14.20	8.00	2.82	2.80	-0.78	0.60	0.32	-46.67
26	Ag (g/t)	1245	4499	0.10	0.15	32.84	9.25	2.35	2.21	-5.92	0.90	0.39	-56.67
27	Ag (g/t)	1770	9832	0.00	0.10	56.93	32.33	4.72	4.24	-10.03	1.12	0.68	-39.29
33	Ag (g/t)	1647	20269	0.00	0.37	18.60	9.51	2.28	1.84	-19.29	0.66	0.37	-43.94
37	Ag (g/t)	880	7390	0.00	0.30	72.18	48.05	5.52	5.69	3.12	1.30	0.60	-53.85
43	Ag (g/t)	1189	13027	0.25	0.56	14.36	6.68	2.74	2.58	-5.81	0.54	0.33	-38.89
46	Ag (g/t)	1079	7342	0.10	0.45	23.24	8.03	3.14	2.93	-6.60	0.74	0.37	-50.00
47	Ag (g/t)	954	10229	0.09	0.22	23.17	12.85	2.01	1.91	-5.07	1.11	0.49	-55.86
ALL	Ag (g/t)	11432	91228	0.00	0.10	72.18	48.05	3.19	2.89	-9.35	1.16	0.73	-37.07

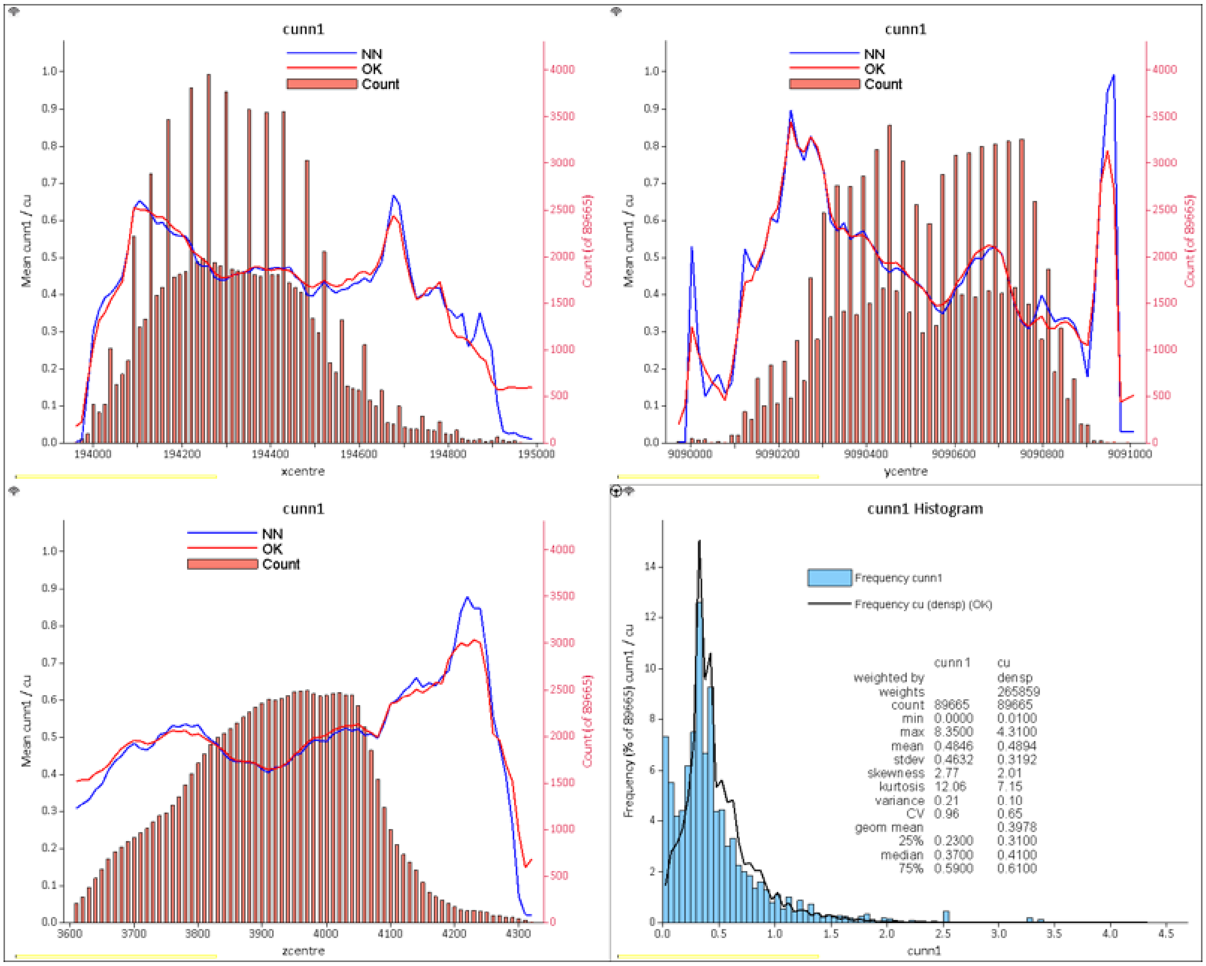
Note. CV – coefficient of variation; Comp – composite, BM – block model

TABLE 14-13 COMPARISON BETWEEN OK AND NN BLOCK GRADES
VM Holding S.A. – Magistral Project

Column	Domain	Count	OK min	NN min	OK max	NN max	OK mean	NN mean	Diff Mean pct	OK CV	NN CV	Diff CV pct
Cu (%)	16	7100	0.02	0.00	2.10	3.40	0.44	0.46	2.93	0.52	0.80	53.85
Cu (%)	17	6807	0.01	0.00	3.59	5.57	0.57	0.55	-2.69	0.76	1.19	56.58
Cu (%)	23	3748	0.26	0.16	1.73	2.66	0.66	0.66	-0.51	0.31	0.46	48.39
Cu (%)	26	4499	0.11	0.02	1.83	3.16	0.54	0.54	-0.37	0.42	0.62	47.62
Cu (%)	27	9778	0.01	0.00	3.45	8.15	0.66	0.67	2.57	0.72	1.16	61.11
Cu (%)	33	20223	0.17	0.09	1.57	2.70	0.39	0.38	-3.01	0.33	0.44	33.33
Cu (%)	37	7281	0.01	0.00	4.31	8.35	0.64	0.63	-0.25	0.63	1.13	79.37
Cu (%)	43	13027	0.08	0.02	1.31	2.11	0.44	0.43	-1.75	0.32	0.44	37.50
Cu (%)	46	7244	0.06	0.00	2.01	3.63	0.63	0.64	1.72	0.45	0.65	44.44
Cu (%)	47	9958	0.01	0.00	1.81	2.77	0.24	0.24	0.46	0.70	1.21	72.86
Cu (%)	ALL	89665	0.01	0.00	4.31	8.35	0.49	0.48	-0.98	0.65	0.96	47.69
Mo (%)	16	7100	0.00	0.00	0.37	0.93	0.04	0.04	1.65	0.84	1.39	65.48
Mo (%)	17	6807	0.00	0.00	0.40	0.61	0.06	0.07	5.65	0.45	0.83	84.44
Mo (%)	23	3748	0.02	0.01	0.32	0.37	0.07	0.07	-2.16	0.40	0.63	57.50
Mo (%)	26	4499	0.01	0.00	0.37	0.70	0.05	0.05	-1.86	0.61	0.89	45.90
Mo (%)	27	9778	0.00	0.00	0.54	0.90	0.05	0.05	-0.74	0.60	1.17	95.00
Mo (%)	33	20223	0.01	0.00	0.21	0.32	0.05	0.05	-2.83	0.41	0.64	56.10
Mo (%)	37	7281	0.00	0.00	0.16	0.27	0.03	0.03	-4.18	0.66	1.35	104.55
Mo (%)	43	13027	0.01	0.00	0.18	0.30	0.06	0.06	-0.72	0.54	0.68	25.93
Mo (%)	46	7244	0.00	0.00	0.18	0.30	0.04	0.04	-1.99	0.79	1.03	30.38
Mo (%)	47	9958	0.00	0.00	0.19	0.27	0.06	0.06	0.88	0.49	0.90	83.67
Mo (%)	ALL	89665	0.00	0.00	0.54	0.93	0.05	0.05	-0.58	0.58	0.94	62.07
Ag (g/t)	16	7100	0.21	0.10	8.90	22.42	2.15	2.22	3.04	0.41	0.80	95.12
Ag (g/t)	17	6807	0.29	0.10	21.57	39.87	3.40	3.29	-3.06	0.67	1.07	59.70
Ag (g/t)	23	3748	1.04	0.51	8.00	13.20	2.80	2.79	-0.54	0.32	0.52	62.50
Ag (g/t)	26	4499	0.15	0.10	9.25	17.86	2.21	2.24	1.41	0.39	0.71	82.05
Ag (g/t)	27	9778	0.10	0.00	32.33	72.18	4.26	4.48	5.18	0.68	1.12	64.71
Ag (g/t)	33	20223	0.37	0.10	9.51	16.68	1.84	1.74	-5.54	0.37	0.62	67.57
Ag (g/t)	37	7281	0.30	0.00	48.05	74.69	5.74	5.74	0.03	0.59	1.16	96.61
Ag (g/t)	43	13027	0.56	0.25	6.68	9.24	2.58	2.51	-2.87	0.33	0.50	51.52
Ag (g/t)	46	7244	0.45	0.10	7.83	20.21	2.91	2.89	-0.96	0.37	0.65	75.68
Ag (g/t)	47	9958	0.22	0.10	12.85	23.17	1.91	1.95	1.63	0.49	0.92	87.76
Ag (g/t)	ALL	89665	0.10	0.00	48.05	74.69	2.90	2.90	-0.12	0.73	1.16	58.90

Note. CV – coefficient of variation; OK – Ordinary Kriging; NN – Nearest Neighbour

FIGURE 14-11 EXAMPLE SWATHS AND HISTOGRAM: NN VERSUS OK COPPER



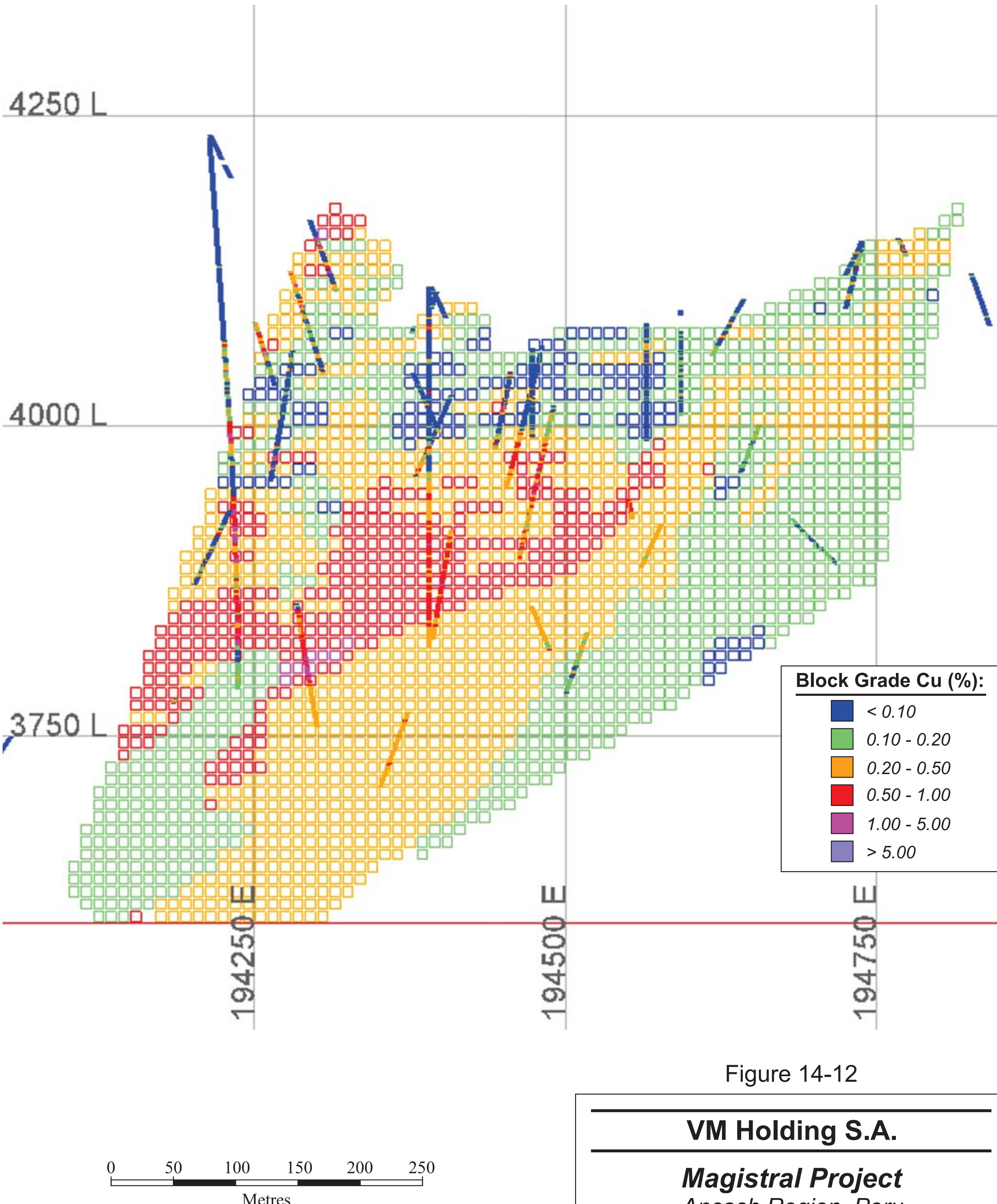


Figure 14-12

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Visual Check of Drill vs Block Grade Example (Cu)

August 2017

Source: RPA, 2017.

Overburden, Limestone, and Marmol (Marble) rock domains have not been estimated because they do not contain enough grade to be of economic interest at present. RPA observed several cases where moderate to high grade sampled intervals were not included in the mineral resource because they were located in these unestimated domains. RPA recommends that further review of the geological modelling be performed to review these intervals, VMH should also investigate whether such grades should be incorporated into the skarn domain.

With respect to RPA's validation, the results suggest that the VMH estimate is reasonable. The block model is suitable to support Mineral Resource and Mineral Reserve estimation.

CLASSIFICATION

VMH staff classified Mineral Resources according to the standards and parameters established in the Australian JORC Code and Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM definitions) incorporated by reference in NI 43-101.

According to CIM Definition Standards (2014), a Mineral Resource is defined as "a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction". Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the "economically mineable part of a Measured and/or Indicated Mineral Resource" demonstrated by studies at Pre-Feasibility or Feasibility level as appropriate. Mineral Reserves are classified into Proven and Probable categories.

RPA is of the opinion that the definitions for resource categories used in this report are consistent with those defined by CIM (2014) and incorporated by reference in NI 43-101.

Classification parameters were obtained by calculating the optimal sample spacing according to the variogram range (Manual of Evaluation of Mineral Reserves, Orche E. 1999, p.59), where optimum sample spacing is regularly 0.3 to 0.5 times the variogram range.

Mineral Resource classification utilized the distance to the first variogram structure (range of variogram) in light of the optimal sample spacing, the number of holes and the average distance to samples.

Mineral Resources were categorized according to the following criteria:

- Measured Resource: minimum three holes in a regular mesh up to one third of the average of the variogram ranges in the three main directions.

- Indicated Resource: minimum three holes in a regular mesh of one third to one half of the average of the variogram ranges in the three main directions.

- Inferred Resource: minimum two holes in a regular mesh of one half to 1.2 times the average of the variogram ranges in the three main directions.

- Mineral Resource categories were first encoded to the block model using the above criteria. The first pass classification was smoothed by mathematical algorithms to a new category variable in the block model to a tolerance of ±3 % from original tonnage, and a visual inspection was performed.

Table 14-14 shows the classification parameters used for the Magistral Mineral Resource estimate.

RPA reviewed the block model classification and concludes that the overall classification criteria and designation are reasonable and suitable to support Mineral Resource and Mineral Reserve estimation.

The algorithm method for smoothing classification is acceptable, however RPA did observe a small proportion of isolated blocks at the margins of each classification category, and suggests that visual reclassification could smooth the boundaries further and result in less isolated patches of a given category at the margins of the Mineral Resource class, even if it changes tonnages in each class by more than three percent.

TABLE 14-14 MINERAL RESOURCE CLASSIFICATION PARAMETERS
VM Holding S.A. – Magistral Project

Lithology	Minimum No. Drill Holes	Main Search Direction (m)	Secondary Search Direction (m)	Vertical Search Direction (m)	Mineral Resource Category
Mixed	3	42.5	20.8	15.0	Measured Resource
	3	85.0	41.7	30.0	Indicated Resource
	2	153.0	75.0	54.0	Inferred Resource
Skarn	3	45.0	22.5	15.0	Measured Resource
	3	90.0	45.0	30.0	Indicated Resource
	2	162.0	81.0	54.0	Inferred Resource
Porphyry	3	65.0	41.7	34.2	Measured Resource
	3	130.0	83.3	68.3	Indicated Resource
	2	234.0	150.0	123.0	Inferred Resource

CUT-OFF GRADE

Pit optimization analyses were run on the block model to determine the potential economics of extraction by open pit methods. The parameters used in the pit optimization runs, using Whittle software, are presented in Table 14-15.

Whittle calculates a final break-even pit shell based on all operating costs (mining, processing, and general and administrative, or G&A) required to mine a given block of material. Since all blocks within the pit shell must be mined (regardless if they are waste or mineral), any block that has sufficient revenue to cover the costs of processing and G&A is sent to the processing plant.

TABLE 14-15 MAGISTRAL WHITTLE PIT PARAMETERS
VM Holding S.A. – Magistral Project

Parameter	Unit	Input
Overall Pit Slope Angle	degrees	See Table 16-3
Mining Waste Cost	$/tonne	1.56
Incremental Mining Cost	$/10m +/- 4080m	0.012
Mining Mineralized Material Cost	$/tonne	1.85
Process Cost – Porphyry & Mixed	$/tonne	3.81
Process Cost – Skarn	$/tonne	3.63
G&A Cost	$/tonne	0.47
Mining Extraction	%	98
Mining Dilution	%	0
Metal Price		
Cu	$/lb	2.68
Mo	$/lb	7.30
Ag	$/oz	18.94
Payable		
Cu	%	96
Mo	%	100
Ag	%	77
Selling Costs	$/t conc	
Cu	$/lb	0.51
Mo	$/lb	2.87
Ag	$/oz	0.50
Royalties	%	5.46
Metallurgical Recoveries	%	See Table 16-7
Block Size	m	10 x 10 x 10

Using the parameters in Table 14-15, and adjusting the G&A to $0.93/t results in a break even cut-off grade of 0.18% Cu. The Mineral Resources were reported from within the pit shell using the rounded breakeven cut-off grade of 0.20% Cu.

CONCLUSIONS

RPA's resource related conclusions are summarized below:

- The Mineral Resource estimate has been completed following standard industry practices and is suitable to support the public disclosure of Mineral Resources.
- The data provided was sufficiently organized and complete to facilitate the audit.

- The drill hole database has been maintained to a reasonable standard and is suitable to support Mineral Resource estimation.

- Drill core logging and sampling procedures meet industry standards.

- The sample preparation methods are acceptable.

- The results from VMH's 2012-2015 QA/QC program are appropriate.

- The topographic surface sufficiently covers the Mineral Resource estimation area and provides more than sufficient accuracy for the current stage of the Project.

- The wireframes have been constructed to a reasonable standard by the on-site geologists, with consideration for the style of mineralization, lithology, alteration, structural controls, and interpretation.

- In general, the high yield restriction used to control erratic high grade assays is reasonable.

- The grade interpolation strategy is reasonable. Density weighting could more accurately reflect Mineral Resource tonnages.

- The validation performed by VMH follows typical industry standard validation techniques and in general the results presented appear reasonable.

- RPA's validation results, which included statistical, geostatistical, and visual checks and comparisons, suggest that the VMH estimate is reasonable.

RECOMMENDATIONS

RPA's Mineral Resource related recommendations are summarized below:

- The relationships between deposit alteration, mineralization, and structure should be investigated for future modelling. Although block grades reflect drilled grades at the reasonable drill spacing, there may be some risk associated with grades reporting locally to structures.

- Arsenic reports locally to structure. VMH should review the structural model in the context of arsenic concentration to refine the understanding of arsenic distribution in mineralized material and to guide mine planning.

- With respect to sampling, analyses, and QA/QC, RPA offers the following recommendations:
  - QA/QC programs should be continued at Magistral and tighter controls on the QA/QC data management should be imposed.
  - The database should be revisited to address minor issues. The database should contain tracking information for re-assayed batches and a proper control

    for values below and above detection limits. The assay certificates should be revisited and all available data for deleterious elements added to the database.
  - Check sample insertion rates should be increased to approximately 5% or one in 20 samples.
  - All core intervals immediately adjacent to mineralization should be sampled, as undersampling of a few mineralized “shoulders” was noted. These unsampled intervals should also be reviewed after assays have been returned.
  - Data verification programs should be carried out and documented semi-annually.

- With respect to block modelling and Mineral Resource estimation, RPA offers the following recommendations:
  - Evaluate density weighted compositing and grade interpolation. Density weighting could more accurately reflect Mineral Resource tonnages.
  - Incorporate structural data in the database to assist in the fault interpretations and guide the preparation of future updates of the Mineral Resources.
  - Complete further review of mixed domain solids to refine lithological boundaries.
  - Perform capping analysis and visual checks for high grade populations to validate high grade restriction levels.
  - Perform a final review of the geological modelling to review mineralized drill intervals outside the skarn and mixed domains.
  - Perform additional visual reclassification to re-categorize isolated islands of material at Mineral Resource class boundaries.
  - Extend the block model below the pit shell where mineralization is open at depth.
  - Carry out drilling in areas where mineralization is open at depth.

- In 2018, Milpo plans to invest US$500,000 in exploration and drilling permitting applications to test seven regional/satellite targets plus a minimal budget to keep environmental and social licences in good standing. RPA concurs with these planned expenditures.

15 MINERAL RESERVE ESTIMATE

There are no Mineral Reserves on the Magistral Project.

16 MINING METHODS

INTRODUCTION

Various studies of differing levels of detail have been carried out using a variety of production rates for the preliminary evaluation of the Project. The latest report provided to RPA by Milpo was carried out by Golder Associates Inc. (Golder) in March 2016 (Golder 2016 FS) and considered an open pit operation with a production rate of 10 ktpd of material processed. Subsequent to the Golder 2016 FS, VMH evaluated some alternative production rates ranging from 10 ktpd to 30 ktpd, with 30 ktpd being the chosen rate and this has been used as the basis for this report.

MINING METHODS

The local topography presents some challenges for open pit mining, as the Project is located in valley with elevations varying from approximately 3,800 m to 4,560 m within the proposed pit area. The highest wall is located on the south side of the pit and is 760 m, although it is only slightly higher than the north wall.

The Project as currently designed will be an open pit mining operation.

Mining is proposed to be carried out by a contractor as a conventional truck and shovel operation. VMH is currently studying the option to mine using owner-owned equipment but the trade-off analysis was not available at the time of this report.

It is contemplated that the mining contractor would undertake the following activities:

- Drilling performed by conventional hydraulic production drills.
- Blasting using ANFO (ammonium-nitrate fuel oil) and a down-hole delay initiation system.
- Loading and hauling operations performed with hydraulic excavators, and 35 t 8x4 haulage trucks.

The production equipment would be supported by bulldozers, graders, and water trucks. VMH would supervise the overall mining operation with its own employees including mining engineers, geologists, surveyors, and support staff.

Mineralized material will be fed directly into a primary crusher located adjacent to the open pit. Primary crushed material from the crusher will be transported to the processing facility using a system of conveyors.

Topsoil stripping will be required to gain access to mineral and waste rock below. The volume is estimated to be approximately 2.2 Mm^3, which will be stored to the northeast of the pit. Waste rock will be sent to either the Valley Waste Dump (located west of the pit) or the North Waste Dump (located to the northeast of the pit).

As a portion of the material is expected to be potentially acid generating (PAG), this material will be stored in the North Waste Dump and is planned to be encapsulated within the non-acid generating (NAG) waste.

GEOTECHNICAL ASSESSMENTS

A geotechnical assessment was carried out on the Magistral Project in 2007 by Piteau Associates Engineering Inc. (Piteau). The results of the study were reviewed by Golder with some minor adjustments made to the overall slope angles from the original Piteau report.

Structurally, the area of Project is dominated by three main faults with directions: 30°/54° E, 136°/78° N and 149°/57° W (strike/dip/dip direction, Pratt 2007), as described below:

- Faults contemporaneous with mineralization, which are cemented by quartz veins or tectonic breccias and sulfur-containing hydrothermal gaps, with general direction southeast-northwest and dipping to the southwest.

- Slippery or gravitational faults, which are planar type, mainly developed in porphyry and with clay fillings (sericite) and green silicates, from the main southwest-northeast direction.

- Minor faults of irregular shape and direction after the mineralizing event. Three major reverse faults that control mineralization have also been identified: the San Ernesto fault, the Thrust 1 fault (now referred to as Lightning), and Thrust 2 fault (Keith Glover); These main structures have an approximately north-south orientation and an angle of inclination between 10° and 40° towards the west. In addition, towards the east end, the change in the direction of the strata hints at the existence of a system of high angle structures (Headwall Fault). Table 16-1 presents the orientations and dips of the main faults of the Magistral pit area.

TABLE 16-1 DIP AND STRIKE OF MAIN FAULTS
VM Holding S.A. - Magistral Project

Principal Faults	Strike	Dip
San Ernesto	N 345º - 350º	30° - 35° SW
Thrust 1 (Lightning)	N 0º - 20º	W-NW
Thrust 2 (Keith Glover)	N 340º - 345º	25° SW
Headwall	N 340º	80° SW

Piteau (2007) identified four rock mass units for design purposes, mainly based on lithology, and these are described below:

- Carbonates (LMST): This unit represents greater predominance in the projected pit sector and is mainly made up of limestone and to a lesser extent includes calcareous slate, carbonate sediments with siliceous, recrystallized sandstones and marbled limestones.

- Exoskarns (EXSK): This unit covers the transition zone between the host rock and intrusive rock and includes both the distal skarns and the mixed zone containing the original exoskarns and exoskarns that have undergone a retrograde alteration.

- Porphyries (SAR & SERN): This unit, made up of porphyries of San Ernesto, Sara and H, represents different levels of hydrothermal alteration originated from the same intrusive body. Endoskarns developed within dikes and intrusive bodies are also included in this unit. For purposes of resistance of the rock mass, the porphyries are very similar and were treated as a single unit; however, from a structural perspective the Sara porphyry (SAR) is different from the porphyry San Ernesto (SERN). Porphyry H was considered along with San Ernesto porphyry.

- Fault Zone (TBX): Inverse faults have been identified within drill cores in the Master Project. These zones resemble tectonic breccias. Many of the major structures interpreted by company Minera Ancash Copper S.A. (MAC) as healed faults based on interception of drill cores in sections.

The results of the intact rock strength tests showing the average values of uniaxial compression strength (UCS) for the different rock mass units are detailed in Table 16-2.

TABLE 16-2 SUMMARY OF UCS TESTS
VM Holding S.A. - Magistral Project

Rock Mass Units	Piteau (2006/2007) and Golder (2005) Samples Tested	UCS Average (MPa)	UCS Standard Deviation (MPa)
LMST (Carbonates)	32	100.1	29
EXSK (Exoskarns)	16	104.3	42
SARA/SERN (Porphyries)	21	117.2	48.4
FAULT TBX (Fault Zone/ Tectonic Breccia)	5	20.1	3.5

Based on the geotechnical review carried out by Golder, nine geotechnical slope sectors were determined as shown in Figure 16-1 and Table 16-3.

TABLE 16-3 OVERALL PIT SLOPE ANGLES
VM Holdings S.A. - Magistral Project

Zone	Overall Slope Angle (degrees)
Zone 1	50
Zone 2	49
Zone 3	46
Zone 4	48
Zone 5	46
Zone 6	46
Zone 7	46
Zone 8	49
Zone 9	46

These pit slope angles have been applied to the conceptual pit design.

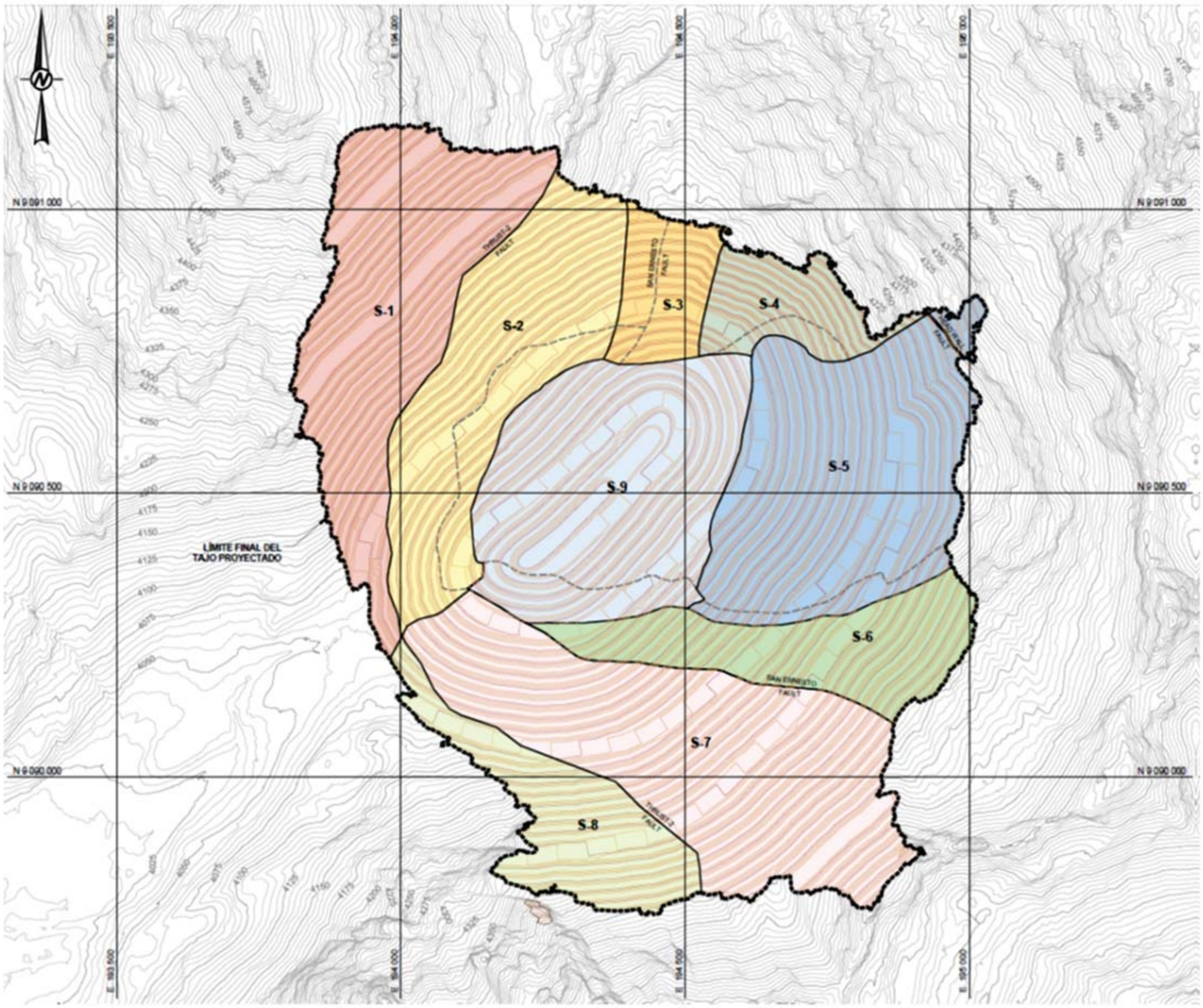


Figure 16-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Geotechnical Slope Sectors

August 2017

Source: Votorantim Metais, 2016.

HYDROLOGICAL ASSESSMENTS

Golder carried out a hydrological assessment for the 2016 Golder FS and the overview, conclusions, and recommendation are summarized below.

At the end of March 2012, the hydrogeological field survey was started, within the Colparacra valley and the Toldobamba valley, gathering information of the hydrogeological characteristics for both rocks and non-consolidated materials, during hydrogeological mapping. The mapping and surveying of hydrogeological field data allowed Golder to propose and to locate a first campaign of hydrogeological drilling to be carried out during the feasibility study of the Colparacra tailings dam.

An inventory of water sources (springs, water courses, lagoons, wetlands, and canals) was carried out in two campaigns, the first being at the end of the rainy season, and the second campaign during the dry season. In total, 40 sources of water were inventoried within the Toldobamba micro-catchment area.

Campaigns for monitoring surface and groundwater quality (springs) were carried out in stations established for the studies of the area of the tailings deposit in the Colparacra valley, on a monthly and quarterly basis as the case may be, between April 2012 and February 2013. A total of 39 drill holes were carried out within the area of the Colparacra valley, 16 of which were carried out with hydrogeological objectives exclusively, according to the needs of the study, with the other 23 drill holes made for geotechnical-hydrogeological purposes. Figure 16-2 shows the hydrogeological monitoring stations carried out in the area of the Colparacra Valley, which also shows the inventoried points of water sources.

Hydrological monitoring was carried out using four monitoring stations around the Project. Tables 16-4 and 16-5 show the minimum and maximum flows of the dry and wet season, respectively. Whereas the pressure transducers installed in the stations were able to estimate flows every 15 minutes, the average of the minimum and maximum estimated snapshots in groups of 30 days and 90 days.

TABLE 16-4 MINIMUM FLOW MEASUREMENTS
VM Holdings S.A. - Magistral Project

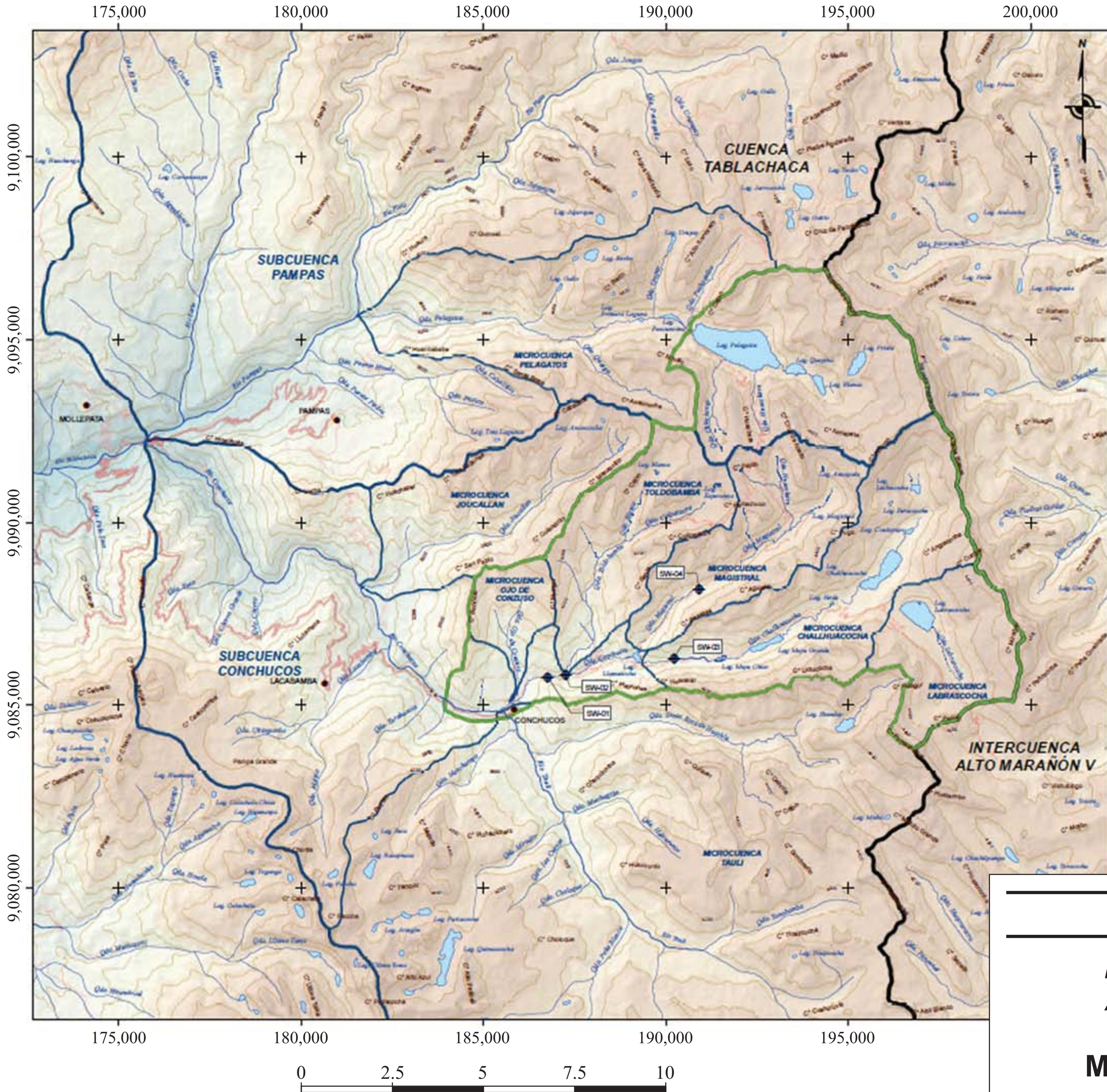
Monitoring Station	Location	Drainage Area (km^2)	Minimum Flow Rate (L/s)		Discharge ($L/s/km^2$)	
			90 days	30 days	90 days	30 days
SW-01	Conchucos Valley	66.5	748	687	11.3	10.3
SW-02	Toldobamba Valley	17.5	170	114	9.7	6.5
SW-03	Challhuacocha Valley	26.6	239	199	9.0	7.5
SW-04	Magistral Valley	13.7	90	62	6.6	4.6

TABLE 16-5 MAXIMUM FLOW MEASUREMENTS
VM Holdings S.A. - Magistral Project

Monitoring Station	Location	Drainage Area (km^2)	Maximum Flow Rate (L/s)		Discharge ($L/s/km^2$)	
			90 days	30 days	90 days	30 days
SW-01	Conchucos Valley	66.5	3,289	4,509	49.5	67.8
SW-02	Toldobamba Valley	17.5	602	810	34.4	46.7
SW-03	Challhuacocha Valley	26.6	1,677	2,373	63.1	89.2
SW-04	Magistral Valley	13.7	526	787	38.4	57.5

In order to determine the relationship between precipitation and runoff for the Project at the SW-01, SW-02, SW-03, and SW-04 stations level, Golder modelled the flows for evaporation, precipitation, surface run-off, using the GR2M model, which is a model that accounts for ingresses and egresses of water to the system. The model was calibrated with concurrent precipitation records and flows collected as part of the monitoring program developed between May 2012 and April 2013.

According to the hydrogeological understanding of the area, SW-01 is considered to be the recipient of all such losses. A water balance at this point is representative of the average conditions of the microbasins that compose the water study area, for an average year and is shown in Figure 16-3. Evapotranspiration was estimated using the Thornthwaite method, with mean temperature records available at the Magistral station. The runoff corresponding to an average year was generated using the GR2M model.



LEYENDA

- CAPITAL DISTRITAL
- CURVA PRINCIPAL (200 m)

RED VIAL

- ASFALTADO
- SIN ASFALTAR
- CAMINO EXISTENTE

RED HIDROGRÁFICA

- RÍO
- QUEBRADA
- QUEBRADA INTERMITENTE
- LAGUNA
- LAGUNA INTERMITENTE
- LÍMITE DE VERTIENTE
- LÍMITE DE CUENCA
- LÍMITE DE SUBCUENCA
- LÍMITE DE MICROCUENCA
- ÁREA DE ESTUDIO ACUÁTICA
- ESTACIÓN HIDROMÉTRICA

ESTACIONES HIDROMÉTRICAS

Código	Proyección UTM, Zona 18S, Datum WGS 84			Descripción
	Este	Norte	Altitud	
SW-01	186 760	9 085 775	3 304	Quebrada Conchucos
SW-02	187 258	9 085 827	3 319	Quebrada Toldobamba
SW-03	190 239	9 086 219	3 531	Quebrada Challhuacocha
SW-04	190 911	9 088 192	3 898	Quebrada Magistral

REFERENCIA

Datos Base: IGN, 2006
Centros poblados y límites administrativos: INEI, 2008
Red vial: MTC modificado, 2013
Caminos existentes: Golder, 2013
Proyección: WGS 1984 UTM Zone 18S

Figure 16-2

VM Holding S.A.

Magistral Project

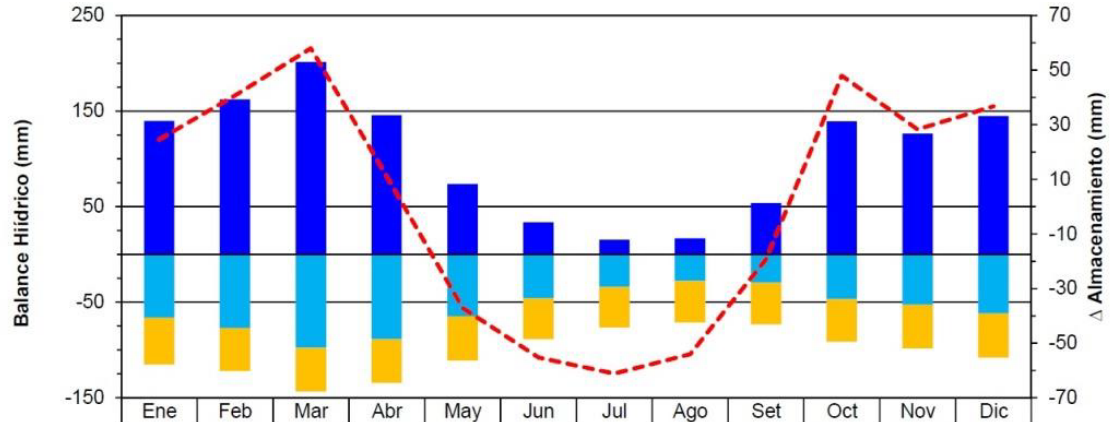
Ancash Region, Peru

Hydrogeological Monitoring Stations

August 2017

Source: Milpo ,2017.

FIGURE 16-3 SW-01 WATER BALANCE



	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Set	Oct	Nov	Dic
PTA (mm)	140	162	201	146	74	33	15	17	54	139	126	145
ETP (mm)	-49	-44	-46	-46	-46	-43	-42	-43	-43	-44	-46	-46
Escorrentía (mm)	-66	-77	-98	-89	-65	-46	-34	-28	-30	-47	-53	-62
∆ Almacenamiento(mm)	25	41	58	11	-37	-55	-61	-54	-19	48	28	37

The results show that in annual terms the precipitation in the water study areas is 1,253 mm with estimated runoff at 697 mm and evapotranspiration of 539 mm, with an imbalance of only 20 mm between the ingresses and egresses of water in the drainage area corresponding to station SW-01, equivalent to 1.6% of the annual rainfall.

SEISMICITY

Golder carried out a seismicity risk review for the tailings dam in the 2016 Golder FS and the following overview and conclusions and recommendations taken from the report are summarized below.

Regarding the tectonic framework, Peru is close to a plateau converging between the Sudamericana plate to the east and the Nazca plate to the west, marked by the Peru-Chile trench located between 140 and 180 km west of the Peruvian coast.

The western margin of the South American plate is characterized by its narrow coastal plain, the high mountains of its eastern and western ranges, and the numerous faults and folds that frame the eastern limit of the Andes in Peru and northern Chile. The continuous subduction of the Nazca plate below the Peruvian west is the main source of large earthquakes (M> 7.0) and the strong seismic movements usually experienced on the Peruvian coast.

The seismicity risk of the Magistral Project area was evaluated through site-specific uniform seismic hazard probabilistic curves, using a standard probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) methodology, and considering attenuation relationships based on next generation attenuation (NGA).

Seismicity risk curves obtained on the basis of probabilistic analysis for the Magistral Project area indicate maximum horizontal acceleration using peak ground acceleration (PGA) values of 0.27 g, 0.36 g and 0.50 g for 475, 975 and 2,475 years of return period, respectively and site-specific spectral accelerations with a return period of 2,475 years for 0.2 sec. (SS) and 1.0 sec. (S1) are 1.40 g and 0.40 g, respectively. These probabilistic values for the maximum horizontal acceleration of terrain and the spectral accelerations are similar to those obtained in other regional studies.

For the operation of mining facilities, such as the tailings deposit and dumps, Golder recommended the Operational Basis Earthquake (OBE) values associated with a seismic event with recurrence of 475 years, which results in a PGA = 0.27 g as determined by the seismicity risk curves.

OPEN PIT DESIGN

Pit optimization analyses were run on the Mineral Resource to determine the economics of extraction by open pit methods. The parameters used in the pit optimization runs, using Whittle software, are presented in Table 16-6. VMH has used only Measured and Indicated Resources in the Whittle optimization and no Inferred Resources are included in either the mine plan or cash flow analysis.

Milpo used the various metal prices and smelter terms shown as inputs into Whittle in order to calculate the block values. Whittle calculates a final break-even pit shell based on all operating costs (mining, processing, and G&A) required to mine a given block of material. Since all blocks within the break-even pit shell must be mined (regardless of whether they are waste or mineral), any block that has sufficient revenue to cover the costs of processing and G&A is sent to the processing plant.

TABLE 16-6 WHITTLE PIT PARAMETERS
VM Holdings S.A. - Magistral Project

Parameter	Unit	Input
Overall Pit Slope Angle	degrees	See Table 16-3
Mining Waste Cost	$/tonne	1.56
Incremental Mining Cost	$/10m +/- 4080m	0.012
Mining Mineralized Material Cost	$/tonne	1.85
Process Cost – Porphyry & Mixed	$/tonne	3.81
Process Cost – Skarn	$/tonne	3.63
G&A Cost	$/tonne	0.47
Mining Extraction	%	98
Mining Dilution	%	0
Metal Price		
Cu	$/lb	2.68
Mo	$/lb	7.30
Ag	$/oz	18.94
Payable		
Cu	%	96
Mo	%	100
Ag	%	77
Selling Costs	$/t conc	
Cu	$/lb	0.51
Mo	$/lb	2.87
Ag	$/oz	0.50
Royalties	%	5.46
Metallurgical Recoveries	%	See Table 16-7
Block Size	m	10 x 10 x 10

The overall pit slope angles used in the Whittle optimization are shown in Table 16-3 in the Geotechnical Assessment section above.

TABLE 16-7 METALLURGICAL RECOVERIES BY ROCK TYPE
VM Holdings S.A. - Magistral Project

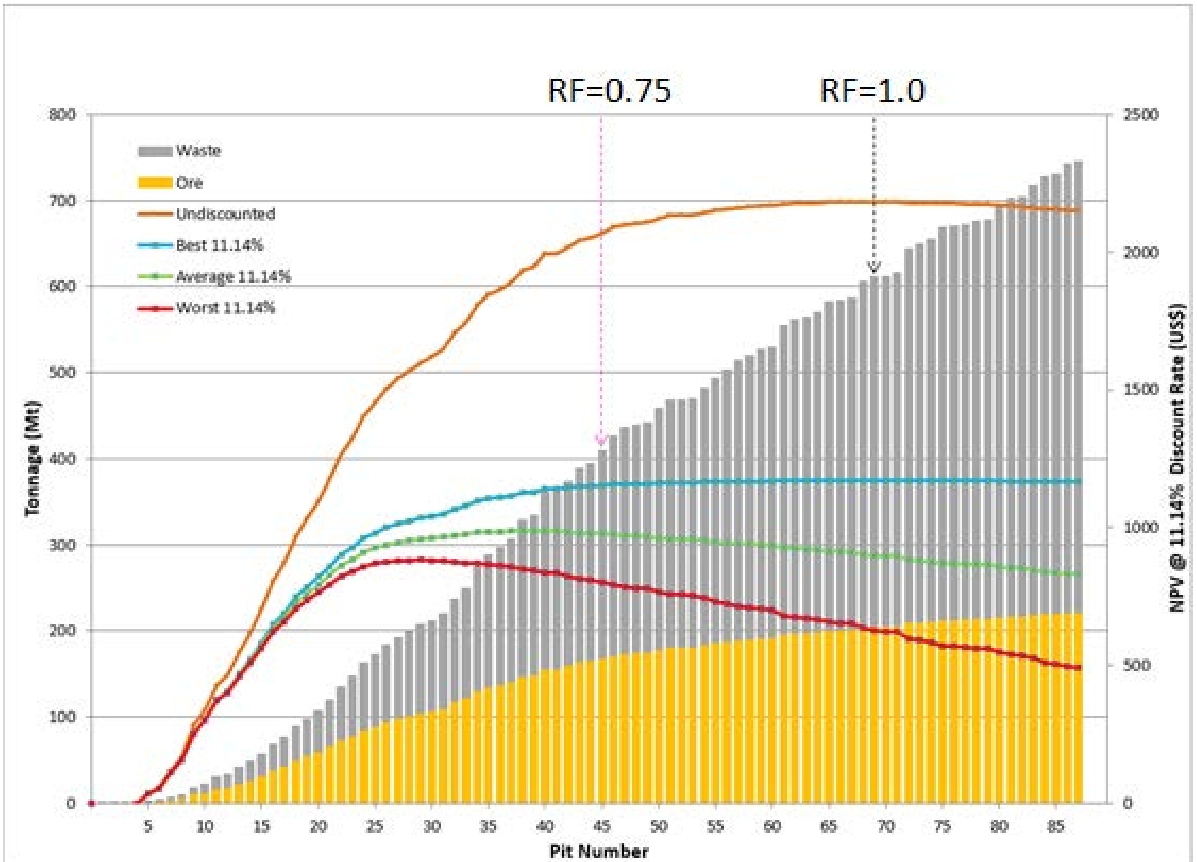
Rock Type	Cu (%)	Mo (%)	As (%)	Ag (%)	Sb (%)
Porphyry<= 250 g/t As	94.30	85.40	8.50	80.90	44.50
Porphyry> 250 g/t As	93.20	77.10	11.60	85.40	80.00
Skarn	79.30	43.00	4.70	67.50	38.90
Mixed	91.00	78.50	17.30	80.90	44.50

A series of pit shells were run using revenue factors (RF) ranging from 0.3 to 1.2. The RF is multiplied by the metal price such that a higher RF results in a larger pit shells and vice versa.

The Net Present Values (NPV) were analyzed using a discount rate of 11.14% based on VMH's weighted average cost of capital (WACC) at the time of the analysis. Whittle produces a best, average, and worst case scenario for mining. The best case assumes mining can be carried out in thin pushbacks allowing earlier access to the mineralized material while the worst case assumes mining the entire bench from the top down, resulting in more waste in the early years, negatively impacting the NPV. In reality, the actual mining is likely to be closer to the average case, between the best and worst cases.

After analyzing the results, Pit Shell 45 (RF 0.75) was selected as the optimal pit shell since the NPV for the average case begins to decrease as the RF increases beyond 0.75. The NPVs and pit shells are presented in Figure 16-4.

FIGURE 16-4 PIT BY PIT GRAPH WITH NPV



Pit Shell 45 has a strip ratio of 1.59:1 (waste:mineral) with 158 Mt of mineral and 251 Mt of waste. This pit shell was used as a guide to carry out a pit shell design incorporating ramps and berms.

The final pit design is presented in Figure 16-5.

The pit design was based on the parameters shown in Table 16-8.

TABLE 16-8 GENERAL PIT DESIGN PARAMETERS
VM Holding S.A. - Magistral Project

Sector	Number of Benches	Bench Height (m)	Bench Width (m)	Bench Face Angle (degrees)	Inter-ramp Angle (degrees)
Sector 1	2	10	6.8	63	50
Sector 2	2	10	6.8	60	49
Sector 3	2	10	6.0	55	46
Sector 4	2	10	6.8	60	48
Sector 5	2	10	6.5	57	46
Sector 6	2	10	6.5	57	46
Sector 7	2	10	6.0	56	46
Sector 8	2	10	6.8	62	49
Sector 9	2	10	6.0	55	46

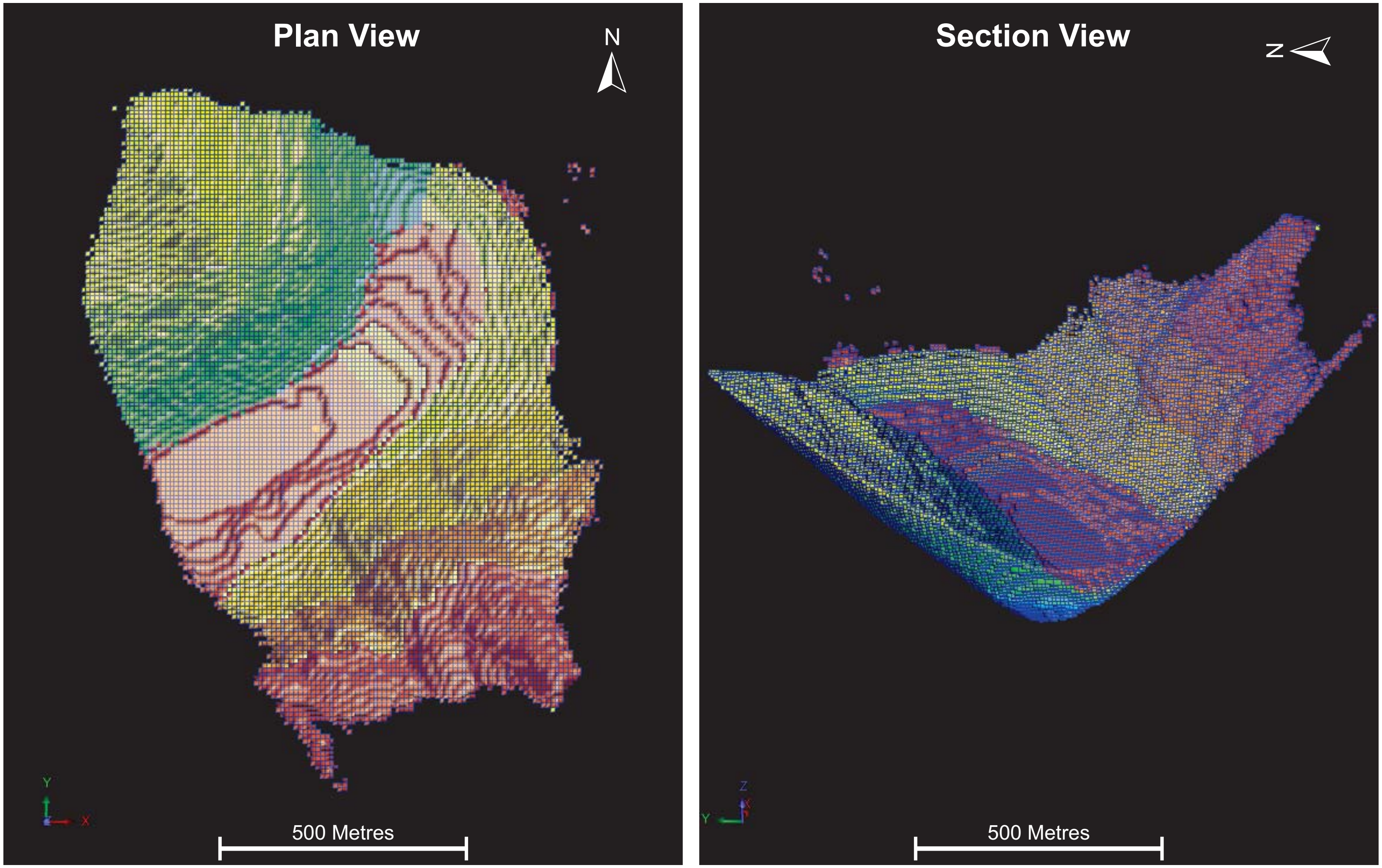


Figure 16-5

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Whittle Pit Shell and Final Pit Shell Design

August 2017

Source: Votorantim Metais, 2017.

WASTE DUMPS AND TOPSOIL DUMPS

Two rock waste dumps were designed by Golder in the Golder 2016 FS to receive all waste material within the final open pit along with a separate dump for topsoil storage. The location of these dumps is presented in Figure 16-6.

Topsoil stripping will be required to gain access to mineral and waste rock below and a dump of approximately 2.2 Mm^3 capacity will be constructed to the northeast of the pit.

Waste rock will be sent to either the Valley Waste Dump or the North Waste Dump. As a portion of the material is expected to be PAG, this material will be stored in the North Waste Dump and is planned to be encapsulated within the NAG waste.

The North Waste Dump is located northwest of the Magistral pit at an average distance of two kilometres, occupying a ravine at the head of the Magistral Gully, in the vicinity of Cerro Pelón. The maximum area occupied is of the order of 1 km^2. This dump will be a permanent installation during the operation of the Project and will have a sub-drainage and surface drainage system, a dam, and a sedimentation pond to capture any run-off. In the foundation area of the North Waste dump, removal of topsoil has been considered in order to ensure its physical stability. The maximum capacity of this dump is estimated at 93.0 Mm^3, and it is considered that 80.4 Mm^3 of potentially acid-producing mineral (consisting of the porphyry, mixed and skarn materials) will be generated. Approximately 0.77 Mm^3 of limestone with grades of <120 ppm of As will be placed at the base of the dump in order to form a geochemical barrier. The North Waste Dump is shown in Figure 16-7.

The Valley Waste Dump is located to the southeast of the Magistral pit and is adjacent to the pit rim. The current maximum designed area shown is of the order of 0.65 km^2. This dump will be a permanent installation during the operation of the Project and will have a sub-drainage and surface drainage system, a dam, and a sedimentation pond to capture any run-off.

The maximum designed capacity of this dump is estimated at 36.4 Mm^3, and it will be used to deposit the more chemically stable materials (Limestone and Marble). The Valley Waste Dump is shown in Figure 16-8.

RPA

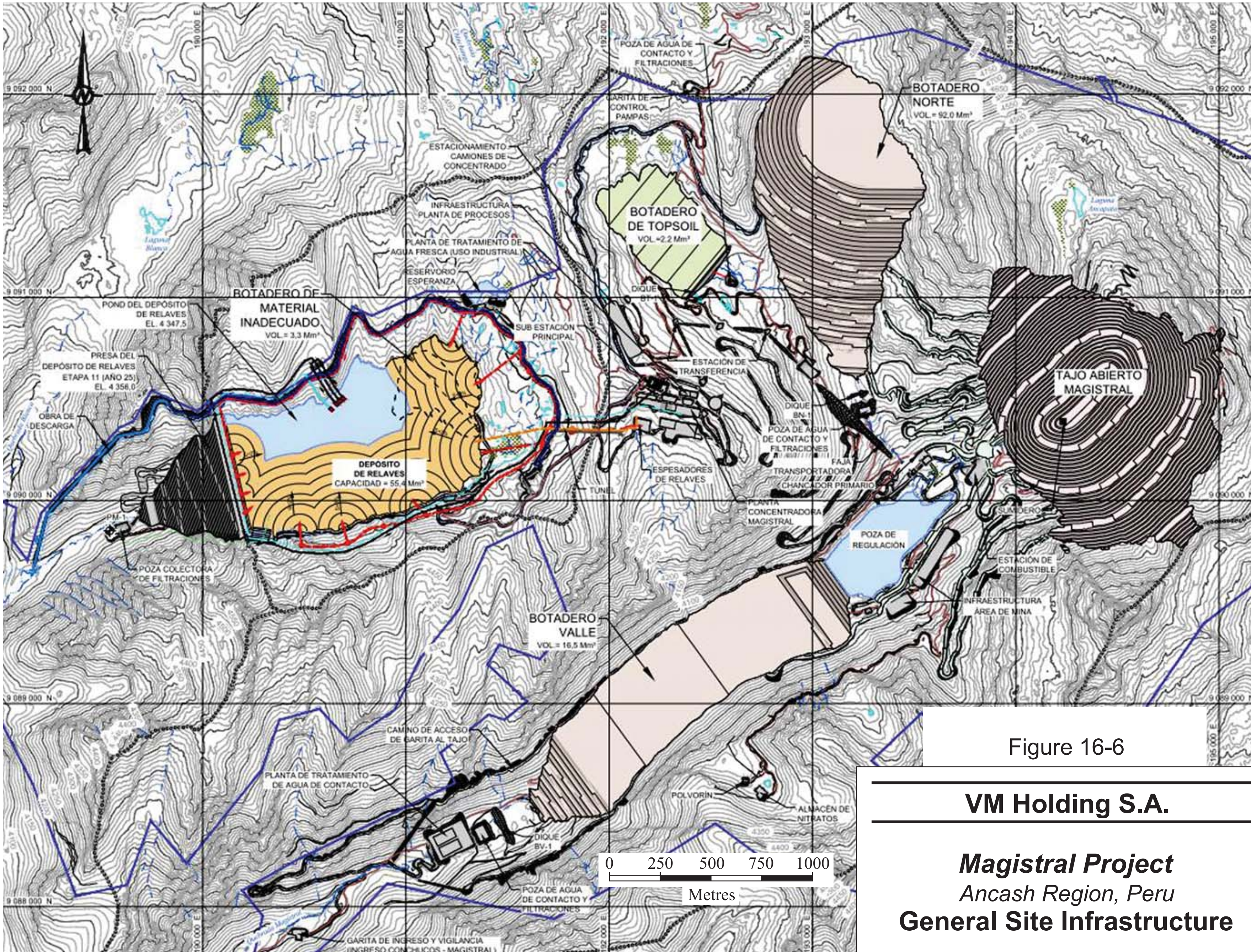


Figure 16-6

VM Holding S.A.

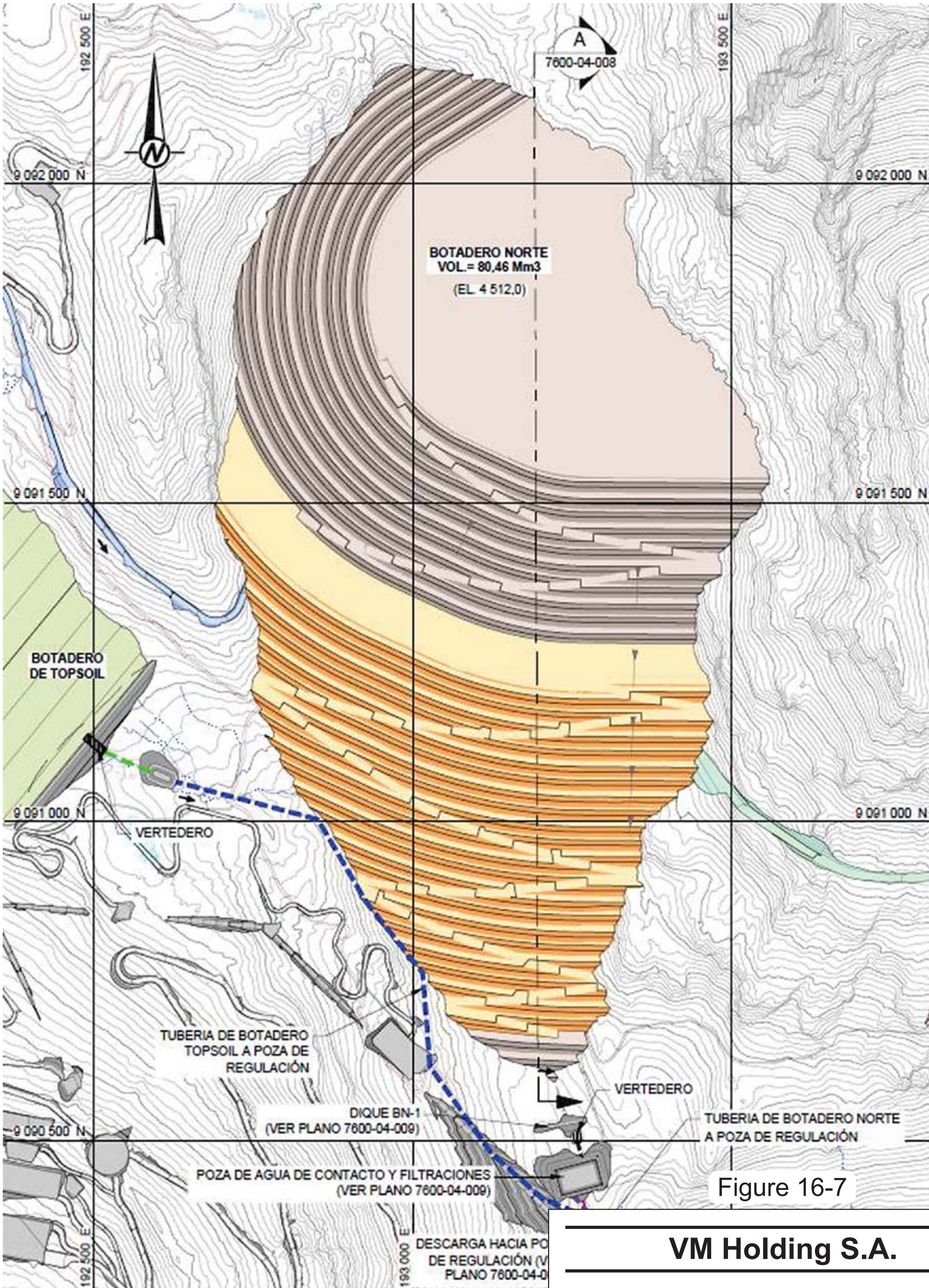
Magistral Project

Ancash Region, Peru

General Site Infrastructure

August 2017

Source: Votorantim Metais, 2016.



0 100 200 300 400 500
Metres

Figure 16-7

VM Holding S.A.

Magistral Project

Ancash Region, Peru

North Waste Dump

August 2017

Source: Votorantim Metais 2016.

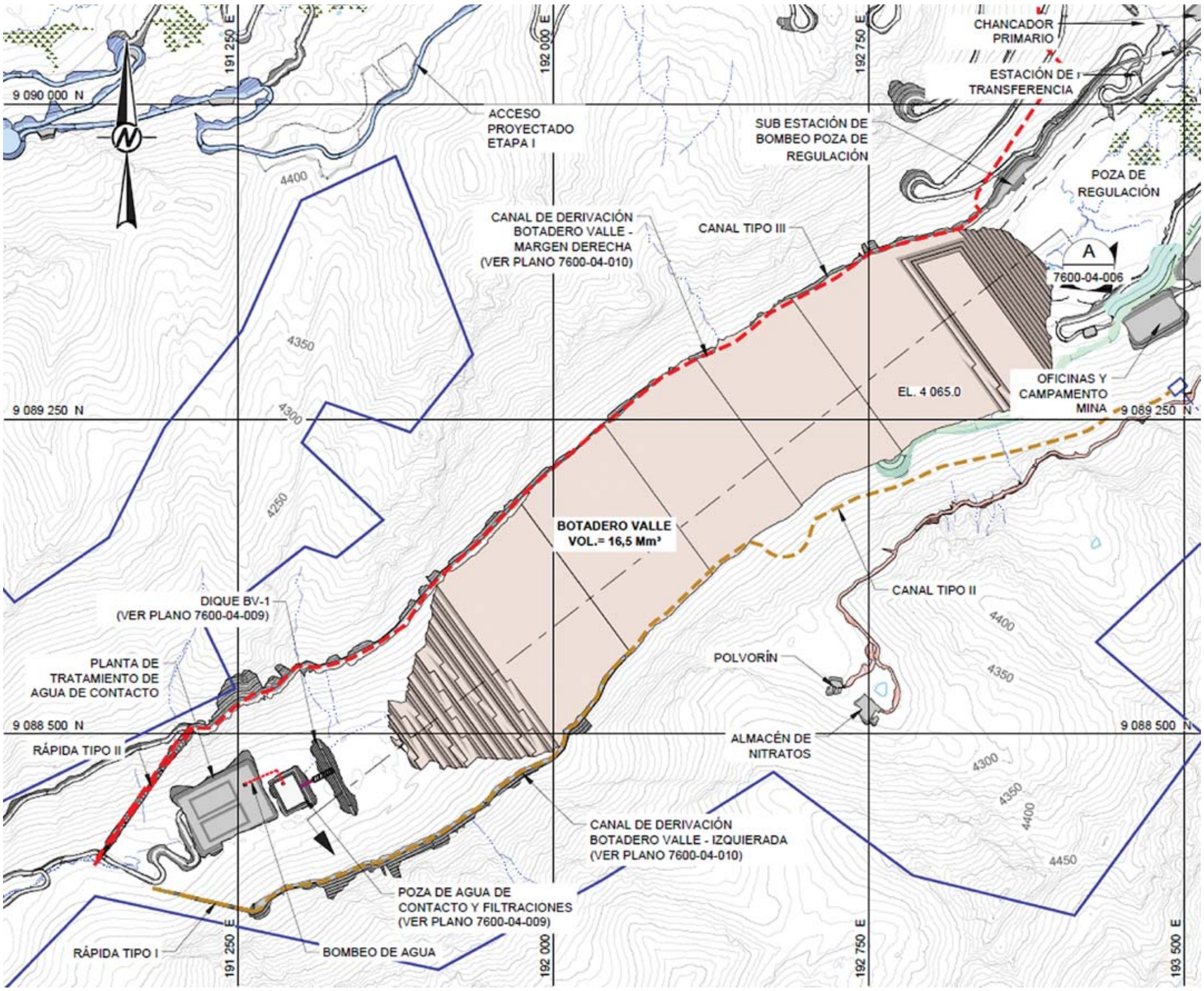


Figure 16-8

VM Holding S.A.

Magistral Project
Ancash Region, Peru
Valley Waste Dump

August 2017 ***Source: Votorantim Metais 2016.***

PRODUCTION SCHEDULE

Mine production is scheduled to be carried out at a rate of 30,000 tpd of mineralized material. Stripping ratios are expected to average 1.50 over the LOM plan. The production schedule was produced using MineSched software.

The production plan contemplates a gradual ramp up with 50% of full production in Year 1 ramping up to full production of 10.8 Mt of mineralized material in Year 3 until Year 16.

The production schedule is summarized in Table 16-9.

TABLE 16-9 PRODUCTION SCHEDULE
VM Holdings S.A. - Magistral Project

Year	Mineral Mined (kt)	Waste Mined (kt)	Total Mined (kt)	Total Processed (kt)	Cu Grade (%)	Mo Grade (%)	Ag Grade (g/t)	Cu Produced kt	Mo Produced kt	Ag Produced koz
1	5,362	23,255	28,617	5,362	0.73	0.05	4.07	32.1	1.4	487.9
2	9,569	27,360	36,929	9,569	0.50	0.05	2.55	42.0	3.7	597.4
3	10,801	27,572	38,373	10,801	0.62	0.03	5.11	55.1	2.0	1,241.8
4	10,813	24,429	35,241	10,813	0.52	0.04	3.58	47.6	2.6	901.3
5	10,778	24,364	35,142	10,778	0.40	0.04	2.76	37.6	2.7	719.3
6	10,784	23,831	34,615	10,784	0.38	0.04	2.61	36.2	3.1	688.1
7	10,780	24,316	35,096	10,780	0.39	0.05	2.65	36.8	3.5	693.0
8	10,510	24,582	35,092	10,510	0.44	0.05	3.01	39.9	3.1	746.8
9	10,799	14,932	25,731	10,799	0.52	0.05	2.82	47.2	3.1	700.5
10	10,803	7,442	18,245	10,803	0.53	0.05	2.85	49.3	3.3	731.8
11	10,798	4,692	15,491	10,798	0.50	0.05	2.63	47.2	3.4	695.2
12	10,832	2,729	13,561	10,832	0.45	0.05	2.27	44.2	3.6	622.9
13	10,797	2,146	12,943	10,797	0.46	0.06	2.40	44.3	4.4	650.5
14	10,799	1,543	12,343	10,799	0.48	0.05	2.32	45.4	3.7	610.9
15	10,804	274	11,078	10,804	0.42	0.05	1.87	41.8	4.0	523.1
16	817	32	850	817	0.38	0.05	1.55	2.9	0.4	33.3
Total	**155,846**	**233,501**	**389,347**	**155,846**	**0.48**	**0.05**	**2.86**	**649.6**	**48.0**	**10,644.0**

MINE EQUIPMENT

The contractor mine equipment fleet for the operation, listed in Table 16-10, is based on actual contractor estimates provided by two separate contractors. RPA notes that the actual equipment fleet used by the contractor may differ from that listed in Table 16-10.

TABLE 16-10 OPEN PIT CONTRACTOR MINING FLEET
VM Holdings S.A. - Magistral Project

Type	Quantity
Backhoe Hydraulic Shovel 4 m³ (CAT 390)	5
Front End Loader 4 m³ (CAT 966H)	1
Haul Trucks 35 t (8x4)	20 to 30
Hydraulic Drill (DML)	3
Dozer (CAT D8)	2
Grader (CAT 14M)	1
Anfo Truck	1
Water Truck	2
Roller 10 t	1
Lube/Fuel Truck	1

17 RECOVERY METHODS

The conceptual plant designed for Magistral will process 30,000 tpd using:

- Primary crusher
- Semi-autogenous grinding (SAG) mill
- Ball mill
- Bulk sulphide flotation circuit to recover copper and molybdenum
- Bulk concentrate regrind mill
- Copper – molybdenum separation flotation circuit
- Molybdenum concentrate regrind mill
- Molybdenum flotation circuit
- Dewatering
- Support systems

A simplified process flowsheet is provided in Figure 17-1.

COMMINUTION

Run of mine (ROM) mineralization will be delivered to a primary gyratory crusher that is located adjacent to the mine. Crushed mineralization will be transported by a series of overland conveyor belts to a crushed mineralization stockpile that is located near the processing plant. Vibrating feeders will draw mineralization from the stockpile and transfer it to a conveyor belt that feeds the SAG mill. In the SAG mill the mineralization is mixed with water to form a slurry. Slurry from the SAG mill will discharge onto a vibrating screen. Oversize from the screen is returned to the SAG mill for further size reduction. The design includes sufficient space that a pebble crusher may be added to the circuit at a future date if it is determined that the pebbles reach a critical size that cannot be reduced by the SAG mill alone.

Undersize from the screen will be pumped to a series of high frequency vibrating screens that are designed to classify the mineralization to a particle size of 80% passing (P_{80}) 150 µm. Undersize from the screens flows to one of two ball mills while oversize from the screens is the final product from the comminution circuit.

FLOTATION

Undersize from the high frequency screens will be pumped to a conditioning tank where reagents are added to the slurry. The bulk flotation circuit includes rougher and scavenger flotation circuits to recover bulk sulphide flotation concentrate that contains the copper and the molybdenum. The bulk rougher and scavenger tailings are the final tailings from the plant.

The bulk concentrate is reground in a ball mill that is operated in closed circuit with cyclones to produce a product size of P_{80} 45 µm. The ground concentrate is processed in three stages of bulk cleaner flotation. The final bulk cleaner flotation concentrate will flow by gravity to a bulk concentrate thickener where it is dewatered to a slurry density of approximately 55% solids by weight.

The thickener underflow will be processed in a rougher – scavenger flotation circuit to separate the molybdenum from the copper. Tailings from the rougher – scavenger circuits are the final copper concentrate. The concentrate from the rougher – scavenger circuit flows by gravity to the molybdenum flotation circuit and regrind circuit. The molybdenum concentrate is reground in a ball mill that is operated in closed circuit with cyclones. Overflow from the cyclones is processed in three stages of molybdenum cleaner flotation. Concentrate from the third molybdenum cleaner flotation circuit is the final molybdenum concentrate.

DEWATERING

High rate thickeners are used for both the bulk flotation concentrate and for the copper concentrate. The copper concentrate is dewatered to a slurry density of approximately 70% solids by weight. The thickener underflow slurry is sent to a horizontal plate and frame filter press for further dewatering of the copper concentrate. The dewatered copper concentrate discharges into a storage area where it is loaded onto trucks for transport.

Molybdenum concentrate is dewatered in a similar, smaller circuit. It is dewatered in a thickener and horizontal plate and frame filter press. The discharge from the molybdenum filter press discharges to a dryer. The dried concentrate is processed in a bagging system where it is loaded into bags for shipment.

Tailings will also be dewatered in a high density thickener to produce a slurry density of 70% solids by weight prior to pumping to the Tailings Storage Facility.

The water from all of the thickener overflows are recycled to the various processing circuits.

SUPPORT SYSTEMS

The conceptual design includes reagent mixing and storage facilities, automation and instrumentation, water supply and distribution, and air supply and distribution.

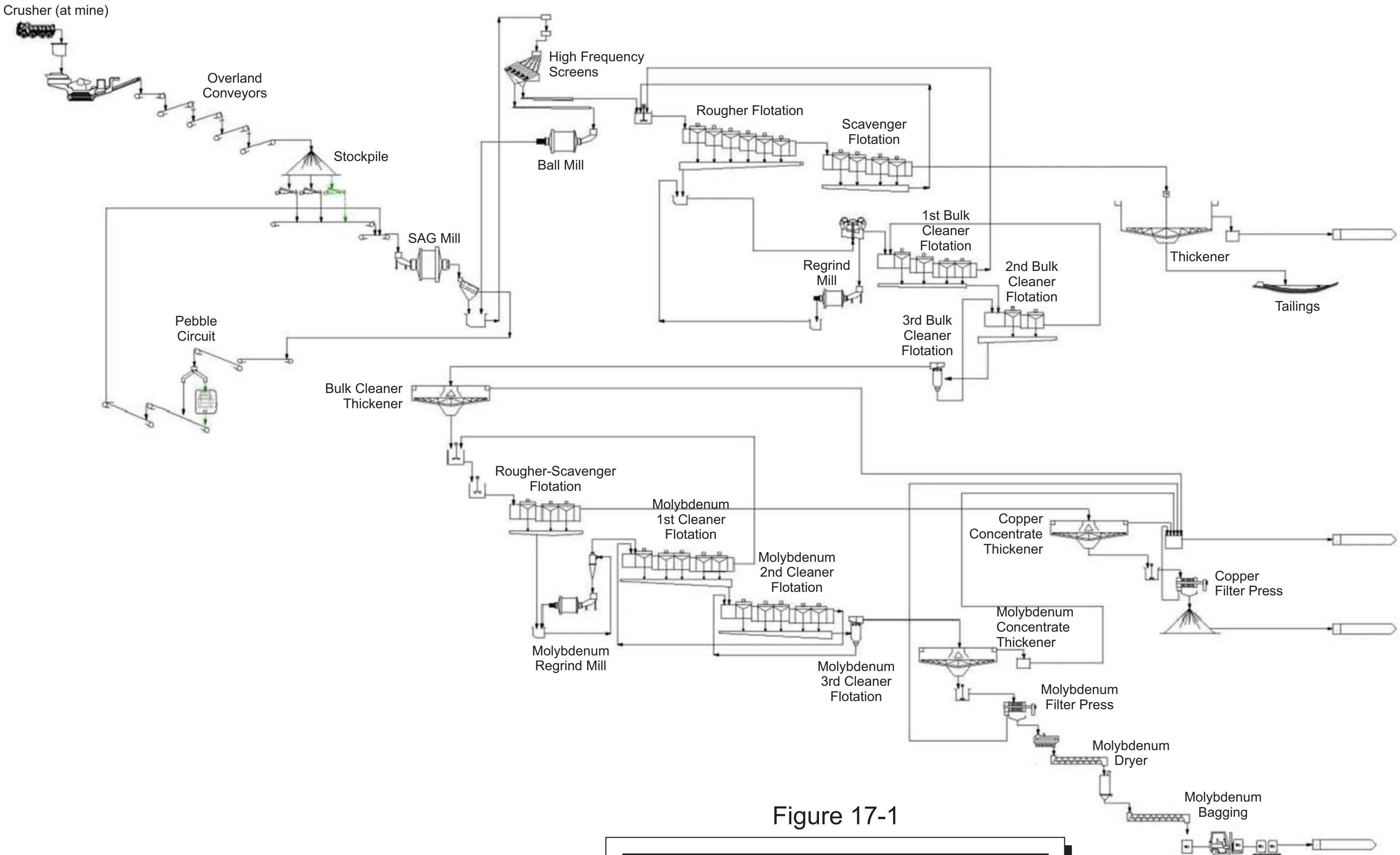


Figure 17-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Process Flow Sheet

August 2017

Source: Votorantim Metais, 2016.

18 PROJECT INFRASTRUCTURE

The Project infrastructure was evaluated by Golder Associates Inc. (Golder) in the 2016 Feasibility Study (Golder 2016 FS). RPA understands that VMH is presently undertaking further optimization studies on the Project with a view to bringing down the capital expenditure requirements.

The facilities and infrastructure for the Magistral Project were grouped into two large areas: the first area is the internal infrastructure (On-Site) and the second area is the external infrastructure (Off-Site).

The On-Site Infrastructure comprises the following key components:

- Auxiliary concentrator plant infrastructure which includes: reagent plant, located at 4,440 MASL and occupies an area of 600 m^2; reagent storehouse located at 4,458 MASL; and the compressor house located on a platform adjacent to the concentrator plant and occupies an area of 550 m^2.
- Internal mine operation roads, which will connect the different facilities of the Project. The road design has been developed taking into account the regulations established by the Ministry of Transport and Communications (MTC) in 2013 and the Occupational Safety and Health Regulations (OSHR).
- The electrical distribution system of the Project, which will supply power to all facilities of the concentrator plant, services and infrastructure plant and mine.
- The supply of fresh water for the Project will be abstracted from the La Esperanza Lake, which is located in the upper part of the Toldobamba micro basin.
- Two camps are envisaged for the Project: a concentrator plant camp and a mine camp.
- The fuel storage and dispatch station are located at 4,057 MASL on a 7,100 m^2 platform.
- Five warehouses and two workshops are planned within the mine infrastructure.
- Fire suppression system covering the following areas: concentrator and mine camps, central warehouse, processing and concentrate storage areas, mine and concentrator offices, concentrator plant workshops, and the mine maintenance areas.

The Off-Site Infrastructure comprises the following key components:

- The supply of electrical energy for the Project will be provided by third parties and requires a new 69 kV transmission line between the existing Ramada electrical substation and the projected Magistral electrical substation. The transmission line to the site will be approximately 60 km.

- The main access road to the Magistral Project will be used for external access and transport of concentrates to the port of Salaverry. This route will consist mainly of National Route PE-3N from Trujillo-Huamachuco with a diversion near the La Arena mine, passing through the populated centers of Alto de Tamboras and Pampa El Cóndor, and finally passing Pelagatos Lake, before reaching the Magistral Project.

- The transport of concentrates is envisaged to be outsourced through a specialized company hired by Milpo. The service includes the transport of copper and molybdenum concentrate, from the Magistral Project, via Huamachuco, to the port of Salaverry for the copper concentrate and to the port of Callao for the molybdenum concentrate. The port logistics of concentrate handling and shipment would be carried out by a logistics operator hired by Milpo.

The site plan taken from the Golder 2016 FS is provided in Figure 18-1.

TAILINGS STORAGE FACILITY

Golder completed the preliminary design for the tailings storage facility (TSF). Initially, 14 potential sites were identified. Of these 14 sites, four were identified as potentially viable based on storage capacity and distance from the processing plant. Following technical and economic analyses of the four sites, it was determined that a site located in a valley near the community of Conchucos was the best alternative from technical, economic, and socio-environmental perspectives.

The selected site of the Colparacra tailings dam is at the head of the Toldobamba gorge, which is a tributary of the Magistral River. The tailings dam is 200 meters high and the TSF is designed to have sufficient capacity to contain the tailings over the life of the mine. The design was completed to a high level of detail in order to support the 2016 Feasibility Study that was completed by Golder. It includes a tailings dam with instrumentation to detect seismic activity, seepage collection system at the base of the dam, perimeter channel to divert water away from facility and perimeter roads for operations.

ACCESS ROADS

Internal roads to access the open pit mine, processing plant, plant thickening areas, TSF, waste dumps, camp, truck shop, primary crusher, gas station, main electrical substation, fuel station, and security gates are included in the conceptual design.

The site access road will follow National Road PE-3N from Trujillo to Huamachuco. It will then take a detour at the La Arena mine passing through the towns Alto de Tamboras and Pampa El Condor, in the provinces of Santiago de Chuco (La Libertad), and finally go up to the Pelagatos Lake and to the Magistral Project. Portions of the road are in poor condition so they will be upgraded to allow deliveries and transport of the flotation concentrates to the port. The access road also includes some short stretches that will be new construction.

The transport of concentrates will be outsourced through a specialized company hired by Milpo. This service includes the transport of copper and molybdenum concentrate, via Huamachuco, from the Magistral Project (Ancash) to the port of Salaverry for the copper concentrate and to the port of Callao for the molybdenum concentrate. Likewise, all the logistics of reception and shipment will be carried out by a logistics operator hired by Milpo.

ENERGY SUPPLY AND DISTRIBUTION

Energy is anticipated to be supplied to the Magistral Project by a 60 km 69 kV transmission line from La Ramada to Magistral. Substations with ratings of 22.9 kV are included to provide electrical power to the processing and site facilities.

WATER SUPPLY AND DISTRIBUTION

Fresh water for the Project will be obtained from La Esperanza reservoir, which is located at the top of the Toldobamba basin and has an intermittent or seasonal regime. Water will be pumped from the reservoir to a fresh water tank for distribution around the site.

WATER TREATMENT

The contact water treatment plant is proposed to treat contact water from the open pit mine and tailings areas. The proposed treatment technology is sedimentation ponds with the addition of lime and/or iron salts to achieve the maximum permissible limits (MPL) for liquid discharge from mining and metallurgy projects in Peru.

A potable water treatment system will be located in the processing plant area. A distribution network will supply potable water to the mine and plant areas.

Domestic wastewater treatment plants are located in both the plant and the mine areas.

A reclaim water system would return water from the TSF to the process water tank.

CAMPS

Two camps are proposed for the Magistral Project. One will be located adjacent to the mine and the other, adjacent to the Administration Building. The outline design contemplates the use of prefabricated structures. The camps include canteens and dining facilities to serve the employees.

FUEL STORAGE AND DISPATCH

The fuel storage area will be located approximately 0.5 km from the mine service buildings, workshops, and warehouses. Separate areas are provided for light vehicles and heavy vehicles.

WORKSHOPS, WAREHOUSES, AND BUILDINGS

A central warehouse will be located in the plant area and a second warehouse and explosives and blasting agent storage areas are located in the mine area.

A maintenance shop will be located near the processing plant. It includes instrumentation, electrical, hydraulics, and welding shops and SSHH administrative offices. The truck shop is located near the mine warehouse. It includes bays for heavy equipment, an area for light equipment, machine shop, warehouses, internal warehouses, and tanks for lubricant storage. The mine maintenance area also includes a tire shop and warehouse and vehicle washing area.

Buildings and auxiliary facilities at Magistral include:

- Access gates
- Administrative office
- Process plant office
- Mine area office
- Medical center and fire station
- Truck scales
- Analytical and metallurgical Laboratory

FIRE PROTECTION

The buildings are designed to separate high risk and low risk areas in such a way as to provide safeguards for people and equipment in each area and to prevent the collapse of buildings and the spread of smoke in egress areas. Fire water systems are provided in the camps, processing facilities, offices, warehouses, and workshops.

COMMUNICATIONS

The communications networks include:

- Control and detection systems and fire alarm
- Surveillance cameras
- Telephone networks
- Data networks including intranet and internet

SAFETY AND SECURITY

Safety, security, and risk management at Magistral is to be implemented by empowering administrative and supervisory personnel to be responsible for the safety of everyone in their respective areas of responsibility and detailed policies regarding expectations and objectives.

Proposed Access Road

Proposed Transmission Line

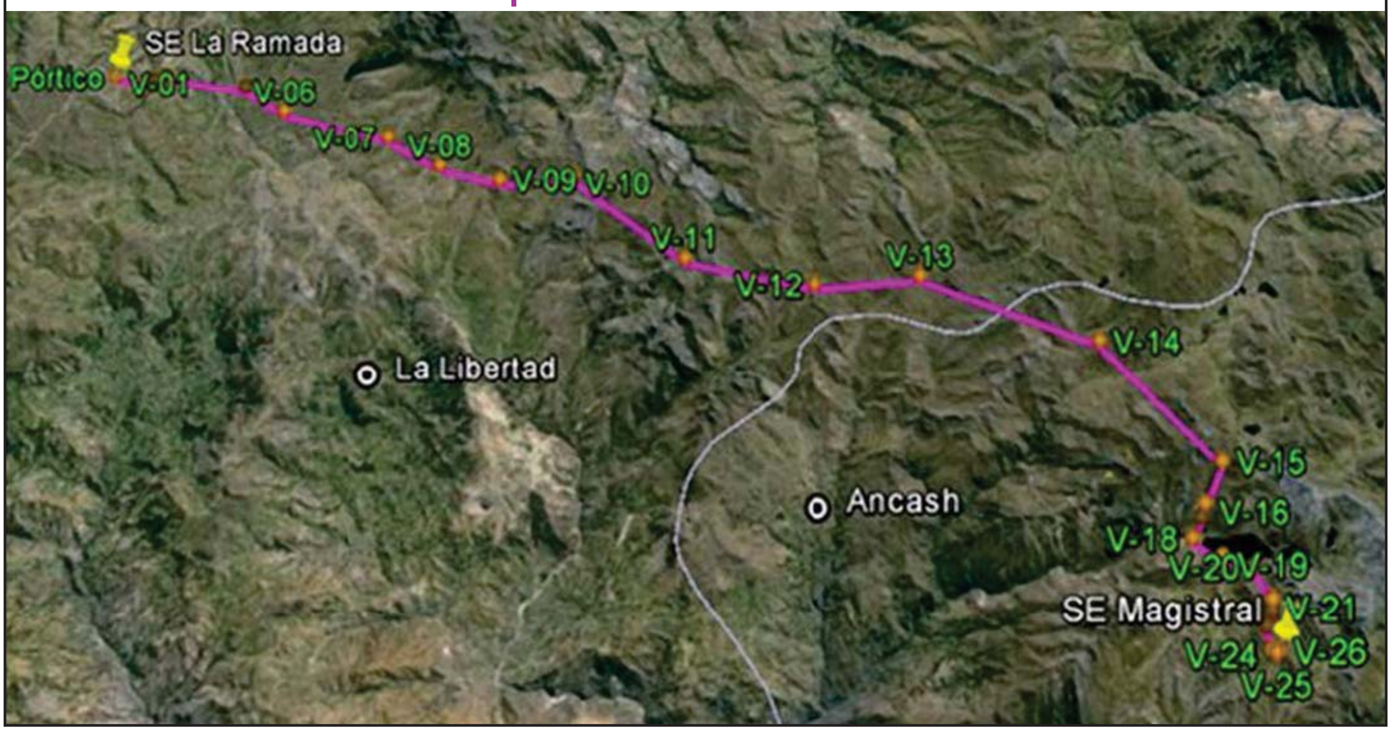


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Figure 18-1

VM Holding S.A.

Magistral Project

Ancash Region, Peru

Proposed Access Road and Transmission Line Infrastructure

August 2017

Source: RPA, 2017.

19 MARKET STUDIES AND CONTRACTS

MARKETS

Mineralized material will be processed on site to produce separate copper and molybdenum concentrates. The copper concentrate will contain some silver for which credit will be gained and which accounts for approximately 4% of the estimated Project revenue.

The copper concentrate is assumed to have an average grade of 26% Cu, which is within the range of marketable concentrates. The silver recovery to the Cu concentrate is assumed to be 72% Ag and results in an average grade of 133 g/t Ag over the LOM. The moisture content of the copper concentrate is assumed to be 10%. There is arsenic (As) present in the deposit, however, the mine plan has accounted for appropriate blending to ensure that the overall levels are maintained within the generally accepted concentrate market limit of 0.50% As. The average head grade for arsenic over the LOM is expected to be 0.04% compared to an estimated 0.25% As in the concentrate. The relatively low ratio of grade in concentrate to head grade is attributed to the low (9%) recovery of arsenic in the process plant.

The molybdenum concentrate is assumed to have an average grade of 55% Mo, which is within the typical range of marketable concentrates. There is no silver recovery accounted for in the molybdenum concentrate. The moisture content of the molybdenum concentrate is assumed to be 10%.

RPA assumes that Milpo would market the concentrates to international customers. In assessing the NSR received from the two concentrates, the terms shown in Table 19-1 were used in the economic analysis.

TABLE 19-1 SMELTING AND REFINING TERMS
VM Holding S.A. – Magistral Project

Parameter	Units	Copper Concentrate	Molybdenum Concentrate
Payable Metals	-	Cu, Ag	Mo
Payability Factors	%	Cu: Maximum 96.7%, Minimum 1% Deduction Ag: Deduction of 30 g/t, and pay 90% on remainder	Mo: Assumes 100%, all deductions are accounted for in Treatment Charges
Treatment Charges	US$/dmt	90	3,308
Transportation and Logistics Charges	US$/wmt	130	130
Impurity Penalties	US$/dmt	Incl. in Terms	Incl. in Terms
Refining Charges	US$/oz	Ag: US$0.50 / oz Ag	N/A

The cost for transportation and treatment assumes that the seller is responsible for costs, insurance and freight (CIF).

CONTRACTS

RPA is not aware of any contracts that have been signed by Milpo in relation to the Project. Prior to mine construction, Milpo would negotiate sales contracts or memorandums of understanding (MOUs) for the treatment of concentrates with smelters or other third-parties.

It is envisaged that once the mine is in operation, Milpo would rely on contractors for several areas of the operation, including but not limited to:

- Mining operations
- Mine security
- Explosives provider
- Transportation of personnel
- Camp catering, laundry, and janitorial services

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

ENVIRONMENTAL AND SOCIAL SETTING

The surface components of the Project are located in the community of Conchucos approximately 450 km northeast of the Peruvian capital Lima at elevations of approximately 4,100 MASL to 4,300 MASL. The community of Conchucos is located in the Pallasca Province, which itself is part of the Ancash Region. The Project includes 17 mining concessions, which are owned by Milpo.

Project facilities are located within concessions held by Milpo, with the only exception being the Potosí concession, which will be required for access. It should be noted, however, that Milpo owns the surface rights to the Potosí area.

Local climate in the area can be described as semi-arid, with the majority of rainfall occurring in the spring and very little precipitation throughout the remainder of the year. Average annual rainfall is between 900 mm and 1,000 mm. The annual average temperature is approximately 6°C, with night temperatures below 0°C. Annual evaporation is reported to be in the order of 1,220 mm.

With regard to existing environmental conditions, air quality and noise baseline levels can be considered typical for a region without existing industrial activities.

Due to the geological conditions in the region, soils in the Project area are found to have naturally high arsenic levels, exceeding 140 mg/kg in all baseline sampling locations. All other parameters meet national guidelines for soils.

Geochemical analyses of 15 samples identified that eight samples have zero to low acid generating potential, two have marginal potential to generate acid, and five samples demonstrate a high acid generating potential.

The main streams in the Project area are:

- Magistral Creek which flows into the La Challhuacocha Stream;

- Toldobamba Creek;
- Collaparacra Creek.

In addition, four “bofedal” areas are found within the Project area. Bofedales are mountain wetland vegetation areas, whose water storage potential is often a key resource for land management at high altitude.

With the exception of arsenic and, occasionally, pH (up to pH 8.67), surface water quality samples taken during the baseline campaign meet applicable national surface water quality criteria. Arsenic concentrations between 0.38 mg/L to 0.49 mg/L have been measured.

During various terrestrial fauna baseline campaigns between 108 and 110 plant species have been identified in the area. Terrestrial fauna baseline data collection has identified that that the majority of vegetation is located in the “bofedal” areas. In general, plant diversity in the Project area is considered high, with the Magistral Stream having the highest level of plant diversity.

Six mammal species have been identified in the area, including deer (venado gris), mice, and several fox species. In total 33 bird species have been identified in the Project area. With regard to bird families, the most commonly found species are *Thraupidae* (tanager) and Furnariidae (ovenbird). Several singing bird species have been identified in the scrubland (‘pajonal’) and wetland (“bofedal”) areas. *Oreotrochilues estela* (Andean hillstar) is the only Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II species found in the area.

One amphibian species, *rana marsupial* (Andian marsupial frog), has been identified. This species is endemic to Peru.

Aquatic biology baseline data was not available to RPA. Social baseline data was not available to RPA.

The Project does not overlap with any recognized protected or sensitive areas.

ENVIRONMENTAL STUDIES

An Environmental Impact Assessment (EIA) had been submitted in 2008 and was approved in 2009. According to Golder (2016), the approval was revoked in 2010 due to the fact that social concerns by the community of Conchucos had not been resolved. A new EIA was submitted in 2016 and was approved in September 2016 (Rumbo Minera, 2017).

RPA has been provided with and reviewed the following reports (Table 20-1):

TABLE 20-1 AVAILABLE ENVIRONMENTAL REPORTS AND STUDIES
VM Holding S.A. – Magistral Project

Name of Document	Date
Plan de Seguridad	Apr-13
Plan de Emergencias	Apr-13
Análisis de Aspectos e Impactos Sociales	Apr-13
Informe de Cubicaciones - Manejo de Aguas Superficiales No Contactadas	Apr-13
Desaguado de Mina Reporte de análisis hidrológico e hidrogeológico	Apr-13
Informe de Cubicaciones - Manejo de Aguas Superficiales No Contactadas	Apr-13
Sección 2.0 Descripción de Proyecto EIA Proyecto Magistral	Aug-16
Plan de manejo ambiental EIA proyecto Magistral - Estrategia ambiental aguas residuales	Aug-16
Manejo de Aguas	Aug-16
Vigilancia Ambiental Aguas Residuales	Aug-16
Plan de Manejo de Residuos sólidos EIA Proyecto Magistral	Aug-16
Plan de Manejo de aguas EIA Proyecto Magistral	Aug-16
Plan de Cierre Conceptual EIA Proyecto Magistral	Aug-16
Anexo XLI.1 Análisis de Alternativas de Cierre Del Tajo Magistral	Aug-16
Plan de Manejo Ambiental EIA Proyecto Magistral	Aug-16
Plan De Vigilancia Ambiental EIA Proyecto Magistral	Aug-16
Caracterización de Impactos Ambientales EIA Proyecto Magistral	Aug-16

The EIA submitted in 2016 includes a full description of baseline conditions, however, this chapter of the EIA was not available to RPA for the preparation of this Report. Since the EIA was approved in 2016, RPA considers it reasonable to assume that the information provided in the EIA was considered adequate by the responsible Peruvian authorities.

The key results of the EIA are described in the following sections:

- Groundwater – operation of the open pit will lead to a groundwater drawdown in surrounding areas, which, in turn, could lead to flow decreases in the local streams. Seepage from the tailings management facility and the waste rock facilities will likely lead to increased flows in local streams. After closure, it is predicted that it will take approximately 20 years for the open pit to fill to groundwater levels (elevation 4,050 MASL).

- Surface water flow – considering the effects on groundwater as well as the loss of parts of the surface water streams due to the development it is foreseen that the local streams will have reduced flows during the operations phase of the Project (up to 43% reduction in the Conchucos Stream). Once closure is complete, flows will return to flows similar to the pre-disturbance scenario. Based on the EIA, the effects on water quality are not expected to have significant impacts.

- Air quality and noise impacts are considered insignificant, largely due to the fact that while some air quality parameters and noise levels will be perceptible at nearest receptor locations, they will meet regulators standards. Also, these effects will cease at the end of the operations phase. The same applies to vibrations due to blasting in the open pit.

- Similarly, even though it is anticipated that during the operations phase there will be some effects on water quality in downstream receivers, it is anticipated that all water quality parameters will meet applicable receiving water standards. It is anticipated that, with long-term monitoring in place, water quality will improve post closure.

- With regards to effects on the biological environment, the EIA concludes that although some habitat losses will occur within the Project footprint, the Project will not significantly impact flora and fauna biodiversity in the area. It should be noted that one plant species and one frog species will be relocated to avoid overprinting by the Project.

- Due to the mountainous terrain, it is anticipated that visual impacts of the Project will be insignificant.

- With regard to socio-economic effects, it is predicted that the Project will have positive socio-economic effects with regard to local mining investments, local labour opportunities, competitive salaries, and local community development investments. It is also noted, however, that the local communities will lose part of their communal territory.

- Twenty-one local sheep farmers will lose their land base, due the Project footprint. These farmers will be resettled.

- The EIA looked at the effects of the Project on local service abilities, social conflicts, and public perception. These effects are expected to have a low magnitude and would not result in significant impacts.

PROJECT PERMITTING

This section describes the status of permits and approvals for the Project.

EXPLORATION APPROVALS

Under Peruvian law mineral exploration activities require Exploration EIAs (EIASD). The EIASD for the Magistral Project exploration activities was approved in November 2013 (Golder, 2016). Besides, a Technical Report (ITS) that modifies the EIASD has been approved on February 2017 and it is still valid.

GROUNDWATER INVESTIGATION STUDIES

- In April 2012, the hydrogeological baseline program, including the installation of 56 groundwater monitoring wells in the Conchucos River watershed, was approved by the local water authority (Administración Local the Agua Santa-Lacramarca Nepeña).
- In November and December 2012, the installation of an additional 38 and 28 groundwater monitoring wells respectively in the same watershed was approved.
- In May 2013 the installation of a total of 81 groundwater drill holes in the same watershed was approved.

In addition, several permits for water use during the exploration phase, archaeological investigations, and transport have been applied for and have been approved.

Milpo has an Environmental Impact Study (EIS) approved since September 2016. This environmental certificate will be valid until September 2019 but can be extended if and as needed.

VMH is planning to submit the Mine Closure Plan in September 2017.

SOCIAL OR COMMUNITY REQUIREMENTS

Magistral has taken a proactive approach to community engagement. The Magistral office in Conchucos is equipped with several copies of past engineering reports, including the full 2016 EIA, as well as maps and demonstrative tools to educate the public about the Project. Consultation sessions are open to the public and discussions are held at the offices. VMH has actively consulted on the effects of the Project and has responded to and considered stakeholder concerns and comments as part of the final EIA.

VMH reports that the population of Conchucos is supportive of the Project and expects to benefit from an increase in economic activity and employment in the area. RPA understands that an agreement for land use has been made between VMH and the authorities of the Conchucos community.

There have been some issues with the adjacent Pampas community relating to a dispute over land rights between the Pampas and Conchucos communities. Pampas is currently in the process of litigation of these land rights and a resolution is expected to occur sometime in 2017. VMH has not signed an agreement with either the Conchucos or the Pampas community but will do so once the land rights dispute between Pampas and Conchucos has been resolved. At the time of the site visit, the Pampas community had blocked the road through their community limiting a portion of the planned roadway to connect the Project to the port. It is expected that once the agreements have been settled, relations with the Pampas community will improve.

During exploration, VMH has developed a Social Management Plan that is currently being implemented in the surrounding communities.

MINE CLOSURE REQUIREMENTS

The following Project components will be progressively closed out and revegetated during the operations phase:

- Aggregate pit (Cantera the Enrocado)
- Aggregate pit waste rock area (Botadero the Cantera)
- Concrete plant (Planta de Concreto)
- Temporary camp (Campamento Temporal)
- Pioneer camp (Campamento Pionero)
- Temporary waste storage area (Área Temporal de Almacenamiento Temporal de Residuos)
- Contractor area (Área de contratistas)
- Temporary accesses (Accesos temporalis)

The following sections describe the conceptual closure approach for the remaining key Project components at the end of the operations phase.

TAJO MAGISTRAL (OPEN PIT)

Closure of the open pit will focus on preventing access to the pit and prevention of uncontrolled discharges of water from the open pit. To prevent access, a boulder fence will be placed around the pit perimeter and on the access ramps. Any future overflow from the flooded open pit will be directed to the Magistral Stream.

TAILINGS MANAGEMENT FACILITY

Upon closure, the TSF will be drained. Tailings dam slopes will be flattened, as needed to provide for long-term physical stability. A cover of 50 cm of low permeability soils and 25 cm of topsoil will be placed on top and vegetated with local plant species. This cover has the main objective of preventing surface water seepage into the tailings. Surface runoff will be directed toward the Colparacra Stream. More detailed closure concepts will be developed during the operations phase.

WASTE ROCK PILES

These large waste rock piles will be re-sloped, if necessary, to allow for long term slope stability. A cover of 50 cm of low permeability soils and 25 cm of topsoil will be placed on top and on the slopes and vegetated with local plant species. Runoff from the waste rock piles will be directed towards the water treatment plant, from where treated water is released to the Magistral Stream.

Other remaining site infrastructure will be removed and the surface will be regraded to re-establish pre-disturbance drainage patterns.

KEY ISSUES AND RECOMMENDATIONS FOR FUTURE WORK

Based on the information reviewed and the Project knowledge obtained throughout this review, the following key issues have been identified:

- The geochemistry baseline has identified that some samples have acid rock drainage (ARD) potential. More detailed ARD testing should be carried out and a detailed plan how ARD will be prevented throughout all Project phases should be developed. Also, this test work should determine if the site is expected to generate metal leaching.

- The EIA mentions that the tailings from the molybdenum concentration process and the water treatment precipitate will contain high levels of arsenic. A more detailed plan on management of these wastes should be developed, including inclusion in the water quality model, with the aim of identifying potential effects on surface waters during all Project phases.

- The EIA determines that there will be effects on water and air, but that regulatory standards will be met. An ecological and human health risk assessment should be carried out, with the aim of identifying if these effects combined with local uses of the areas have the potential to affect the health of local wildlife, feedstock, and/or the local population.

- Site closure will require large amounts of soil. A detailed soils balance should be developed with the aim of ensuring that the required amount of soils will be available to support closure activities.

- The Project will require the resettlement of 21 households/farms. Resettlement in isolated and low income areas can lead to significant social impacts. It is therefore suggested that a detailed and International Finance Corporation (IFC) Resettlement Action Plan be developed and implemented during subsequent planning stages.

- Historically, closure of mine sites has the potential to result in significant economic impacts. To avoid these impacts a detailed social management plan should be developed, which includes ongoing consultation, training and planning of workers and local community members, with the aim of mitigating the economic and social effects of mine closure.

21 CAPITAL AND OPERATING COSTS

CAPITAL COSTS

The initial capital costs were estimated by Golder in Golder 2016 FS. Subsequently, Ausenco has reviewed the cost estimate and has factored the costs from the 10,000 tpd operation to 30,000 tpd. RPA has reviewed the cost estimate at a high level and is of the opinion that the costs are reasonable for this level of study.

PRE-PRODUCTION CAPITAL

The pre-production capital costs for the Project are estimated to be $555.1 million. Expenditures will take place over a three year period with a spending distribution of 8%, 47%, and 45% in Year 1, Year 2, and Year 3, respectively.

Indirect costs are estimated at 46% of direct costs and a contingency of 30% of direct costs has been applied, both of which are reasonable in RPA's opinion.

It is envisaged that all of the mobile equipment related to mine development and production will be supplied by the mining contractor. As a result, the capital cost estimate has not considered the cost of purchasing a fleet of mining equipment.

The breakdown of pre-production capital by area is shown in Table 21-1.

TABLE 21-1 PRE-PRODUCTION CAPITAL
VM Holding S.A. - Magistral Project

Direct Cost		Unit	Total	2019	2020	2021
Mining		US$ '000	22,396	1,803	10,489	10,104
Processing		US$ '000	164,273	13,223	76,936	74,114
Infrastructure		US$ '000	80,620	6,490	37,758	36,373
Tailings		US$ '000	47,433	3,818	22,215	21,400
Total Direct Cost		**US$ '000**	**314,721**	**25,334**	**147,397**	**141,991**
Other Costs						
EPCM/Owners/Indirect Cost	**46%**	US$ '000	145,996	11,752	68,376	65,868
Subtotal Costs		**US$ '000**	**460,717**	**37,086**	**215,773**	**207,858**
Contingency	**30%**	US$ '000	94,415	7,600	44,219	42,597
Initial Capital Cost		**US$ '000**	**555,133**	**44,686**	**259,992**	**250,455**

SUSTAINING CAPITAL

Annual sustaining capital was estimated for the Project using 1.5% of the initial capital expenditures which results in approximately $8.3 million per year. This capital is anticipated to cover the costs of maintaining the mine infrastructure and concentrator plant. An additional allocation of $4.4 million, $4.8 million, $4.8 million, and $4.6 million is expected in Year 3, Year 5, Year 9, and Year 12, respectively, for the tailings dam lifts. Total sustaining capital over the LOM is estimated at $143.5 M.

CLOSURE COSTS

Closure costs have been estimated at $33 million.

Exclusions from the capital cost estimate include, but are not limited to, the following:

- Project financing and interest charges
- Escalation during construction
- Working capital

OPERATING COSTS

The total LOM unit operating costs are estimated to be $9.23/t processed and are presented by area in Table 21-2.

TABLE 21-2 UNIT OPERATING COSTS
VM Holdings S.A. - Magistral Project

Area	Unit	Value
Mining	US$/t moved	1.70
Mining	US$/t processed	4.18
Processing	US$/t processed	4.12
G&A	US$/t processed	$0.93
Total Unit Operating Cost	**US$/t processed**	**9.23**

The LOM total operating costs are estimated at $1,438 million and are presented by area in Table 21-3. The operating cost estimates generally appear low. RPA recommends that these be reviewed for future studies.

TABLE 21-3 LOM TOTAL OPERATING COSTS
VM Holdings S.A. - Magistral Project

Cost	Unit	Value
Mining	US$ '000	651,264
Processing	US$ '000	641,541
G&A	US$ '000	144,944
Total Operating Cost	**US$ '000**	**1,437,750**

The breakdown and development of operating costs by area are as follows:

MINING COSTS

Mine operating costs were developed by MICSAC S.A. (MICSAC), an external consultant to Milpo. These costs are based on two contractor quotes and include additional costs of $0.25/t to cover Owner's costs including: dewatering, geotechnical, supervision, grade control, and general supervision and engineering.

A breakdown of costs by area is presented in Table 21-4.

TABLE 21-4 UNIT MINE OPERATING COSTS
VM Holdings S.A. - Magistral Project

Area	Unit	Waste	Mineral
Drilling	$/t mined	0.16	0.17
Blasting	$/t mined	0.16	0.17
Loading	$/t mined	0.21	0.21
Hauling	$/t mined	0.89	0.44
Support Equipment	$/t mined	0.15	0.15
Mine Administration	$/t mined	0.00	0.47
Owner's Costs	$/t mined	0.00	0.25
Total	**$/t mined**	**1.56**	**1.85**

PROCESSING COST

Processing costs were developed by Ausenco and are based on first principles. Consumption rates for diesel, power, reagents, and mill consumables were estimated and overall costs are based on price assumptions of $0.72/l for diesel, $0.06/kWh for electricity, and the various industry standard unit rates for reagents and mill consumables.

A breakdown of costs by area is presented in Table 21-5.

TABLE 21-5 UNIT PROCESS OPERATING COSTS
VM Holdings S.A. - Magistral Project

Area	Unit	Value
Power	US$/t mineral	1.42
Reagents & consumables	US$/t mineral	1.81
Maintenance, consumables and services	US$/t mineral	0.53
Labour	US$/t mineral	0.33
Miscellaneous	US$/t mineral	0.02
Total	**US$/t mineral**	**4.12**

G&A COSTS

G&A costs were estimated by Golder in the Golder 2016 FS and have been adjusted by RPA to account for some additional cost items not accounted for. The total annual expenditure is estimated at $10 million per year resulting in a unit rate of $0.93/t at full operating capacity.

Camp costs were estimated using the manpower count and is based on $35 per person per day at the camp during operation (based on 14 days on 7 days off) and accounts for 45% of the total G&A. All other items are estimates based on RPA's experience.

The G&A cost estimate by area is shown in Table 21-6.

TABLE 21-6 G&A COST ESTIMATION
VM Holdings S.A. - Magistral Project

Item	US$ '000/year
Administration	
Communications (Phone/Internet) and computer supplies	150
Insurance	100
Community Project and Relations	50
Off-Site Medicals	100
Training	330
Stationery	50
PPE	110
Off-site Office running cost	200
Environmental	
Environmental Licenses / Monitoring /Auditing	500
Personnel Transport	
Transport	400
Local bus service	80

Item	US$ '000/year
Long distance bus service	375
Site Services	
Security Service	350
Site Clinic	50
Mine Camp (includes contractor accommodations)	3,400
Process Plant Camp	1,160
Labour (includes HSEC personnel)	1,500
Vehicles	100
Maintenance	
General Maintenance	200
Equipment Hire	50
Consultants	
Metallurgical Test Work	200
Consultants and Vendors	300
Contingencies	250
Total	**10,015**

MANPOWER

Manpower has been estimated for the mine and plant operations, however no estimation of labour quantities has been completed for G&A. The manpower list is presented in Table 21-7.

The proposed schedule for both the mine and plant is 14 days on by 7 days off for the majority of the employees. This schedule is designed to allow employees to travel back to their homes in their time off since employees are unlikely to relocate to the town of Conchucos (population 5,000). A limited number of positions will be filled by locals and will allow for those employees to work on a 5 days on by 2 days off schedule.

TABLE 21-7 MANPOWER
VM Holdings S.A. - Magistral Project

Area	Total	Shift Type	Per Turn
Mine			
Mine Superintendent	1	14x7	1
Assistant Superintendent	1	14x7	1
Operations Chief	3	14x7	2
Secretary	1	5x2	1
Foreman	3	14x7	2

Area	Total	Shift Type	Per Turn
Planning			
Planning Superintendent	1	14x7	1
Planning Engineers	3	14x7	2
Project Engineers	1	14x7	1
Cost Engineers	1	14x7	1
Draftsman	6	14x7	4
Secretary	1	5x2	1
Survey Crew (Surveyor & Assistant)	12	14x7	8
Geology			
Geology Superintendent	1	14x7	1
Assistant Superintendent	1	14x7	1
Ore Control Geologists	6	14x7	4
Geomechanical Engineer	3	14x7	2
Sampling Crew (Sampler & Assistant)	6	14x7	4
Secretary	1	5x2	1
Draftsman	3	14x7	2
Mine Operations (Contractors)			
Staff	51	14x7	34
Mechanics	54	14x7	36
Operators	234	14x7	156
Total	**394**		**266**
Process Plant			
Process Manager	1	14x7	1
Assistant Process Manager	1	14x7	1
Metallurgy & Laboratory	15	14x7	10
Plant Production	58	14x7	39
Plant Maintenance	46	14x7	31
Subtotal	**120**		**80**
Laboratory Contractor	10	14x7	7
Mill Reline Contractor	7	14x7	5
Subtotal	**17**		**11**
Total	**137**		**91**

22 ECONOMIC ANALYSIS

The economic analysis contained in this report is based on cost estimates of +30%/-30% and is preliminary in nature. VMH has used only Measured and Indicated Resources in the Whittle optimization and no Inferred Resources are included in either the mine plan or cash flow analysis. There is no certainty that economic forecasts on which this PEA is based will be realized.

Using a half-year period discount assumption, an after-tax Cash Flow Projection has been generated from the LOM production schedule and capital and operating cost estimates, and is summarized in Table 22-1. A summary of the key criteria is provided below.

ECONOMIC CRITERIA

REVENUE

- 30,000 tonnes per day mining from open pit (10.8 Mtpa).
- Mill recovery by rock type, as indicated by test work, averaging 88% for copper, 77% for silver, and 67% for molybdenum.
- Payable of 96.2% for copper and 77.5% for silver. Molybdenum payables are accounted for in a higher treatment cost.
- All economic figures are expressed in $US.
- Metal price: $2.74/lb for copper, $7.48/lb for molybdenum, and $18.91/oz for silver.
- Net Smelter Return includes logistics, treatment, and refining costs.
- Revenue is recognized at the time of production.

COSTS

- Pre-production period: 36 months (2019 to 2021).
- Mine life: 16 years.
- Life of Mine production plan as summarized in Table 16-9.
- Mine life capital totals $731.6 million including $555.1 million in initial capital costs.
- Average operating cost over the mine life is $9.23 per tonne milled.

TABLE 22-1 CASH FLOW SUMMARY
VM Holding S.A. - Magistral Project

Date:	INPUTS	UNITS	TOTAL	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
MINING																						
Open Pit																						
Operating Days	360	days	6,267				360	360	360	360	360	360	360	360	360	360	253	360	360	360	360	254
Tonnes milled per day		tonnes / day	24,868				14,895	26,580	30,002	30,036	29,939	29,956	29,945	29,193	29,996	30,007	42,681	30,088	29,992	29,998	30,010	3,218
Tonnes moved per day		tonnes / day	62,127				79,492	102,580	106,592	97,893	97,617	96,153	97,489	97,478	71,475	50,681	61,228	37,669	35,952	34,285	30,773	3,346
Total Production		'000 tonnes	155,846				5,362	9,569	10,801	10,813	10,778	10,784	10,780	10,510	10,799	10,803	10,798	10,832	10,797	10,799	10,804	817
As Grade		%	0.00				0.07%	0.03%	0.03%	0.03%	0.03%	0.04%	0.04%	0.06%	0.07%	0.07%	0.05%	0.04%	0.03%	0.04%	0.03%	0.02%
Ag Grade		g/t	2.86				4.07	2.55	5.11	3.58	2.76	2.61	2.65	3.01	2.82	2.85	2.63	2.27	2.40	2.32	1.87	1.55
Cu Grade		%	0.48%				0.73%	0.50%	0.62%	0.52%	0.40%	0.38%	0.39%	0.44%	0.52%	0.53%	0.50%	0.45%	0.46%	0.48%	0.42%	0.38%
Mo Grade		%	0.05%				0.05%	0.05%	0.03%	0.04%	0.04%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.06%	0.05%	0.05%	0.05%
Waste		'000 tonnes	233,501				23,255	27,360	27,572	24,429	24,364	23,831	24,316	24,582	14,932	7,442	4,692	2,729	2,146	1,543	274	32
Total Moved		'000 tonnes	389,347				28,617	36,929	38,373	35,241	35,142	34,615	35,096	35,092	25,731	18,245	15,491	13,561	12,943	12,343	11,078	850
Stripping Ratio			1.50				4.34	2.86	2.55	2.26	2.26	2.21	2.26	2.34	1.38	0.69	0.43	0.25	0.20	0.14	0.03	0.04
PROCESSING																						
Total Mill Feed		'000 tonnes	155,846				5,362	9,569	10,801	10,813	10,778	10,784	10,780	10,510	10,799	10,803	10,798	10,832	10,797	10,799	10,804	817
As Grade		%	0.04%				0.07%	0.03%	0.03%	0.03%	0.03%	0.04%	0.04%	0.06%	0.07%	0.07%	0.05%	0.04%	0.03%	0.04%	0.03%	0.02%
Ag Grade		g/t	2.86				4.07	2.55	5.11	3.58	2.76	2.61	2.65	3.01	2.82	2.85	2.63	2.27	2.40	2.32	1.87	1.55
Cu Grade		%	0.48%				0.73%	0.50%	0.62%	0.52%	0.40%	0.38%	0.39%	0.44%	0.52%	0.53%	0.50%	0.45%	0.46%	0.48%	0.42%	0.38%
Mo Grade		%	0.05%				0.05%	0.05%	0.03%	0.04%	0.04%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.06%	0.05%	0.05%	0.05%
Contained As		tonnes	67,825				3,898	3,094	3,707	3,300	3,555	3,782	3,879	5,780	7,704	7,432	5,611	4,706	3,434	4,431	3,333	179
Contained Ag		oz	14,314,699				701,500	785,248	1,775,816	1,245,411	957,541	906,102	919,123	1,018,575	979,782	990,822	912,168	791,688	834,665	806,704	648,875	40,679
Contained Cu		tonnes	750,544				39,326	47,703	67,196	56,058	43,405	41,278	41,952	46,599	56,614	57,476	53,720	49,135	49,185	52,118	45,670	3,109
Contained Mo		tonnes	72,623				2,437	5,032	3,684	4,078	4,049	4,486	5,189	4,800	5,733	5,536	5,169	5,121	6,104	5,661	5,112	432
Total Recovery																						
Copper Concentrate																						
As Recovery		%	10%				9%	10%	7%	8%	9%	9%	9%	8%	10%	11%	12%	12%	10%	10%	10%	9%
Ag Recovery		%	77%				72%	78%	72%	76%	78%	79%	78%	76%	73%	75%	77%	79%	79%	78%	82%	82%
Cu Recovery		%	88%				83%	90%	84%	87%	89%	89%	89%	87%	84%	86%	88%	90%	90%	88%	93%	94%
Mo Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Moly Concentrate																						
As Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ag Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cu Recovery		%	0%				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Mo Recovery		%	67%				55%	73%	55%	65%	69%	69%	67%	64%	57%	62%	68%	72%	74%	68%	79%	83%
Net Recovery																						
As Recovery		%	10%				8.50%	10.16%	6.78%	7.86%	8.96%	9.19%	8.53%	7.88%	9.58%	11.21%	12.12%	12.11%	10.01%	9.68%	9.92%	9.26%
Ag Recovery		%	77%				72.16%	78.34%	72.39%	76.00%	78.33%	78.70%	77.72%	76.03%	72.72%	74.80%	77.16%	78.88%	78.79%	77.86%	82.03%	82.01%
Cu Recovery		%	88%				83.49%	89.83%	83.68%	87.49%	89.07%	89.29%	88.54%	87.18%	83.85%	85.69%	87.92%	89.64%	90.27%	88.49%	92.73%	94.03%
Mo Recovery		%	67%				55.44%	72.69%	54.69%	65.27%	68.98%	69.45%	67.45%	64.05%	56.79%	62.17%	68.21%	72.50%	73.69%	67.80%	78.75%	83.35%
Production																						
Copper Concentrate																						
As		tonnes	6,550				331	314	251	259	319	348	331	456	738	833	680	570	344	429	331	17
Ag		oz	10,643,974				487,850	597,425	1,241,844	901,330	719,295	688,136	693,034	746,800	700,510	731,754	695,239	622,902	650,522	610,910	523,082	33,340
Cu		tonnes	649,575				32,140	41,989	55,101	47,559	37,588	36,157	36,778	39,903	47,194	49,286	47,210	44,224	44,318	45,443	41,760	2,924
Mo		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
							70%	76%	70%	72%	75%	76%	75%	73%	71%	74%	76%	79%	78%	76%	81%	82%
Moly Concentrate																						
Ag		oz	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mo		tonnes	48,032				1,404	3,679	1,991	2,637	2,728	3,055	3,460	3,125	3,118	3,284	3,391	3,636	4,427	3,721	4,014	363
							58%	73%	54%	65%	67%	68%	67%	65%	54%	59%	66%	71%	73%	66%	79%	84%
Copper Concentrate		dmt	2,498,365				123,614	161,495	211,928	182,921	144,568	139,066	141,454	153,473	181,514	189,563	181,579	170,092	170,454	174,780	160,617	11,247
As grade in concentrate		%	0.25				0.205	0.188	0.115	0.143	0.231	0.260	0.253	0.263	0.380	0.351	0.346	0.358	0.218	0.267	0.223	0.158
Ag grade in concentrate		g/t	132.5				122.8	115.1	182.3	153.3	154.8	153.9	152.4	151.3	120.0	120.1	119.1	113.9	118.7	108.7	101.3	92.2
Cu grade in concentrate	26%	%	26%				26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%
Mo grade in concentrate		%	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Concentrate Moisture	10%																					
Copper Concentrate		wmt	2,775,961				137,348	179,438	235,476	203,245	160,631	154,517	157,172	170,526	201,682	210,626	201,754	188,991	189,393	194,200	178,463	12,497
Moly Concentrate		dmt	87,330				2,553	6,689	3,620	4,795	4,960	5,554	6,290	5,683	5,668	5,971	6,165	6,610	8,049	6,765	7,298	659
Ag grade in concentrate		g/t	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu grade in concentrate		%	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mo grade in concentrate	55%	%	55%				55.00%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%
Concentrate Moisture	10%																					
Moly Concentrate		wmt	97,034				2,837	7,433	4,023	5,328	5,511	6,172	6,989	6,314	6,298	6,635	6,850	7,344	8,943	7,516	8,109	732
Total Concentrate Tonnes		wmt	2,872,995				140,186	186,871	239,498	208,573	166,142	160,689	164,161	176,840	207,981	217,261	208,603	196,336	198,336	201,717	186,572	13,230
Total Recovered																						
Ag		**oz**	**10,643,974**				**487,850**	**597,425**	**1,241,844**	**901,330**	**719,295**	**688,136**	**693,034**	**746,800**	**700,510**	**731,754**	**695,239**	**622,902**	**650,522**	**610,910**	**523,082**	**33,340**
Cu	**1,432,065,996**	**tonnes**	**649,575**				**32,140**	**41,989**	**55,101**	**47,559**	**37,588**	**36,157**	**36,778**	**39,903**	**47,194**	**49,286**	**47,210**	**44,224**	**44,318**	**45,443**	**41,760**	**2,924**
Mo	**105,891,408**	**tonnes**	**48,032**				**1,404**	**3,679**	**1,991**	**2,637**	**2,728**	**3,055**	**3,460**	**3,125**	**3,118**	**3,284**	**3,391**	**3,636**	**4,427**	**3,721**	**4,014**	**363**
REVENUE																						
Metal Prices																						
Ag	US$18.91 / oz Ag	US$/oz Ag	$ 18.91				$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91	$ 18.91
Cu	US$2.74 / lb Cu	US$/lb Cu	$ 2.74				$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74	$ 2.74
Mo	US$7.48 / lb Mo	US$/lb Mo	$ 7.48				$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48	$ 7.48
Exchange Rate	1.00 US$ = 1.00 US$	US$ 1.00 = X US$	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Copper Concentrate Payable %				If Grade <	Min Deduct	Max Payable																
Ag		%	77%	298.6 g/t	29.86 g/t	90.0%	75.7%	74.0%	83.6%	80.5%	80.7%	80.6%	80.4%	80.3%	75.1%	75.1%	74.9%	73.8%	74.8%	72.5%	70.5%	67.6%
Cu		%	96%	30.3%	1%	96.7%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%	96.2%
Mo		%	0%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Moly Concentrate Payable %																						
Ag		%	0%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cu		%	0%				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mo	0%	%	100%		0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Copper Metal Payable																						
Ag		oz	8,245,543				369,181	442,390	1,038,393	725,726	580,510	554,633	557,238	599,466	526,256	549,773	520,923	459,613	486,887	443,121	368,890	22,543
Cu		tonnes	624,591				30,903	40,374	52,982	45,730	36,142	34,766	35,364	38,368	45,379	47,391	45,395	42,523	42,613	43,695	40,154	2,812
Mo		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moly Metal Payable																						
Ag		oz	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu		tonnes	-				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mo		tonnes	48,032				1,404	3,679	1,991	2,637	2,728	3,055	3,460	3,125	3,118	3,284	3,391	3,636	4,427	3,721	4,014	363
Gross Revenue																						
Ag Gross Revenue		US$ '000	$155,923				$6,981	$8,366	$19,636	$13,723	$10,977	$10,488	$10,537	$11,336	$9,952	$10,396	$9,851	$8,691	$9,207	$8,379	$6,976	$426
Cu Gross Revenue	3,583,651.35	US$ '000	$3,773,747				$186,717	$243,935	$320,115	$276,299	$218,368	$210,057	$213,665	$231,819	$274,175	$286,333	$274,272	$256,922	$257,468	$264,003	$242,610	$16,989
Mo Gross Revenue	500,263.70	US$ '000	$792,034				$23,158	$60,668	$32,835	$43,488	$44,981	$50,375	$57,049	$51,539	$51,409	$54,158	$55,909	$59,949	$72,998	$61,351	$66,187	$5,979
Total Gross Revenue		**US$ '000**	**$4,721,704**				**$216,856**	**$312,969**	**$372,586**	**$333,511**	**$274,327**	**$270,920**	**$281,251**	**$294,694**	**$335,535**	**$350,887**	**$340,031**	**$325,562**	**$339,673**	**$333,734**	**$315,772**	**$23,394**
Logistics																						
Cu Concentrate	US$130.00 / wmt conc	US$ '000	$360,875				$17,855	$23,327	$30,612	$26,422	$20,882	$20,087	$20,432	$22,168	$26,219	$27,381	$26,228	$24,569	$24,621	$25,246	$23,200	$1,625
Mo Concentrate	US$130.00 / wmt conc	US$ '000	$12,614				$369	$966	$523	$693	$716	$802	$909	$821	$819	$863	$890	$955	$1,163	$977	$1,054	$95
Treatment																						
Cu Concentrate	US$90.00 / dmt conc	US$ '000	$224,853				$11,125	$14,535	$19,074	$16,463	$13,011	$12,516	$12,731	$13,813	$16,336	$17,061	$16,342	$15,308	$15,341	$15,730	$14,456	$1,012
Mo Concentrate	US$3308.00 / dmt conc	US$ '000	$288,888				$8,447	$22,128	$11,976	$15,862	$16,406	$18,374	$20,808	$18,798	$18,751	$19,754	$20,392	$21,866	$26,626	$22,377	$24,141	$2,181
Refining cost																						
Ag	US$0.50 / oz Ag	US$ '000	$4,123				$185	$221	$519	$363	$290	$277	$279	$300	$263	$275	$260	$230	$243	$222	$184	$11
Cu	US$0.09 / lb Cu	US$ '000	$117,043				$5,791	$7,566	$9,928	$8,569	$6,773	$6,515	$6,627	$7,190	$8,504	$8,881	$8,507	$7,968	$7,985	$8,188	$7,525	$527
Mo	US$0.03 / lb Mo	US$ '000	$2,882				$84	$221	$119	$158	$164	$183	$208	$188	$187	$197	$203	$218	$266	$223	$241	$22
Total Charges		US$ '000	$1,011,278				$43,856	$68,964	$72,752	$68,530	$58,243	$58,755	$61,993	$63,277	$71,079	$74,411	$72,823	$71,114	$76,245	$72,963	$70,801	$5,473
Net Revenue		**US$ '000**	**$3,710,426**				**$173,000**	**$244,006**	**$299,834**	**$264,981**	**$216,084**	**$212,165**	**$219,258**	**$231,417**	**$264,457**	**$276,476**	**$267,208**	**$254,448**	**$263,429**	**$260,770**	**$244,971**	**$17,921**
Unit NSR		**US$/t milled**	**$23.81**				**$32.26**	**$25.50**	**$27.76**	**$24.51**	**$20.05**	**$19.67**	**$20.34**	**$22.02**	**$24.49**	**$25.59**	**$24.75**	**$23.49**	**$24.40**	**$24.15**	**$22.67**	**$21.92**

RPA

FINAL DRAFT

Date:	INPUTS	UNITS	TOTAL	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
CUT-OFF GRADE																						
Net Revenue by Metal																						
Ag		%	4%				4%	3%	6%	5%	5%	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%	2%
Cu		%	83%				88%	81%	87%	85%	82%	81%	79%	82%	84%	84%	84%	82%	80%	82%	81%	77%
Mo		%	13%				8%	15%	7%	10%	13%	15%	16%	14%	12%	12%	13%	15%	17%	14%	17%	21%
Total		%	100%				100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Revenue per Metal Unit (NSR Factor)																						
Ag		$ per g Ag	$0.34				$0.31	$0.33	$0.35	$0.34	$0.36	$0.36	$0.36	$0.35	$0.32	$0.33	$0.34	$0.34	$0.35	$0.33	$0.34	$0.33
Cu		$ per % Cu	$40.92				$38.64	$41.61	$38.77	$40.11	$40.94	$41.41	$41.45	$40.48	$39.41	$40.54	$41.55	$42.55	$42.60	$41.22	$43.23	$44.47
Mo		$ per % Mo	$67.15				$58.51	$74.23	$54.88	$65.66	$68.40	$69.14	$67.69	$66.11	$55.21	$60.23	$66.60	$72.07	$73.63	$66.72	$79.72	$85.25
OPERATING COST																						
Mining (Open Pit)		US$/t moved	$1.70				$1.61	$1.63	$1.64	$1.65	$1.65	$1.65	$1.65	$1.64	$1.68	$1.73	$1.76	$1.79	$1.80	$1.81	$1.84	$1.83
Mining (Open Pit)		US$/t milled	$4.18				$8.60	$6.30	$5.82	$5.36	$5.37	$5.29	$5.36	$5.49	$4.00	$2.92	$2.52	$2.24	$2.15	$2.07	$1.88	$1.91
Processing		US$/t milled	$4.12				$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12	$4.12
G&A		US$/t milled	$0.93				$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93	$0.93
Total Unit Operating Cost		**US$ '000**	**$9.23**				**$13.65**	**$11.35**	**$10.87**	**$10.41**	**$10.41**	**$10.33**	**$10.41**	**$10.54**	**$9.05**	**$7.96**	**$7.57**	**$7.28**	**$7.20**	**$7.11**	**$6.93**	**$6.95**
Mining (Open Pit)		US$ '000	$651,264				$46,128	$60,283	$62,885	$58,008	$57,843	$57,024	$57,772	$57,689	$43,183	$31,518	$27,224	$24,227	$23,254	$22,319	$20,350	$1,558
Processing		US$ '000	$641,541				$22,074	$39,391	$44,462	$44,511	$44,368	$44,394	$44,376	$43,263	$44,453	$44,469	$44,451	$44,588	$44,446	$44,456	$44,474	$3,365
G&A		US$ '000	$144,944				$4,988	$8,900	$10,045	$10,056	$10,024	$10,030	$10,026	$9,774	$10,043	$10,047	$10,043	$10,074	$10,042	$10,044	$10,048	$760
Total Operating Cost		**US$ '000**	**$1,437,750**				**$73,190**	**$108,573**	**$117,392**	**$112,575**	**$112,236**	**$111,448**	**$112,174**	**$110,726**	**$97,679**	**$86,034**	**$81,718**	**$78,889**	**$77,742**	**$76,819**	**$74,871**	**$5,683**
Unit Operating Cost		US$/t milled	$15,714				$21,827	$18,553	$17,605	$16,749	$15,817	$15,782	$16,156	$16,557	$15,628	$14,852	$14,312	$13,849	$14,262	$13,870	$13,483	$13,647
Production Taxes & Royalties		**US$ '000**	**$248,066**				**$6,195**	**$10,597**	**$17,380**	**$12,634**	**$6,543**	**$6,046**	**$6,733**	**$8,149**	**$13,889**	**$18,241**	**$29,311**	**$26,665**	**$29,339**	**$29,050**	**$26,820**	**$476**
Operating Cashflow		US$ '000	$2,024,609				$93,615	$124,836	$165,061	$139,772	$97,306	$94,671	$100,350	$112,542	$152,889	$172,200	$156,179	$148,894	$156,348	$154,902	$143,280	$11,762
CAPITAL COST																						
Direct Cost																						
Mining		US$ '000	$22,396	$1,803	$10,489	$10,104	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Processing		US$ '000	$164,273	$13,223	$76,936	$74,114	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Infrastructure		US$ '000	$80,620	$6,490	$37,758	$36,373	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tailings		US$ '000	$47,433	$3,818	$22,215	$21,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Direct Cost		**US$ '000**	**$314,721**	**$25,334**	**$147,397**	**$141,991**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Other Costs																						
EPCM / Owners / Indirect Cost	46%	US$ '000	$145,996	$11,752	$68,376	$65,868	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal Costs		**US$ '000**	**$460,717**	**$37,086**	**$215,773**	**$207,858**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Contingency	30%	US$ '000	$94,415	$7,600	$44,219	$42,597	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Initial Capital Cost		**US$ '000**	**$555,133**	**$44,686**	**$259,992**	**$250,455**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sustaining		US$ '000	$143,455	$0	$0	$0	$8,327	$8,327	$12,679	$8,327	$13,117	$8,327	$8,327	$8,327	$13,110	$8,327	$8,327	$12,952	$8,327	$8,327	$8,327	$0
Reclamation and closure		US$ '000	$33,022	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,022
Total Capital Cost		**US$ '000**	**$731,609**	**$44,686**	**$259,992**	**$250,455**	**$8,327**	**$8,327**	**$12,679**	**$8,327**	**$13,117**	**$8,327**	**$8,327**	**$8,327**	**$13,110**	**$8,327**	**$8,327**	**$12,952**	**$8,327**	**$8,327**	**$8,327**	**$33,022**
PRE-TAX CASH FLOW																						
Net Pre-Tax Cashflow		US$ '000	$1,293,000	-$44,686	-$259,992	-$250,455	$85,288	$116,509	$152,383	$131,445	$84,189	$86,344	$92,023	$104,215	$139,779	$163,873	$147,852	$135,943	$148,021	$146,575	$134,953	-$21,260
Cumulative Pre-Tax Cashflow		US$ '000		-$44,686	-$304,677	-$555,133	-$469,845	-$353,335	-$200,953	-$69,507	$14,682	$101,026	$193,049	$297,264	$437,043	$600,916	$748,768	$884,711	$1,032,732	$1,179,306	$1,314,260	$1,293,000
Taxes	31%	US$ '000	$400,739	$0	$0	$10,994	$19,959	$31,451	$23,745	$10,831	$9,808	$11,238	$14,589	$26,104	$31,555	$43,206	$40,920	$43,247	$42,821	$39,534	$736	$0
After-Tax Cashflow		US$ '000	$892,262	-$44,686	-$259,992	-$261,449	$65,329	$85,058	$128,637	$120,614	$74,381	$75,106	$77,435	$78,111	$108,223	$120,668	$106,932	$92,695	$105,200	$107,041	$134,217	-$21,260
Cumulative After-Tax Cashflow		US$ '000		-$44,686	-$304,677	-$566,127	-$500,798	-$415,740	-$287,103	-$166,489	-$92,107	-$17,001	$60,434	$138,544	$246,768	$367,435	$474,367	$567,062	$672,263	$779,304	$913,521	$892,262
PROJECT ECONOMICS				1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5
Pre-Tax IRR		%	17.0%																			
Pre-tax NPV at 5% discounting	5.0%	US$ '000	$573,972	-$41,532	-$230,137	-$211,138	$68,476	$89,088	$110,970	$91,164	$55,609	$54,317	$55,133	$59,464	$75,958	$84,811	$72,876	$63,815	$66,176	$62,409	$54,724	-$8,210
Pre-tax NPV at 7.5% discounting	9.0%	US$ '000	$275,175	-$39,267	-$209,601	-$185,241	$57,872	$72,529	$87,029	$68,873	$40,470	$38,079	$37,232	$38,683	$47,600	$51,198	$42,378	$35,747	$35,710	$32,441	$27,403	-$3,960
Pre-tax NPV at 10% discounting	10.0%	US$ '000	$222,912	-$38,733	-$204,870	-$179,414	$55,542	$68,976	$82,013	$64,313	$37,447	$34,914	$33,828	$34,827	$42,465	$45,259	$37,122	$31,029	$30,715	$27,649	$23,143	-$3,314
After-Tax IRR		%	12.8%																			
After-Tax NPV at 5% discounting	5.0%	US$ '000	$346,388	-$41,532	-$230,137	-$220,407	$52,451	$65,039	$93,678	$83,653	$49,131	$47,247	$46,393	$44,569	$58,810	$62,450	$52,706	$43,513	$47,032	$45,576	$54,426	-$8,210
After-Tax NPV at 9% discounting	9.0%	US$ '000	$122,846	-$39,267	-$209,601	-$193,373	$44,329	$52,950	$73,467	$63,198	$35,755	$33,123	$31,330	$28,994	$36,854	$37,699	$30,650	$24,375	$25,379	$23,691	$27,253	-$3,960
After-tax NPV at 10% discounting	10.0%	US$ '000	$84,213	-$38,733	-$204,870	-$187,289	$42,544	$50,356	$69,233	$59,014	$33,085	$30,370	$28,465	$26,103	$32,878	$33,327	$26,848	$21,158	$21,829	$20,192	$23,017	-$3,314

TAXATION AND ROYALTIES

- Total taxes over the LOM are $401 million and result in an effective tax rate of 31% after accounting for depreciation. All assets are depreciated on a 10-year straight-line basis.
- Corporate tax rate is 29.5%
- Royalties of 5.46% (average) over the LOM.
- There is an 8% profit sharing tax for Peru.

CASH FLOW ANALYSIS

Considering the Project on a stand-alone basis, the undiscounted pre-tax cash flow totals $1,293 million over the mine life, and simple payback occurs 5 years from start of production.

Using a half-year period discount assumption, the After-Tax Net Present Value (NPV) at a 9% discount rate is $123 million, and the Internal Rate of Return (IRR) is 12.8%.

SENSITIVITY ANALYSIS

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities:

- Copper price
- Copper recovery
- Copper head grade
- Operating costs
- Capital costs

IRR sensitivity over the base case has been calculated for -20% to +20% variations. The sensitivities are shown in Figure 22-1 and Table 22-2. The Project is most sensitive to changes in metal prices, followed by head grade, recovery, and capital costs.

FIGURE 22-1 MAGISTRAL SENSITIVITY ANALYSIS

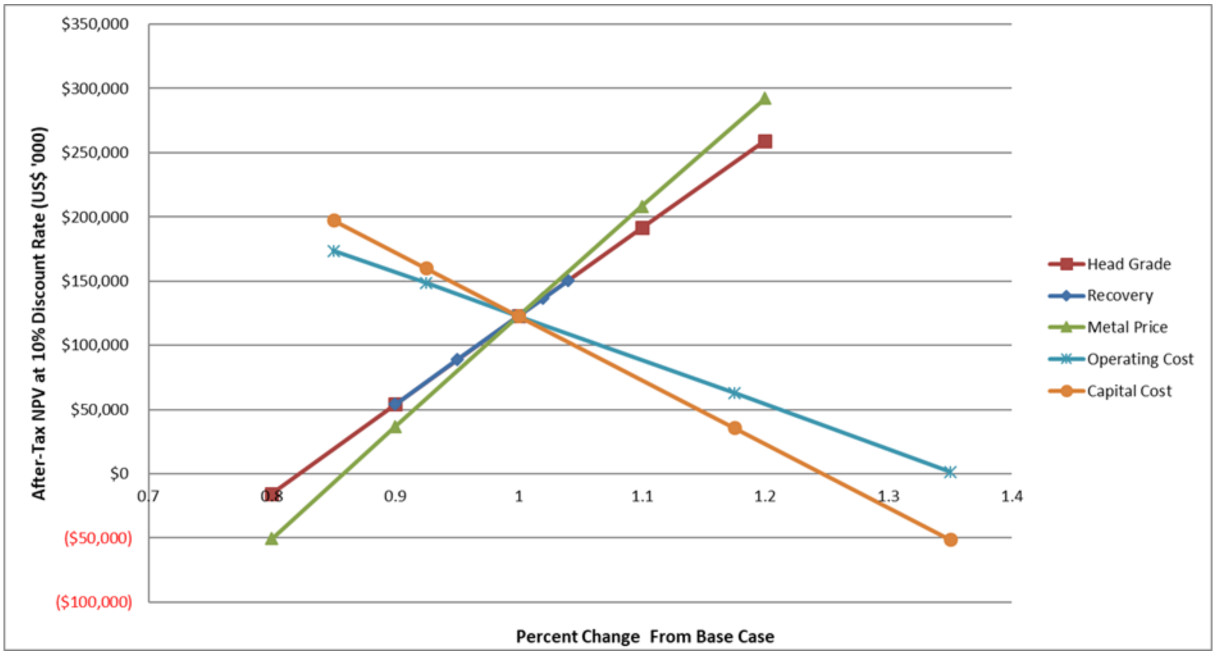

TABLE 22-2 MAGISTRAL SENSITIVITY ANALYSIS
VM Holdings S.A. - Magistral Project

Sensitivity	Head Grade	NPV at 9% (US$'000)
80%	0.39%	$(15,657)
90%	0.43%	$54,054
100%	**0.48%**	$122,846
110%	0.53%	$191,426
120%	0.58%	$259,147

Sensitivity	Recovery	NPV at 9% (US$'000)
90%	79%	$54,054
95%	84%	$88,699
100%	**88%**	$122,846
102%	90%	$136,609
104%	91%	$150,419

Sensitivity	Copper Price	NPV at 9% (US$'000)
80%	$2.19	($50,635)
90%	$2.47	$36,926
100%	**$2.74**	$122,846
110%	$3.01	$208,346
120%	$3.29	$292,238

Sensitivity	Operating Cost	NPV at 9% (US$'000)
85%	$1,222,087	$173,533
93%	$1,329,919	$148,671
100%	**$1,437,750**	$122,846
118%	$1,689,356	$62,889
135%	$1,940,962	$1,654

Sensitivity	Capital Cost	NPV at 9% (US$'000)
85%	$621,868	$197,477
93%	$676,738	$160,162
100%	**$731,609**	$122,846
118%	$859,641	$35,777
135%	$987,672	($51,292)

23 ADJACENT PROPERTIES

The Project is contiguous with claims held by various companies and individuals. None of the adjoining properties host mineralized zones comparable to the Project. RPA has not relied upon any information from the adjoining properties in the writing of this report.

24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

25 INTERPRETATION AND CONCLUSIONS

RPA has the following conclusions:

GEOLOGY AND MINERAL RESOURCES

The Magistral Property is underlain predominantly by Cretaceous-age carbonate and clastic sequences. Mineralization is strongly associated with skarns at and within the margins of intrusive porphyries.

- As prepared by VMH and accepted by RPA, the Magistral Measured and Indicated Mineral Resources comprise 205.3 million tonnes at 0.52% Cu, 0.05% Mo, and 2.96 g/t Ag for 2.35 million pounds of Cu, 224 million pounds of Mo, and 19.5 million ounces of Ag. The Magistral Inferred Mineral Resources comprise 50.6 million tonnes at 0.425% Cu, 0.05% Mo, and 2.57 g/t Ag for 474 million pounds of Cu, 52 million pounds of Mo, and 4.2 million ounces of Ag.

- Drill core logging, sampling, sample preparation, and analytical procedures meet industry standards, and results of the VMH QA/QC program are appropriate.

- The drill hole database has been maintained to a reasonable standard and is suitable to support Mineral Resource estimation.

- The Mineral Resource estimate has been completed following standard industry practices and is suitable to support the public disclosure of Mineral Resources and Mineral Reserves.

MINING

- Open pit mining is proposed to be carried out at 30,000 tpd using contract mining to produce 650,000 tonnes (1,432 million pounds) of copper, 49,000 tonnes (106 million pounds) of molybdenum, and 10.6 million ounces of silver over the life of the mine. The mine life is expected to be 16 years. Average head grades over the LOM are 0.48% Cu, 0.05% Mo, and 2.9 g/t Ag.

- The mine is envisaged to be primarily operated by a contract mining company, with oversight from the Owner. The mine contractor will provide all of the major mining equipment necessary for mine operations, and will be responsible for maintenance of the equipment and surface facilities. All mineral processing will be Owner operated.

- The level and detail of mine planning is appropriate for a PEA. The method in which Mineral Resources have been evaluated for inclusion in a mine plan is appropriate for this level of study.

- There is arsenic present in the deposit but the mine plan has accounted for the appropriate blending to ensure that the overall levels are maintained to ensure concentrate marketability. The average head grade for arsenic over the LOM is expected to be 0.04% compared to an estimated at 0.25% As in the concentrate. The relatively low ratio of grade in concentrate to head grade is attributed to the low (9%) recoveries of arsenic in the process plant. Generally, the limit of arsenic permitted in a concentrate is 0.50% As.

METALLURGY AND MINERAL PROCESSING

- Metallurgical test work for Magistral has been ongoing since 2000. Testing completed since 2013 has focused on limiting the quantity of arsenic reporting to the copper flotation concentrate.

- Test work completed in 2016 and 2017 confirmed the results achieved in 2013 and 2015. It also included variability testing and geometallurgical evaluations that provide sufficient data to support a feasibility study.

- In RPA's opinion, the samples used to conduct the 2016 and 2017 test work are representative of the material that will be processed over the LOM.

- In RPA's opinion, recovery estimates used to support the PEA are reasonable based on the available metallurgical data. Over the LOM, the recoveries average 87.8% for copper, 76.6% for silver, and 66.9% for molybdenum to concentrates with average grades of 26% Cu, 131 g/t Ag, and 55% Mo.

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

- An EIA had been submitted in 2008 and was approved in 2009. However, the approval was revoked in 2010 due to the fact that social concerns by the community of Conchucos had not been resolved. A new EIA was submitted in 2016 and was approved in September 2016.

- Geochemical analyses of 15 samples identified that eight samples have zero to low acid generating potential, two have marginal potential to generate acid, and five samples demonstrate a high acid generating potential.

- Due to the geological conditions in the region, soils in the Project area are found to have naturally high arsenic levels, exceeding 140 mg/kg in all baseline sampling locations. All other parameters meet national guidelines for soils.

- The Project will require the resettlement of 21 households/farms. Resettlement in isolated and low income areas can lead to significant social impacts. It is therefore suggested that a detailed and International Finance Corporation (IFC) Resettlement Action Plan be developed and implemented during subsequent planning stages.

COSTS AND ECONOMICS

- The pre-production capital costs for the Project are estimated to be $555.1 million.

- The LOM unit operating costs are estimated to total $9.23/t processed.

- The original G&A cost assumption used in Whittle was \$0.47/t, which appears low. RPA has adjusted the G&A cost to \$10 million per year (\$0.93/t) for the use in cut-off grade and in the cash flow.

26 RECOMMENDATIONS

RPA has the following recommendations:

GEOLOGY AND MINERAL RESOURCES

- The relationships between deposit alteration, mineralization, and structure should be investigated for future modelling. Although block grades reflect drilled grades at the reasonable drill spacing, there may be some risk associated with grades reporting locally to structures.

- Arsenic reports locally to structure. VMH should review the structural model in the context of arsenic concentration to refine the understanding of arsenic distribution in mineralized material and to guide mine planning.

- With respect to sampling, analyses, and QA/QC, RPA offers the following recommendations:
    - QA/QC programs should be continued at Magistral and tighter controls on the QA/QC data management should be imposed.
    - The database should be revisited to address minor issues. The database should contain tracking information for re-assayed batches and a proper control for values below and above detection limits. The assay certificates should be revisited and all available data for deleterious elements added to the database.
    - Check sample insertion rates should be increased to approximately 5% or one in 20 samples.
    - All core intervals immediately adjacent to mineralization should be sampled, as undersampling of a few mineralized “shoulders” was noted. These unsampled intervals should also be reviewed after assays have been returned.
    - Data verification programs should be carried out and documented semi-annually.

- With respect to block modelling and Mineral Resource estimation, RPA offers the following recommendations:
    - Evaluate density weighted compositing and grade interpolation. Density weighting could more accurately reflect Mineral Resource tonnages.
    - Incorporate structural data in the database to assist in the fault interpretations and guide the preparation of future updates of the Mineral Resources.
    - Complete further review of mixed domain solids to refine lithological boundaries.
    - Perform capping analysis and visual checks for high grade populations to validate high grade restriction levels.
    - Carry out a final review of the geological modelling to review mineralized drill intervals outside the skarn and mixed domains.
    - Perform additional visual reclassification to re-categorize isolated islands of material at Mineral Resource class boundaries.
    - Extend the block model below the pit shell where mineralization is open at depth.
    - Carry out drilling in areas where mineralization is open at depth.

MINING

- The mine plan presented in this report does not consider a pre-stripping period. There is a significant amount of waste in the early years resulting in higher stripping ratios (4.3:1 in Year 1). RPA recommends that future mine plans evaluate some pre-stripping prior to production. Any mineral extracted in this period could be stockpiled adjacent to the primary crusher location. It is anticipated that mining production will be slow at the start as a result of the steep terrain and pre-stripping will allow time to open up operable mining benches prior to production to permit higher mining rates.

METALLURGY AND MINERAL PROCESSING

- RPA was provided with the Golder 2016 FS, which used 10,000 tpd of material processed as a design basis, however, the current plan is to process 30,000 tpd. RPA understands that VMH is in the process of completing a new study that is based on 30,000 tpd. RPA recommends that the new design and cost estimates be completed in order to confirm the findings of this report.

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

- The geochemistry baseline has identified that some sample have ARD potential. Further work is required to identify this material. More detailed ARD testing should be carried out and a detailed plan how ARD will be prevented throughout all Project phases should be developed. Also, this test work should determine if the site is expected to generate metal leaching.

- The EIA mentions that the tailings from the molybdenum concentration process and the water treatment precipitate will contain high levels of arsenic. A more detailed plan on management of these wastes should be developed, involving inclusion in the water quality model, with the aim of identifying potential effects on surface waters during all Project phases.

- The EIA determines that there will be effects on water and air, but that regulatory standards will be met. An ecological and human health risk assessment should be carried out, with the aim of identifying if these effects combined with local uses of the areas have the potential to affect the health of local wildlife, feedstock, and/or the local population.

- Site closure will require large amounts of soil. A detailed soils balance should be developed with the aim of ensuring that the required amount of soils will be available to support closure activities.

- Historically, closure of mines sites has the potential to result in significant economic impacts. To avoid these impacts a detailed social management plan should be developed, which includes ongoing consultation, training and planning of workers and local community members, with the aim of mitigating the economic and social effects of mine closure.

OPERATING COSTS

- The operating cost estimates generally appear low. RPA recommends that these be reviewed for future studies.

PROPOSED BUDGET

The Magistral Project has a minimal budget for 2017, in order to keep environmental and social licences in good standing, however, in 2018, Milpo intends to invest US$500,000 in exploration and drilling permitting applications at seven regional/satellite targets. The plan is to cover the regional area (4 km by 4 km) with 200 m line-spacing ground- or UAV-borne magnetometry. The concept behind this relies on the fact that the skarn mineralization has a very high and unique magnetic susceptibility with evident contrast with the other rocks in the region. Milpo plans to process/invert the magnetometry data in 3D, which aligned with the current surface expressions of these targets (geology and rock geochemistry) could lead Milpo to successfully define high-grade satellite targets to be tested by diamond drilling in 2019.

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28 DATE AND SIGNATURE PAGE

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29 CERTIFICATE OF QUALIFIED PERSON

IAN WEIR

I, Ian Weir, P.Eng., as an author of this report entitled "Technical Report on the Preliminary Economic Assessment of the Magistral Project, Ancash Region, Peru" prepared for VM Holding S.A. and dated August 2, 2017, do hereby certify that:

1. I am a Senior Mining Engineer with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of Queen's University, Kingston, Ontario, in 2004 with a B.A.Sc. degree in Mining Engineering.

3. I am registered as a Professional Engineer in the Province of Ontario (Reg.# 100143218). I have worked as a mining engineer for a total of six years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Project evaluation, mine planning, and financial analysis for NI 43-101 reporting.
   - Supervision of mine development at a copper mine in Chile from the pre-stripping phase to a fully operational mine.
   - Mining engineer at gold and copper open pit projects in Chile and USA.

4. 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.

5. I visited the Magistral Project on June 16, 2017 and Milpo's offices in Lima on June 12 and 13, 2017.

6. I am responsible for Sections 15, 16, 19, and 21 to 24 and contributed to Sections 1, 2, 3, 18, 25, 26, and 27 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 2nd day of August, 2017

(Signed and Sealed) "*Ian Weir*"

Ian Weir, P.Eng.

ROSMERY J. CÁRDENAS

I, Rosmery Julia Cárdenas Barzola, P.Eng., MAusIMM CP (Geo), as an author of this report entitled "Technical Report on the Preliminary Economic Assessment of the Magistral Project, Ancash Region, Peru" prepared for VM Holding S.A. and dated August 2, 2017, do hereby certify that:

1. I am Senior Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of Universidad Nacional de Ingenieria, Lima, Peru, in 2002 with a B.Sc. degree in Geological Engineering.

3. I am registered as a Professional Engineer in the province of Ontario (Reg. # 100178079). I have worked as a geologist for a total of 15 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Resource estimation, geological modelling, and QA/QC experience.
   - Review and report as a consultant on numerous exploration, development, and production mining projects around the world for due diligence and regulatory requirements.
   - Evaluation Geologist and Resource Modelling Geologist with Barrick Gold Corporation at Pueblo Viejo Project (Dominican Republic) and Lagunas Norte Mine (Peru).

4. 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.

5. I visited the Magistral Project on June 16, 2017 and Milpo's offices in Lima on June 12 and 13, 2017.

6. I am responsible for Section 14 and contributed to Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 2nd day of August, 2017

(Signed and Sealed) "*Rosmery Julia Cárdenas Barzola*"

Rosmery J. Cárdenas, P.Eng.

PHILIP GEUSEBROEK

I, Philip Geusebroek, P.Geo., as an author of this report entitled “Technical Report on the Preliminary Economic Assessment of the Magistral Project, Ancash Region, Peru” prepared for VM Holding S.A. and dated August 2, 2017, do hereby certify that:

1. I am Senior Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of the University of Alberta, Canada in 1995 with a B.Sc. degree in Geology, and the University of Western Ontario in 2008 with a M.Sc. in Economic Geology.

3. I am registered as a Professional Geologist in the Province of Ontario (Reg.# 1938). I have worked as a geologist for a total of 23 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Resource estimation, geological modelling, and QA/QC experience.
   - Review and report as a consultant on numerous exploration, development, and production mining projects around the world for due diligence and regulatory requirements
   - Exploration and mine geologist with Echo Bay Mines Ltd., Kinross Gold Corporation, Western Mining Company, etc.

4. 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.

5. I did not visit the Magistral Project.

6. I am responsible for the preparation of Sections 4 to 12 and contributed to Sections 1, 2, 3, 25, 26, and 27 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 2nd day of August, 2017

(Signed and Sealed) “*Philip Geusebroek*”

Philip Geusebroek, P.Geo.

KATHLEEN ANN ALTMAN

I Kathleen Ann Altman, Ph.D., P.E., as an author of this report entitled "Technical Report on the Preliminary Economic Assessment of the Magistral Project, Ancash Region, Peru" prepared for VM Holding S.A. and dated August 2, 2017, do hereby certify that:

1. I am Principal Metallurgist and Director, Mineral Processing and Metallurgy with RPA (USA) Ltd. of Suite 505, 143 Union Boulevard, Lakewood, Co., USA 80228.

2. I am a graduate of the Colorado School of Mines in 1980 with a B.S. in Metallurgical Engineering. I am a graduate of the University of Nevada, Reno Mackay School of Mines with an M.S. in Metallurgical Engineering in 1994 and a Ph.D. in Metallurgical Engineering in 1999.

3. I am registered as a Professional Engineer in the State of Colorado (Reg. #37556) and a Qualified Professional Member of the Mining and Metallurgical Society of America (Member #01321QP). I have worked as a metallurgical engineer for a total of 34 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Review and report as a metallurgical consultant on numerous mining operations and projects around the world for due diligence and regulatory requirements.
   - I have worked for operating companies, including the Climax Molybdenum Company, Barrick Goldstrike, and FMC Gold in a series of positions of increasing responsibility.
   - I have worked as a consulting engineer on mining projects for approximately 15 years in roles such a process engineer, process manager, project engineer, area manager, study manager, and project manager. Projects have included scoping, prefeasibility and feasibility studies, basic engineering, detailed engineering and start-up and commissioning of new projects.
   - I was the Newmont Professor for Extractive Mineral Process Engineering in the Mining Engineering Department of the Mackay School of Earth Sciences and Engineering at the University of Nevada, Reno from 2005 to 2009.

4. 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.

5. I did not visit the Magistral Project.

6. I am responsible for Sections 13 and 17 and contributed to Sections 1, 2, 3, 18, 25, 26, and 27 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 2nd day of August, 2017

(Signed and Sealed) "*Kathleen Ann Altman*"

Kathleen Ann Altman, Ph.D., P.E.

STEPHAN H. THEBEN

I, Stephan H. Theben, Dipl.-Ing., as an author of this report entitled “Technical Report on the Preliminary Economic Assessment of the Magistral Project, Ancash Region, Peru” prepared for VM Holding S.A. and dated August 2, 2017, do hereby certify that:

1. I am Mining Sector Lead and Managing Principal with SLR Consulting at 36 King Street East, 4th floor, Toronto, M5C1E5.

2. I am a graduate of RWTH Aachen Technical University in 1997 with a Mining Engineering Degree. I also passed the State Exam for Mining Engineering in 2000.

3. I am registered as a Professional Member with the Society for Mining, Metallurgy and Exploration (Membership # 04231099). I have worked as a mining environmental professional for a total of 19 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Responsible for the preparation and success approval of several Environmental Impact Assessment Reports
   - Responsible for environmental aspects of mine permitting for several projects
   - Responsible for the environmental and geotechnical components of several PEA, PFS and FS studies
   - Experience if reviewing and auditing environmental and permitting data for a multitude of projects
   - Work as a government official in Germany and as a technical expert for the European Union in the area of mine permitting.

4. 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.

5. I did not visit the Magistral Project.

6. I am responsible for Section 20 and contributed to Sections 1, 2, 25 and 26 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Section 20 and portions of Sections 1, 2, 25, and 26 of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 2nd day of August, 2017

(Signed and Sealed) "*Stephan Theben*"

Stephan Theben, Dipl.-Ing.