Technical Report for the Morococha Property, Yauli, Peru

Effective date: June 30 2014

Prepared by:

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1 Summary

This technical report has been prepared by Pan American Silver Corp. ("Pan American") in compliance with the disclosure requirements of Canadian National Instrument 43-101 ("NI 43-101") to disclose current information about the Morococha property (the "Property" or "Morococha").

1.1 Property description and ownership

This technical report refers to the Morococha Property, an underground silver-zinc-lead-copper mine located in the province of Yauli in the Central Highlands of Peru. Morococha is owned and operated by Compañia Minera Argentum S.A. ("Argentum"), a Peruvian company in which Pan American, through its subsidiary Pan American Silver (Peru) S.A.C., has a 92.01% voting interest. In addition, Pan American holds the majority of the non-voting investment shares resulting in a total ownership interest of approximately 92.3%. The remaining interest is held by Alejandro Gubbins and Compañia Minera Casapalca S.A.

1.2 Geology and mineralization

The Morococha Property is located on the eastern side of the Western Cordillera of the Andes Mountains. The host rocks for the mineralization in the Morococha District comprise a Palaeozoic to Mesozoic aged sequence of schists, volcanic rocks, and predominantly carbonate sediments cut by a series of Upper Tertiary aged intrusions. The structures that account for the majority of the vein mineralization in the Morococha District trend predominantly northeast to east-northeast.

The structural setting of the area is dominated by shallowly northwest plunging folds, the most important of which is the anticlinal feature referred to as the Yauli Dome, which trends north-northwest and divides the district roughly in half. Continued compression apparently gave rise to early northwest trending shears, and the uplifting effect of the intrusion of quartz monzonite stocks produced an arching of the Yauli Dome and an associated phase of tension faulting generally trending perpendicular (northeast-southwest) to the axis of the anticline. This latter set is the most heavily mineralized set of fractures and accounts for the majority of fault hosted mineralization in the Morococha District.

Mineralization at the Morococha mine includes epi-mesothermal silver-zinc- lead-copper veins, bedded silver-base metal replacements or mantos, intrusive-sediment contact skarns, and the quartz porphyry-hosted Toromocho disseminated copper system.

Vein mineralization formed along the dominant system of northeast trending tensional faults and is mostly fracture filling in nature except in some carbonate hosts where irregular replacement can take place in the wall rocks. Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favourable lithologies are intersected by mineralized veins or are proximal to pre-mineral intrusives. Some of the replacement

mineralization occurs as structurally controlled irregular chimneys within generally favourable stratigraphic horizons. Intrusive contact related skarn bodies are common generally in areas of pre-mineral intrusives, giving rise to contact related silicification and/or calc-silicate alteration.

1.3 Status of exploration, development, and operations

The central part of the mineralization at Morococha is well defined by over 2,000 drillholes and has been the subject of mineral resource and mineral reserve estimates. Typical near mine exploration takes place on an annual basis, including testing of the undrilled areas of the deposit at depth and along strike, as well as infill drilling to upgrade the confidence categories of mineral resource and mineral reserve estimates.

Mining began in the region around the Morococha mine before the 1500s, and production has been continuous in the district since the late 1800s. The former owners of the mines that comprise the Morococha operations conducted only minimal systematic exploration in the district, limited to underground development along strike of known structures, which was immediately followed by stope development and mining. Drilling was not typically part of the exploration efforts.

Between 1915 and 1918, much of the district was reorganized and incorporated into the Cerro de Pasco Mining Company ("Cerro de Pasco"). By 1924 the district was producing mainly copper ores at a rate of 1,500 tonnes per day. Between 1929 and 1934, the 11.5 kilometre long Kingsmill Tunnel was excavated, successfully dewatering all of the Morococha District mine workings above the 4,020 metre tunnel elevation. The Kingsmill Tunnel is still in use and is a vital feature of the Morococha mining district.

In early 2004, Pan American entered into agreements to purchase the Property, ultimately resulting in a total ownership interest of approximately 92.3%, and began producing from July 1, 2004.

In May 2008, Minera Chinalco Peru ("MCP") acquired certain surface rights from Centromin (the Peruvian national mining company and currently, Activos Mineros S.A.) covering the main Morococha area that the Government of Peru had reserved for the Toromocho copper project. In addition, MCP acquired rights including surface lands in the Morococha area where the Morococha mine administration and operations are taking place, as well as certain underground areas. In June 2010, Pan American reached an agreement with MCP on the lands and concessions around the Morococha mine and MCP's Toromocho copper project that defined and provides certainty on each party's long term surface rights. Under the terms of the agreement, Argentum will relocate the core Morococha facilities, including the administration offices, warehouse, maintenance facilities, mine compressors, and some camp facilities and construct a new plant over a five year period and transfer certain mineral concessions and access rights to MCP that it needs in order to proceed with the development of Toromocho, including the surface lands within the planned open pit mining area of the Toromocho project. In exchange, Argentum will receive a package of surface rights, easements, and other rights to

relocate the facilities and to continue uninterrupted operations, and will also obtain rights to a number of mineral concessions outside the planned Toromocho pit area where high grade silver veins have been identified. Lastly, Argentum will receive periodic cash payments from MCP totalling $40 million, which will offset a portion of the capital required for the facility relocation. The transfer of lands and rights and the cash payments will occur over a period of time in accordance with meeting certain milestones. Pan American has completed the abandonment and demolition of all buildings in the Central Shaft area, the construction of the replacement facilities located north of the central highway, but has not yet relocated the plant.

Production rates vary, but over the past several years Morococha has processed between 524,000 and 693,000 tonnes of ore annually (on a 100% basis), producing approximately 2.5 million ounces of silver, 14,900 tonnes of zinc, 4,400 tonnes of lead, and 1,800 tonnes of copper in zinc, lead, and copper concentrates.

Pan American expects to process approximately 630,000 tonnes per annum (on a 100% basis) in the near future and then gradually increase the annual production rate as more mining areas become available, resulting in an estimated remaining mine life of 7.3 years, based solely on the existing mineral reserves. If current mineral resources can be converted to mineral reserves and/or if new mineral resources can be defined and converted to mineral reserves, then a new plant will be required to replace the current plant. The timing of constructing a new plant will be dependent on reserve growth and the advance of MCP's Toromocho open pit mine, but it will likely be required prior to 2020. The future economic justification of a new plant will rely primarily on mineral reserve growth and metal prices. Although no up to date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant, on the order of up to $100 million. This cost would be partially offset by the remaining payments due from MCP to honour the June 2010 agreement.

No economic analyses or engineering studies are currently underway.

1.4 Mineral resource and reserve estimates

Pan American conducts infill and near-mine drilling through much of the year and updates mineral resource estimates on an annual basis following reviews of metal price trends, treatment and refining charge trends for base metal concentrates, operational performance and costs experienced in the previous year, and forecasts of production and costs over the life of the mine.

The drillhole data cut-off date for the commencement of the geological interpretation and the mineral resource estimate was December 31, 2013. Other than normal course changes in metal prices, which fluctuate from time to time, no new material information has become available between June 30, 2014 and the signature date given on the certificates of the qualified persons.

Mineral resource estimates are prepared on an annual basis by Pan American staff under the supervision of and reviewed by Michael Steinmann, P. Geo., Executive Vice President, Corporate Development and Geology of Pan American Silver, who is a qualified person as that term is defined by NI43-101.

There are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors or risks that could materially affect the development of the mineral resources. Mineral resources that are not mineral reserves do not have demonstrated economic viability. Mineral resources reported here are in addition to mineral reserves.

Mineral resources for Morococha as at June 30, 2014 are given in Table 1.1. This tabulation includes material classified as measured, indicated, and inferred, using metal prices of $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. The mineral resources were estimated as of December 31, 2013 and depleted for mining as of June 30, 2014. Mineral resources are given for Pan American's 92.3% share of the Property.

Table 1.1 Morococha mineral resources as at June 30, 2014

Classification	Tonnes (Mt)	Ag ppm	Ag contained metal (Moz)	Cu%	Pb%	Zn%
Measured	0.8	150	3.9	0.41	1.31	3.57
Indicated	1.1	202	7.4	0.54	1.45	3.37
Measured + Indicated	1.9	180	11.3	0.49	1.39	3.45
Inferred	8.0	209	53.9	0.43	1.45	5.11

Notes: Mineral resources do not have demonstrated economic viability. Totals may not add up due to rounding. Mineral resource estimates were prepared under the supervision of or were reviewed by Michael Steinmann, P. Geo., Executive Vice President, Business Development and Geology of Pan American. Metal prices used for the mineral resource estimate were $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. Mineral resources are given for Pan American's 92.3% share of the Property. Mineral resources are in addition to mineral reserves.

Pan American updates mineral reserve estimates on an annual basis following reviews of metal price trends, treatment and refining charge trends for base metal concentrates, operational performance and costs experienced in the previous year, and forecasts of production and costs over the life of the mine. Other than normal course changes in metal prices, which fluctuate from time to time, no new material information has become available between June 30, 2014 and the signature date given on the certificates of the qualified persons.

Mineral reserve estimates were prepared by Pan American technical staff under the supervision of and reviewed by Martin Wafforn, P. Eng., Vice President, Technical Services of Pan American, who is a qualified person as that term is defined by NI 43-101.

Mineral reserve estimates are based on assumptions that include mining, metallurgical, infrastructure, permitting, taxation, and economic parameters. Increasing costs and taxation and lower metal prices will have a negative impact on the quantity of estimated mineral reserves. There are no other known factors that may have a material impact on the estimate of mineral reserves at Morococha.

Mineral reserves for Morococha as at June 30, 2014, comprising material classified as proven and probable reserves using metal prices of $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper, are given in Table 1.2. The mineral reserves were estimated as of December 31, 2013 and depleted for mining as of June 30, 2014. Mineral reserves are given for Pan American's 92.3% share of the Property.

Table 1.2 Morococha mineral reserves as at June 30, 2014

Classification	Tonnes (Mt)	Ag ppm	Ag contained metal (Moz)	Cu%	Pb%	Zn%
Proven	2.4	192	15.2	0.46	1.34	4.38
Probable	2.7	206	18.1	0.69	1.31	4.06
Proven + Probable	5.1	199	33.3	0.58	1.32	4.21

Notes: Totals may not add up due to rounding. Mineral reserve estimates were prepared under the supervision of or were reviewed by Martin Wafforn, P. Eng., Vice President, Technical Services of Pan American. Metal prices used for the mineral reserve estimate were $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. Mineral reserves are given for Pan American's 92.3% share of the Property. Mineral reserves are in addition to mineral resources.

1.5 Conclusions and recommendations

Pan American has been operating Morococha since 2004, processing between 524,000 and 693,000 tonnes of ore annually (on a 100% basis), producing approximately 2.5 million ounces of silver, 14,900 tonnes of zinc, 4,400 tonnes of lead, and 1,800 tonnes of copper in zinc, lead, and copper concentrates.

Pan American expects to process approximately 630,000 tonnes per annum (on a 100% basis) in the near future and then gradually increase the annual production rate as more mining areas become available, resulting in an estimated remaining mine life of 7.3 years, based solely on the existing mineral reserves. If current mineral resources can be converted to mineral reserves and/or if new mineral resources can be defined and converted to mineral reserves, then a new plant will be required to replace the current plant. The timing of constructing a new plant will be dependent on reserve growth and the advance of MCP's Toromocho open pit

mine, but it will likely be required prior to 2020. The future economic justification of a new plant will rely primarily on mineral reserve growth and metal prices. Although no up to date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant, on the order of up to $100 million. This cost would be partially offset by the remaining payments due from MCP to honour the June 2010 agreement.

Pan American conducts infill and near-mine drilling through much of the year and updates mineral resource estimates on an annual basis following reviews of metal price trends, treatment and refining charge trends for base metal concentrates, operational performance and costs experienced in the previous year, and forecasts of production and costs over the life of the mine.

There are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors or risks that could materially affect the development of the mineral resources. Mineral reserve estimates are based on assumptions that include mining, metallurgical, infrastructure, permitting, taxation, and economic parameters. Increasing costs and taxation and lower metal prices will have a negative impact on the quantity of estimated mineral reserves. There are no other known factors that may have a material impact on the estimate of mineral reserves at Morococha.

Morococha is a producing mine and there is no proposed material expansion of the current production at the mine other than an incremental increase that will be realized as part of Pan American's June 2010 agreement with MCP to relocate the processing plant to accommodate MCP's Toromocho open pit. No economic analyses or engineering studies are currently underway. Therefore, the authors of this report have no recommendations to make at this time.

2 Introduction

This technical report has been prepared by Pan American in compliance with the disclosure requirements of NI 43-101 to disclose current information about the Morococha Property.

The effective date of the mineral resource and mineral reserve estimates disclosed in this technical report is June 30, 2014. Other than normal course changes in metal prices, which fluctuate from time to time, no new material information has become available between this date and the signature date given on the certificate of the qualified persons.

Pan American is a silver mining and exploration company listed on the Toronto (TSX:PAA) and NASDAQ (NASDAQ:PAAS) stock exchanges.

Unless otherwise stated, all information, data, and illustrations contained in this report or used in its preparation have been provided by Pan American for the purpose of this technical report. This technical report has been prepared by Martin Wafforn, P. Eng., Vice President, Technical Services for Pan American, Michael Steinmann, P. Geo, Executive Vice President, Corporate Development and Geology for Pan American, and Americo Delgado, P. Eng., Director, Metallurgy for Pan American. Messrs. Wafforn, Steinmann, and Delgado are qualified persons as defined by NI 43-101 and are not independent of Pan American. The responsibilities of each co-author are provided in Table 2.1.

Mr. Wafforn visited Morococha most recently on January 31st, 2012, June 19th, 2012, April 25th, 2013, October 16th, 2013, February 3rd, 2014, June 18th, 2014, October 13th, 2014, and October 15th, 2014. He also met with mine technical staff in Pan American's Lima office in April 2013 and February 2014 to review the mine budget and long term plan. During the site visits Mr. Wafforn reviewed operating costs, cut-off grade calculations, reconciliation, mining parameters, mine planning, budgeting, grade control and blasting protocols, interpretations of the vein structures, and the mineral reserve estimation processes and parameters. He also reviewed the mining progress relative to the annual plan and estimated mining costs, and visited the underground operations to review key production areas, ground conditions, ventilation, development and pumping requirements, and the nature of the structures being mined. Other reviews included the plant facilities, the site layout and logistics for mining and processing, safety protocols and indicators, the environmental layout, and general business performance.

Mr. Steinmann visited Morococha most recently on January 31st, 2013 and May 22nd, 2014, and also met with site technical staff in Pan American's Lima office in January 2012, February 2013, and February 2014. During these visits Mr. Steinmann reviewed operating costs, cut-off grade calculations, reconciliation, mining parameters, geological interpretations of the veins and mineralized structures, drill planning and the location of existing and planned drillholes, and the mineral resource estimation process and parameters. Additionally Mr. Steinmann reviewed the channel sampling, exploration drilling, sampling, and sample security protocols,

drill core and the core cutting and storage facilities, the onsite geochemical laboratory, geological mapping, grade control protocols, the operational mine plan, actual mine operation data, and general business performance.

Mr. Delgado visited Morococha most recently on December 14th, 2011 and February 4th to the 6th, 2013. He also met with site technical staff in Pan American's Lima offices on December 13th and 15th, 2011 and February 7th and 8th, 2013. During these visits Mr. Delgado reviewed the metallurgical balance reconciliation, operational practices, metallurgical testing results, the analytical and metallurgical laboratories, the long term mine plan, new sampling programs for additional metallurgical testing, and general business performance.

Unless otherwise stated, all units are metric and currencies are expressed in United States dollars.

Table 2.1 Responsibilities of each qualified person

Qualified person	Company	Responsible for sections
Martin Wafforn, P. Eng. Vice President, Technical Services	Pan American Silver Corp.	1: Summary; 2: Introduction; 3: Reliance on Other Experts; 4: Property Description and Location; 5: Accessibility, Climate, Local Resources, Infrastructure and Physiography; 12: Data Verification; 15: Mineral Reserve Estimates; 16: Mining Methods; 19: Market Studies and Contracts; 20: Environmental Studies, Permitting and Social or Community Impact; 21: Capital and Operating Costs; 22: Economic Analysis; 24: Other relevant data and information; 25: Interpretation and Conclusions; 26: Recommendations; 27: References
Michael Steinmann, P. Geo. Executive Vice President, Corporate Development and Geology	Pan American Silver Corp.	1: Summary; 2 :Introduction; 6: History; 7: Geological Setting and Mineralization; 8: Deposit Types, 9: Exploration; 10: Drilling; 11: Sample Preparation, Analyses and Security; 12: Data Verification: 14: Mineral Resource Estimates; 23: Adjacent Properties; 25: Interpretation and Conclusions; 26: Recommendations
Americo Delgado, P. Eng., Director, Metallurgy	Pan American Silver Corp.	1: Summary; 2: Introduction; 12: Data Verification; 13:Mineral Processing and Metallurgical Testing; 17: Recovery Methods; 18: Project Infrastructure; 21: Capital and Operating Costs; 25: Interpretation and Conclusions; 26: Recommendations

3 Reliance on other experts

The qualified persons preparing this technical report have not relied on the reports, opinions, and statements of other experts for the preparation of this technical report.

4 Property description and location

4.1 Location, issuer's interest, mineral tenure, and surface rights

Morococha is an underground polymetallic silver mine located at a latitude of 11°36'S and a longitude of 76°10'W in the province of Yauli in the Central Highlands of Peru. La Oroya, the capital city of Yauli Province, has a population of 33,000, and lies 38 km to the east. A location map sourced during October 2014 from Google Maps is given in Figure 4.1.

Morococha is owned and operated by Argentum, a Peruvian company in which Pan American, through its subsidiary Pan American Silver (Peru) S.A.C., has a 92.01% voting interest. In addition, Pan American holds the majority of the non-voting investment shares resulting in a total ownership interest of approximately 92.3%. The remaining interest is held by Alejandro Gubbins and Compañia Minera Casapalca S.A.

The Morococha Property is comprised of three economic administrative units ("UEA") and various concessions held outside of these UEAs, for a total of 541 mining concessions with an area of 10,521.5273 hectares, as well as two processing concessions. The three UEAs contain 454 mining concessions and two processing concessions owned outright by Argentum and 11 concessions transferred to Argentum from Silver Lead Mining Company S. A. There are also 36 concessions under a lease agreement with Corporación Minera Sacracancha S.A.C., 31 concessions under option from MCP, and nine concessions held by agreement with different third parties. The majority of the mining concessions comprising the Property are contiguous. Details of the concessions are given in Table 4.1.

The known mineralized zones, mineral reserves and resources, mine workings, processing plants, effluent management and treatment systems, and the mine's tailings and waste disposal facilities are contained within the boundaries of the concessions. The mining concessions give Pan American the exclusive right to explore, develop, mine, and market all of the products. Mining concession titles for these properties are granted permanently and are registered with the Public Registry of Peru, and an annual fee is paid to the Institute of Geology, Mining, and Metallurgy (INGEMMET), which is a branch of the Peruvian Ministry of Energy and Mines. Pan American makes the required annual payments to maintain the mining concessions and has agreements in place granting surface rights and legal access to the mining operations. To Pan American's knowledge, all obligations required for the conduct of mining operations at Morococha are currently in good standing.

Argentum did not hold registered legal title of most of the surface lands that overlie the mining concessions which comprise the Property when Pan American acquired the Property in 2004, including lands on which Morococha's process plants, shafts and access roads were located. These rights were all formerly owned by Centromin. Centromin granted Argentum a right to use certain of Centromin's surface lands throughout the useful life of its mining operations, provided such use does not interfere with the development of a mine in respect of the

Toromocho disseminated copper system, which overlies certain of Argentum's mining concessions and underground mining operations. Argentum had an obligation to pay Centromin $60,000 (adjusted annually for inflation) quarterly commencing May 28, 2003 as consideration for this right. Argentum's and its predecessors' use of these surface lands have been exercised for decades with Centromin's knowledge and Argentum's claim to its continued use of these surface rights was based on concepts of rights acquired through long term use often referred to as adverse possession.

Peru Copper Inc. ("Peru Copper"), a copper mining company carrying on business in Peru, acquired mining concessions and surface rights to the Toromocho property from Centromin. In June 2007, Chinalco purchased 100% of the outstanding shares in Peru Copper, and formed MCP.

In 2005, Pan American, with the opposition of Centromin, engaged in a number of administrative and judicial proceedings to obtain legal title to surface lands and underground access that comprise part of the rights that were acquired by Peru Copper from Centromin. Following Peru Copper's acquisition of Centromin's rights, Pan American began preliminary discussions with Peru Copper, and later with Chinalco and MCP, in respect of negotiating a resolution to the surface rights issues between the parties.

In May 2008, MCP acquired certain surface rights from Centromin (currently, Activos Mineros S.A.) covering the main Morococha area that had been reserved for the Toromocho project by the Government of Peru. In addition, MCP acquired rights including surface lands in the Morococha area where the Morococha mine administration and operations are taking place, as well as certain underground areas. Certain of the underground areas acquired by MCP would also provide Pan American with easier and less costly underground access to some areas of the Morococha concessions.

In June 2010, Pan American reached an agreement with MCP that defined each party's long term surface rights and therefore provides certainty to the land situation for the Property. The primary focus of the agreement is on the lands and concessions around the Morococha mine and MCP's Toromocho copper project. Under the terms of the agreement, Argentum will relocate the core Morococha facilities, including the administration offices, warehouse, maintenance facilities, mine compressors, and some camp facilities and construct a new concentrator over a five year period and transfer certain mineral concessions and access rights to MCP that it needs in order to proceed with the development of Toromocho, including the surface lands within the planned open pit mining area of the Toromocho project. In exchange, Argentum will receive a package of surface rights, easements, and other rights to relocate the facilities and to continue uninterrupted operations, and will also obtain rights to a number of mineral concessions outside the planned Toromocho pit area where high grade silver veins have been identified. Lastly, Argentum will receive periodic cash payments from MCP totalling $40 million, which will offset a portion of the capital required for the facility relocation. The

transfer of lands and rights and the cash payments will occur over a period of time in accordance with meeting certain milestones. In addition to the foregoing, the parties agreed to dismiss the judicial and administrative claims between them. To date, Minera Argentum has received a total of $24.0 million (pre-tax) from MCP and has completed a number of phases of the relocation effort. Pan American has completed the abandonment and demolition of all buildings in the Central Shaft area, the construction of the replacement facilities located north of the central highway, but has not yet relocated the plant. Pan American continues to operate the plant, the location of which is projected to eventually interfere with the advance of the Toromocho open pit. Depending on economic justification, mineral reserve growth, and the advance of the Toromocho open pit, the plant will need to be replaced or relocated. Although no up to date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant, on the order of up to $100 million. This cost would be partially offset by the remaining payments due from MCP to honour the June 2010 agreement.

Figure 4.1 Morococha location map

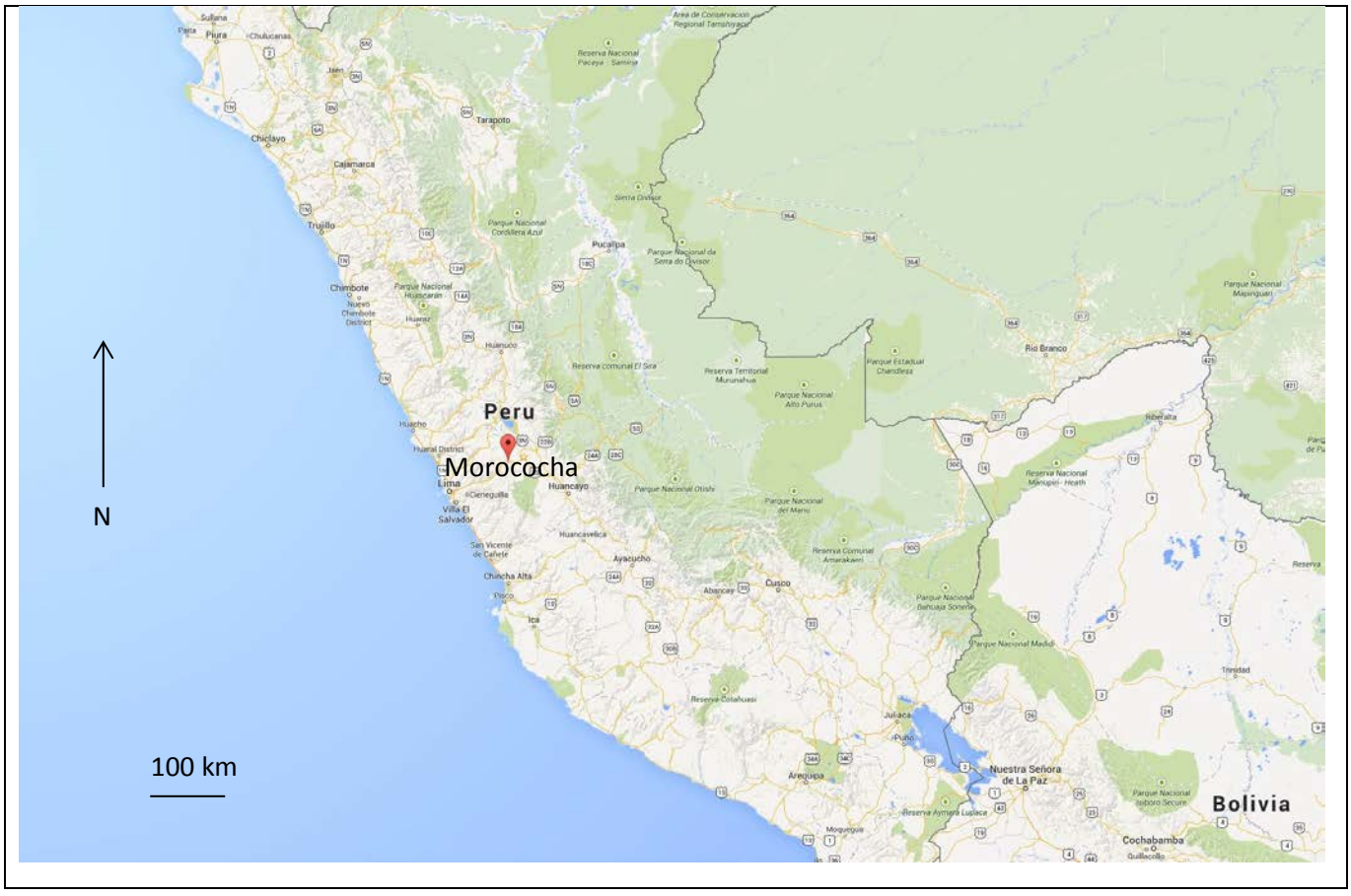


Table 4.1 Mining concession details

Concession number	Concession name	Area (ha)	Concession number	Concession name	Area (ha)
Title held by Compañia Minera Argentum S. A.					
10045896	Maria Elena S. R.	500.0000	0801026AY01	Carmen 2010	1.1747
10075607	Demasia PAS 1	66.6285	08010456X01	Barranco 27	1.1416
10075707	Demasia PAS 2	1.5110	08010522X01	Luzmila	3.9922
10075807	Demasia PAS 4	2.9075	08010538X01	Barranco 32	3.9235
10075907	Demasia PAS 3	1.0113	08010760X01	Barranco Nº 31	5.9872
10091400	Cuña M.C.	4.1893	08010762X01	Barranco Nº 30	5.9882
10119204	Danalis	68.4030	08011018X01	Teresita	7.9858
10144203	Corona 1 2003	35.6951	08011019X01	Luisita	3.9926
10144303	Corona IV 2003	2.9436	08011471X01	Susana	0.0443
10144403	Corona 3 2003	69.8757	08012128X01	San Juan de Amancaes	29.9464
10144503	Corona 2 2003	95.1879	08012129X01	10 De Julio	9.9831
10169295	Centromin 20	97.0003	08012137X01	La Innovacion	3.9927
10191799	Edelmira AM	2.6206	08012181X01	Carmen Adela	51.9077
10247999	Sacracancha MC	179.8247	08012290X01	Felicidad	19.9638
10270497	Morococha - 9	208.1150	08012293X01	El Milagro	5.9893
10283303	Corona Vieja	1.4447	08012311X01	Rauladas	29.9463
10295106	Morada	469.5656	08012312X01	Olga Mercedes	3.9931
10437208	Moro 5	0.0272	08012608X01	Numero 121	1.9961
10437508	Moro 2	0.0717	08012818X01	Rusia	2.7647
010169295A	Centromin 20-A	56.8095	08012891X01	Sylvia	8.5763
08000145X01	Santa Catalina 3A	1.1523	0801290AY01	Alerta A1	4.9901
08000367Y01	Alpamina Chico	2.8169	08013108X01	Genoveva	11.9774
08000499Y01	Melpomene	1.4084	08013117X01	Carolita	17.9662
08000601Y01	Kalipso	2.8147	08013128X01	Lucila	1.9963
08000602Y01	Minerva	2.8169	08013157X01	Tashiman Nº 1	3.9928
08000614Y01	Agata	2.8166	08013158X01	Tashiman Nº 2	3.9929
08000630Y01	San Francisco de Galera	3.9928	08013159X01	Tashiman Nº 3	3.9928
08000685X01	Animas	4.2259	08013219X01	Tashiman Nº 4	13.9734
08000820Y01	Elena	1.4087	08013220X01	Tashiman Nº 5	5.9890
08000840Y01	Grimalda	1.4091	08013221X01	Tashiman Nº 6	13.9735
08000841Y01	Esperanza	1.4086	08013222X01	Tashiman Nº 7	5.9887
08000857Y01	Tashiman	8.4522	0801342AY01	Milagrosa 2010	1.8499
08000859Y01	La Codiciada	8.4521	08013447X01	Reynaldo	7.9858
08000860Y01	La Yaulina	3.1722	08013448X01	Marianita	15.9712
08000861Y01	Dina	5.6347	08013449X01	Caroline	3.9930
08000862Y01	Margarita	1.5089	08013470X01	Stilson	5.2567
08000864Y01	Juana Rosa	11.2687	08013479X01	Jeanne	19.9642
08000876Y01	Segundo Manto	5.6338	08013480X01	Sylvita	1.9965
08001025Y01	Salvadora	2.8170	08013521X01	Santa Barbara	3.9928
08001034Y01	Concordia	1.4086	08013522X01	Javier	3.8286
08001035Y01	Trinidad	4.2265	08013810X01	Eugenio	1.9962
08001036Y01	Alianza	5.6428	08013916X01	Barbarita	3.9929
08001038Y01	Adriana	1.4086	08013934X01	Santa Rita	1.6081
08001039Y01	Inesperada	1.4083	08013975X01	Lucilita	1.9963
08001040Y01	Clarisa	2.8168	08014142X01	Alejandro	1.1830
08001041Y01	La Yaulina	1.4100	08014144X01	Santa Barbara 3	0.9982
08001042Y01	Purgatorio	4.2251	08014145X01	Santa Barbara 4	0.9982
08001043Y01	Colorada	2.8149	08014172X01	German	2.4004
08001044Y01	Carmencita	1.4085	0801503AY01	Llapita 2010	0.7980
08001045Y01	San Antonio O Ignacia	1.4085	08019778X01	Caja de Ahorros	1.9963
08001046Y01	Luzmila	2.8794	08020583X01	Salomon Quinto	23.7056
08001047Y01	Estrella	2.8168	08020629X01	La Unica	6.0029
08001048Y01	Nelly	1.4077	08020713X01	Electra Nº 2	3.9885
08001049Y01	Ajustada	2.8170	08020714X01	Electra Nº 3	5.6340
08001050Y01	Federico	1.4083	08020715X01	Electra Nº 4	1.8152
08001051Y01	Juanita	1.4072	08020716X01	Electra Nº 5	3.1465

Concession number	Concession name	Area (ha)	Concession number	Concession name	Area (ha)
08001052Y01	Maria Luisa	1.3948	08020718X01	Electra Nº 7	3.1936
08001053Y01	Angelica	0.1330	08020719X01	Electra Nº 8	4.1918
08001092Y01	Santa Catalina	5.6344	08020740X01	Electra Nº 10	1.9961
08001093X01	Merion	1.5322	08020851X01	Electra 14	2.1927
08001109Y01	Manuelita	1.4084	08020852X01	Electra Nº 12	1.2971
08001111Y01	Felipina	2.8172	08020853X01	Electra 15	1.4789
08001112Y01	Welevich	1.4083	08020854X01	Electra Nº 13	0.3172
08001113Y01	San Esteban	2.8176	08020855X01	Electra 11	2.2805
08001114Y01	Santa Maria	1.5845	08020931X01	San Vicente 79	3.9932
08001118Y01	Gricela	2.8017	08020939X01	Maria Rosa	4.3007
08001139Y01	Laura	1.1067	08021042X01	La Unidad	28.3498
08001210Y01	Maria Cristina	7.9845	08021091X01	Cipriana	13.9729
08001212Y01	Aurora	4.2249	08021092X01	Elvira	1.9962
08001250X01	Osiris	0.1604	08021210X01	Barbas 4	836.7675
08001268Y01	La Capitana	3.9930	08021211X01	Barbas 5	0.9054
08001276Y01	San Pedro	5.5797	08021274X01	Electra Nº 19	4.9906
08001283Y01	Pekin	1.3983	08021275X01	Electra Nº 17	1.9962
08001285Y01	Eduardo	7.9846	08021276X01	Electra Nº 18	0.8994
08001286Y01	Santa Catalina 2DA	3.9883	08021305X01	Santa Cruz	1.0921
08001288Y01	Escaramuza	1.9961	08021474X01	Rey	6.2260
08001289Y01	Lealtad	1.9960	08021620X01	Martha S. R.	3.9927
08001290Y01	Alerta	4.9903	08021621X01	Pachi	8.9836
08001291Y01	El Dorado	1.9961	08021622X01	Diana 1980	5.9897
08001292Y01	La Luna	3.6527	08021757X01	Jaime	2.9027
08001293Y01	Luz Electrica	1.9964	08021879X01	La Pica	3.6813
08001294Y01	Guillermo Tell	3.4912	08021918X01	Demasia Susanita	1.0291
08001295Y01	El Perno	1.9359	08021919X01	Demasia Diana	0.7099
08001311Y01	Raul	2.8168	08021920X01	Demasia Elvira	4.7797
08001312Y01	Desdemona	1.4084	08021921X01	Demasia Lima	1.1915
08001313Y01	Triple Alianza	2.8172	08021922X01	Demasia Marianita	2.1443
08001318Y01	Nelson	1.4086	08021924X01	Demasia Martha	4.2610
08001328Y01	Pachitea		08021925X01	Demasia Lucilita	0.3992
08001331Y01	Graviña	3.9928	08021926X01	Demasia Santa Barbara	0.0998
08001332Y01	El Majadero	8.4519	08021928X01	Demasia Paty	0.8446
08001348Y01	Maria Luisa	1.9961	08021947X01	Pretoria - S.R.	0.0660
08001357Y01	Lima	2.8170	08021949X01	Numero 220 S.R.	10.2232
08001362Y01	Maria	2.8168	08021950X01	Segunda Esparta S.R.	17.2376
08001391Y01	Italia	2.1589	08021953X01	Juana Rosa S.R.	5.7415
08001396Y01	San Francisco	1.4084	08021954X01	La Concordia - S.R.	0.8980
08001399Y01	San Miguel	2.8171	08021956X01	Perpetuo Socorro S.R.	0.1426
08001407Y01	Brunhilde	4.2258	08021957X01	Demasia Reynaldo	1.5815
08001428X01	Danton	0.5593	08021958X01	Huarasina S.R.	49.0584
08001445X01	Reyna	1.9962	08021959X01	Arapa S.R.	30.0004
08001462Y01	Satelite	0.7370	08021960X01	Clotilde S.R.	3.9920
08001466Y01	Amphitrite	1.7313	08021961X01	Elias -S.R.	17.9987
08001469Y01	El Doradito	1.5424	08021963X01	Maria S. R.	2.8660
08001470Y01	La Facilitada	1.9962	08021964X01	Monte Alegre-S.R.	31.0881
08001471Y01	Josefina	1.0547	08021965X01	Don Miercoles S.R.	1.0600
08001472Y01	Continuacion de San Miguel	1.9962	08021966X01	Italia - S.R.	1.7714
08001477X01	Rosalvina	3.9920	08021968X01	Indeciso S.R.	12.4735
08001482Y01	Atlante	3.9385	08021970X01	Huracan S.R.	0.3835
08001497Y01	Grimhilde	2.5806	08021972X01	Numero 200 S.R.	6.9831
08001498Y01	Isolde	1.4559	08021979X01	Acaya -S.R.	5.9973
08001541X01	Saturno	1.5120	08021982X01	Graciela S.R.	30.6601
08001549Y01	Hernani	1.9965	08021983X01	Enredo	4.8586
08001550X01	Osmin	0.4719	08022277X01	Santa Barbara Segunda S.R.	3.2660
08001551X01	Bajazet	1.0019	08022278X01	Enredo - I	3.9668
08001552X01	Plinio	0.4236	08022462X01	Leo	9.9979
08001555Y01	Hildegard	2.0796	08022463X01	Ana Maria S.R.	656.8239
08001559Y01	Union	11.9785	08022468X01	Ana Luisa S.R.	585.1791

Concession number	Concession name	Area (ha)	Concession number	Concession name	Area (ha)
08001569Y01	Julia	2.3173	08022482X01	Viscas - S.R.	736.9769
08001570Y01	Medusa	2.3880	08022492X01	Numero 220 - S.R.I.	10.8985
08001572Y01	Tristan	1.8584	08022514X01	Galera - M.H	13.6958
08001573Y01	Cleo	1.3164	08022527X01	Miguel Nº 1	7.9443
08001591Y01	Panchita	1.7497	08022528X01	Miguel Nº 2	5.9892
08001604Y01	El Guardian	3.4698	08022529X01	Miguel Nº 3	5.9720
08001605Y01	Rosa Lucrecia	1.9962	08022530X01	Miguel Nº 4	3.9616
08001608Y01	Codiciada 2A	1.9969	08022531X01	Miguel Nº 5	1.9965
08001611Y01	La Tortuga	1.9960	08022532X01	Miguel Nº 6	2.1641
08001615Y01	Nuevo Pesar	3.4997	08022533X01	Miguel Nº 7	2.2821
08001620Y01	Isabel	0.8361	08022544X01	Norma - M.H.	100.0016
08001628Y01	Olivia	13.9732	08022564X01	Norma - M.H. - I	76.3786
08001629Y01	La Republica	1.4636	08022574X01	Neron - 3365	1.6249
08001653Y01	Lucio	1.9960	08022575X01	Neron - 1105	1.0154
08001667Y01	Ricardo	1.9962	08022580X01	Galera Segunda - M.H.	0.9727
08001674X01	Yago	3.5116	08022621X01	Genova - A - Nº 1	23.9558
08001676Y01	Vesta	3.0032	08022645X01	Genova - A - Nº 2	19.9615
08001677Y01	Juno	1.1813	08022647X01	Explorar Nº 3-M.H.	399.2416
08001682Y01	Leonor	3.9919	08022738X01	Galera Segunda M.H.I.	0.7732
08001683Y01	Lila	2.8923	08022780X01	Exaltacion S.R.	1.3556
08001690Y01	Codiciada 1A	1.4521	08022796X01	Sacragrande	3.0118
08001705Y01	Triton	1.6789	08022981X01	Explorar Nº 3-M.H.-I	38.0114
08001706Y01	Laomedon	1.0743	08023077X01	Zenaida 89	99.8174
08001707Y01	Proserpina	0.6597	08023125X01	Guillermo III J.C.	9.9800
08001782Y01	Nudo Gordiano	1.0166	08023173X01	Genova M.G.	5.0213
08001810Y01	Vieja Verde	0.8445	0804352AY01	Condenado 1	42.3281
08001839Y01	El Condor	0.8148	0804352BY01	Condenado 2	15.2163
08001885Y01	Nuevo Tartuffo	2.2927	0804352CY01	Condenado 3	4.6447
08001917Y01	Nelly Primera	0.4484	0804352DY01	Condenado 4	5.8089
08001953Y01	Cybele	1.1122	0804352EY01	Condenado 5	6.4503
08001960Y01	Don Ricardo	4.2252	0804352FY01	Condenado 6	8.1042
08001961Y01	Don Carlos	7.3945	0804352GY01	Condenado 7	4.1263
08001971Y01	Numero 45	1.9965	0804352HY01	Morococha 1 - A	65.9499
08001993Y01	New York	1.9961	0804352IY01	Morococha 1 - B	7.4093
08002033Y01	Adelante	1.0487	0804352JY01	Morococha 1 - C	5.2086
08002109Y01	Catinca	1.5429	0804352KY01	Morococha 1 - D	3.5248
08002141Y01	Numero 48	1.7379	0804352LY01	Morococha 1 - E	3.9929
08002161Y01	Llave de Oro	6.3177	0804352MY01	Morococha 1 - F	5.5494
08002267Y01	Estherita	5.9893	0804352NY01	Morococha 1 - G	0.2133
08002273Y01	Salchicha	1.9967	0804352OY01	Morococha 1 - H	1.8914
08002276Y01	El Señor Que Suda	3.9929	0804352PY01	Morococha 1 - I	1.8846
08002277Y01	Bula	2.2054	0804352QY01	Morococha 1 - J	5.3609
08002288Y01	Elisa	1.9964	0804353AY01	Morococha 2 - A	0.4990
08002289Y01	Aurora	5.9907	0804354BY01	Toldo 2	8.0487
08002303Y01	Ampliacion 2A	1.9962	0804354CY01	Toldo 3	0.0596
08002304Y01	Clavito	0.4958	0804354IY01	Condenado 8	0.1085
08002305Y01	Tornillo	0.2561	0804354JY01	Morococha 3 - A	20.6470
08002306Y01	Brujulita	0.5578	0804354NY01	Morococha 3 - E	152.3057
08002320Y01	Sara	0.1592	0804355AY01	Toldo 4	7.9089
08002321Y01	Maquinita	0.4637	0804355BY01	Toldo 5	0.6917
08002325Y01	Lima	11.9788	0804355BY03	Morococha 4 - B - 2	16.2521
08002346Y01	La Conclusion	3.6992	0804355CY01	Toldo 6	13.8370
08002347Y01	Pachitea 3RA		0804355DY01	Toldo 7	1.1284
08002349X01	Nº 47	1.4739	0804355EY01	Condenado 9	0.1927
08002351X01	Numero 49	0.0749	0804355FY01	Condenado 10	1.2813
08002354Y01	Juanito	0.1480	0804355GY01	Muchcapata 6	116.1360
08002402Y01	El Loquito	0.1745	0804355HY01	Muchcapata 7	18.2943
08002430Y01	Moltke	3.9925	0804355IY01	Morococha 4 - A	0.0837
08002522Y01	Richi - Rachi	1.9961	0804355JY01	Morococha 4 - B	2.2974
08002554X01	Brillantina	2.6269	0804355KY01	Morococha 4 - C	1.9036

Concession number	Concession name	Area (ha)	Concession number	Concession name	Area (ha)
08002555X01	Bernardo	1.4155	0804355LY01	Morococha 4 - D	2.1551
08002556X01	La Victoria	1.3566	0804355MY01	Morococha 4 - E	0.3053
08002558X01	Alberto	0.6420	0804355NY01	Morococha 4 - F	1.3713
08002646X01	Friolera	11.9776	0804355OY01	Morococha 4 - G	0.8646
08002698Y01	Scotland	2.5953	0804355PY01	Morococha 4 - H	1.6287
08002722Y01	Huairuro	3.9926	0804355QY01	Morococha 4 - I	6.9910
08002733Y01	Gorizia	2.6192	0804355RY01	Morococha 4 - J	1.0631
08002734Y01	Chapana	0.3385	0804356AY01	Muchcapata 1	1.9978
08002947Y01	Josefina	3.4959	0804356BY01	Muchcapata 2	3.0401
08002961X01	Dios DA	0.8970	0804356CY01	Muchcapata 3	14.5796
08003044Y01	El Mek	5.9892	0804356DY01	Morococha 5 - A	63.6337
08003133Y01	Chiara	1.9185	0804356EY01	Morococha 5 - B	24.6376
08003146Y01	Sloga	3.5181	0804356FY01	Morococha 5 - C	12.1642
08003148Y01	Seguridad	0.8658	0804356GY01	Morococha 5 - D	8.2760
08003149Y01	Tuyuragua	1.3671	0804356HY01	Morococha 5 - E	9.3816
08003192Y01	Genova A	5.9882	0804356IY01	Morococha 5 - F	5.3040
08003194X01	Remache	0.2147	0804356JY01	Morococha 5 - G	1.0284
08003195X01	Mercedes	0.0767	0804356KY01	Morococha 5 - H	0.1593
08003202X01	Cristina	0.0675	0804356LY01	Morococha 5 - I	2.3947
08003203X01	Candado	0.1318	0804356MY01	Morococha 5 - J	1.4236
08003203Y01	Clara	3.9922	0804356NY01	Morococha 5 - K	0.2961
08003204X01	Pedrito	1.0729	0804356ÑY01	Morococha 5 - L	0.2864
08003207X01	Chaveta	0.0896	0804356OY01	Morococha 5 - M	8.0001
08003377Y01	Kalipso Segunda	0.2935	0804356PY01	Morococha 5 - N	0.1196
08003379Y01	Grimhilde Segunda	0.0265	0804356QY01	Morococha 5 - Ñ	0.1717
08003383Y01	Melpomene Dos	0.2537	0804356RY01	Morococha 5 - O	25.6755
08003388Y01	Agata Segunda	0.0181	0804357AY01	Condenado 11	0.9946
08003400Y01	Edelmira Dos	0.0711	0804357BY01	Condenado 12	0.7127
08003420Y01	Barranco	0.0100	0804357CY01	Condenado 13	0.9126
08003421Y01	Barranco Nº 26	1.9962	0804357DY01	Condenado 14	1.1688
08003464X01	Socavon Auxiliar	1.9961	0804357EY01	Condenado 15	3.0424
08003467Y01	Catalina	2.6448	0804357FY01	Condenado 16	3.5575
08003468Y01	Venus	19.9641	0804357GY01	Morococha 6 - A	5.7481
08003481Y01	Lucila	5.9896	0804357HY01	Morococha 6 - B	1.0481
08004156Y01	Cosmopolita	1.4087	0804357KY01	Morococha 6 - E	0.1473
08004185Y01	Electra Nº 1	1.4085	0804358DY01	Morococha 7 - B	0.5257
08004352Y01	Morococha 1	416.1598	0821211AX01	Barbas 5A	548.7852
08004353Y01	Morococha 2	378.0057	0821276AX02	Electra Nº 18-A (Fraccionado)	5.4892
08004354Y01	Morococha 3	258.7317	0821947AX01	Pretoria S.R. A Fraccionado	30.5362
08004355Y01	Morococha 4	9.3667	0822780AX01	Exaltacion - A (Fraccionado)	3.8758
08004356Y01	Morococha 5	99.0755	0823079AX01	Año Nuevo	21.9008
08004357Y01	Morococha 6	471.8389	084356FAY01	Morococha 5 - C1	21.3018
08004358Y01	Morococha 7	193.5664	084356FBY01	Morococha 5 - C2	7.8184
08005297X01	Juana Rosa Primera	5.9887	084356GAY01	Morococha 5 - D1	3.9490
08005298X01	Juana Rosa Segunda	3.9925	084356GBY01	Morococha 5 - D2	4.1441
08005649X01	Eugenita	1.1582	084356RAY01	Morococha 5 - O1	4.7780
08005751X01	Tesoruccio	5.3822	11025082X01	Ticlio - SR - I	34.5004
08005923X01	Roma	1.9965	11025083X01	Ticlio S.R.-II	2.1911
08006629X01	Maria Elena	5.9894	11025084X01	Ticlio - S.R. - III	3.6327
0800819AY01	San Luis 2010	0.6516	11025666X01	Ticlio Segundo	0.2429
08010036X01	El Triangulo	0.9954	P0800383	Amistad Mill	n/a
08010041X01	Aurora	0.2429	P0100004	Sacracancha Mill	n/a
Title held by Minera Chinalco Peru S. A.					
08000819Y01	San Luis	0.9332	08005076X01	Moneda	9.9822
08000970X01	Diana	1.5539	08012817X01	Londres	2.6092
08001026Y01	Carmen	0.2340	08012819X01	Violeta	1.6334
08001296Y01	Maria Esther	2.8174	08020928X01	Pitina	1.9999
08001297Y01	Frine	1.9931	08020929X01	Conflagracion	5.0352
08001298Y01	Julia Elena	5.9888	08021957X02	Don Lunes - S.R.	3.7364

Concession number	Concession name	Area (ha)	Concession number	Concession name	Area (ha)
08001503Y01	Llapita	2.2604	08021967X01	San Enrique S.R.	1.5562
08001571Y01	Laura	0.9016	0804354AY02	Morococha 3 - A - 1	10.3185
08001688Y01	Ruperto	2.0303	0804354AY03	Morococha 3 - A - 2	1.7324
08001708Y02	Gran San Miguel de Plata	23.9547	0804354KY01	Morococha 3 - B	0.0896
08001959Y01	Boer	4.2264	0804354OY01	Morococha 3 - F	11.1313
08001976Y01	Decima	0.4824	0804355AY03	Morococha 4 - A - 1	15.7070
08002309Y01	Argentina	7.9871	0804357ÑY01	Área Buenaventura	36.4152
08003196X01	Zoila	2.4637	0822776AX01	Graciela M.S.R.	0.6821
08003206X01	La Suiza	3.1272	084354NAY01	Morococha 3 - E - A	11.0678
08003215X01	San Lorenzo	1.7433			
Title held by Corporacion Minera Sacracancha S. A. C.					
08000991X01	Rolando	3.9922	08001675Y01	Don Daniel	0.5607
08001395Y01	Milagro	1.4085	08001700Y01	San Francisco	1.9962
08001397Y01	Milagro	2.8172	08001710Y01	Adela	0.5198
08001398Y01	Mercedes	4.1796	08002263Y01	Triunfo 2	3.9925
08001400Y01	Revancha	1.0899	08002264Y01	Canta	2.5863
08001401Y01	Mansita	2.8167	08002266Y01	Consuelo 2A	0.2948
08001402Y01	Miraflores	1.4085	08002409Y01	Miguelito	5.9886
08001403Y01	La Mar	1.6767	08002765X01	Julio	1.9962
08001404X01	Monjita	0.1092	08002920X01	El Triunfo	11.9770
08001405Y01	Sacracancha Chico	1.4085	08002921X01	Finita	0.4874
08001406Y01	Ayhuachi	0.7622	08002922X01	Luisito	0.6135
08001547X01	Emilia	2.1211	08003534Y01	Gordita	3.9925
08001609Y01	La Investigada	2.4777	08003634Y01	San Francisco Segundo	1.4084
08001623Y01	San Miguel	1.9962	08003815X01	Kupferberg	1.9964
08001650Y01	La Tuerca	1.9962	08006808X01	Don Guido	0.0687
08001651Y01	El Tarugo	3.9925	08006809X01	Carlotita	1.4280
08001673Y01	Don Julio	0.7526	08006817X01	Teresita	1.9947
08001674Y01	Pelotaris	1.9961	08012055X01	Manuelito	5.9885
Title held by Silver Lead Mining Company					
08001537Y01	Dante	3.9920	08009088X01	Nidia	19.9609
08001538Y01	Sara	5.6346	08009176X01	Lead	1.9964
08003083Y01	Fabiola	3.9920	08009177X01	Silver	15.9701
08008828X01	Ligia	5.9883	08009178X01	Ila	5.9883
08008898X01	Eunise	7.9849	08009179X01	Angelica	19.9620
08009087X01	Pez	1.9960			
Title held by various third parties					
08001108Y01	San Nicolas	1.4089	08018694X01	Neron 1	0.9978
08001344Y01	Begonia	0.9754	08018695X01	Neron 2	0.9026
08010426X01	Año 934	1.9953	08019129X01	La Huaca 25	2.0908
08015429X01	Caton	3.9923	08019143X01	El Proletario	14.0003
08016663X01	La Perla-87	1.7900			

4.2 Royalties, back-in rights, payments, agreements, and encumbrances

The principal taxes of Peru affecting Morococha include income tax, an employee profit sharing tax, annual fees for holding mineral properties, various payroll and social security taxes, a refundable value added tax, a mining royalty tax, and a Special Mining Tax. The royalty is applied on a company's operating income and is based on a sliding scale with marginal rates ranging from 1% to 12% with a minimum royalty rate of 1% of sales regardless of its profitability. Other than described in Section 4.1, to the best of Pan American's knowledge, there are no known royalties, back-in rights, payments, agreements, or encumbrances on the Morococha concessions.

4.3 Environmental liabilities

The environmental liabilities at Morococha are typical of an operating mine in a historical mining district. Morococha received approval of the mine's environmental liabilities closure plan in 2009, which was successfully executed and concluded in 2012. From that date Pan American has continually monitored the physical stability of reclaimed mine waste and tailings facilities, hydrological and biological factors, as well as social commitments. These factors are reported semi-annually to the Peruvian Evaluation and Environmental Control Agency, which demonstrate the reintegration of the surrounding area to its natural landscape. The post closure phase is expected to last for five years, and after that time the environmental certification of closure will be processed.

The most significant environmental liability identified at the Morococha mine is the mine's potential share of the cost to operate the Kingsmill Tunnel water treatment plant. The Kingsmill Tunnel is an 11.5 kilometre long underground opening excavated between 1929 and 1934 to dewater the Morococha District mine workings above 4,020 metres above sea level. The water treatment plant was built and is currently being operated by MCP to treat the 1.5 to 1.8 cubic metres per second of water draining from the Kingsmill Tunnel into the Rio Yauli. Morococha's share of the cost was defined by a hydrogeological study completed in 1997 which apportioned responsibility for the costs of constructing and operating the treatment plant as follows: (i) Centromin (72.2%); (ii) Morococha operations (12.3%); (iii) Soc. Minera Puquiococha (8.5%); (iv) Soc. Minera Austria Duvaz (4.9%); and (v) Minera Centrominas (2.1%). Subsequent to the apportionment of costs, it appears that in connection with the acquisition by MCP of the mining concessions near Morococha, MCP assumed the cost of the construction of the Kingsmill water treatment plant.

The treatment and operating costs for the water treatment facility are directly proportional to both constituent load and flow determined in the 1997 study. The distribution of responsibility stated in the 1997 study has been accepted by all involved parties. Pan American's potential share of the responsibility for treatment of the baseline flows, 12.3%, was included in the terms of its purchase of the applicable mining concessions. As a purchase contract entered into during 2003 between Empresa Minera Natividad S.A. ("Natividad") and Argentum establishes that the purchaser is responsible for incremental flows in those concessions, subsequent studies in 2004 were carried out to further characterize the baseline flow conditions in order to establish benchmarks for the determination of responsibility for potential future increases. The results of this study estimated that 38.46% of the baseline flows were derived from Natividad and Corona concessions now under Pan American's control. Pan American challenged this estimate but the challenge was not accepted. The scope of the study and the resulting recommendations exceeded the terms of the study and presented conclusions that conflicted with previous conclusions and the terms of Pan American's purchase of the applicable concessions. Pan American has included the estimated costs for 12.3% of the operations of the water treatment facility in its closure and reclamation estimates.

There are no other known environmental or social issues that could materially impact the mine's ability to extract the mineral resources or mineral reserves.

4.4 Permits

Pan American holds all the necessary environmental and operating permits for the development and operation of the existing mine and is in compliance with Peruvian law. The Ministry of Energy and Mines has provided approval for Environmental Compliance and Management, the Special Program for Environmental Management, and Environmental Impact Studies.

Pan American has obtained other permits necessary for normal operations of the mine, including permits for water use, re-use of treated domestic wastewater, treated industrial and domestic waste water disposal, mine closure plans, waste dumps, the use and storage of explosives, and facilities for liquid fuel.

4.5 Significant factors and risks

There are no known significant factors or risks that may affect access, title, or the right or ability to conduct the mining, processing, and exploration activities at Morococha.

5 Accessibility, climate, local resources, infrastructure, and physiography

5.1 Access, transport, and population centre

The Morococha mine is accessible via Peru's paved central highway, by travelling approximately 137 kilometres east of Peru's capital city of Lima, then 2.9 kilometres north via a public, all-weather gravel road. Rail service from Lima is also available via a national rail line that passes adjacent to the operations.

Mining has taken place on the Morococha mine and nearby areas such as Casapalca for more than 100 years, resulting in a well-developed regional transportation and power infrastructure and a large local labour pool. Peru's economy is dependent on mining and currently there is a sufficient local source of mining personnel and related infrastructure. Some of the mine's workforce live in local communities including a new town that was constructed by MCP to relocate the people living in the old town of Morococha, which was required to permit mining of the Toromocho open pit. Experienced mining personnel from the region commute to the Property via company sponsored buses, company vehicles, or privately owned vehicles. Materials, fuel, and produced metal concentrates are transported to their destinations by road.

5.2 Climate, length of operating season, and physiography

The climate of the operations area is typical of the Andean Cordillera in Peru, with two distinct seasons – wetter summer months (November through March) and dryer, colder winter months (April through October). Because all mining currently takes place underground, climate has minimal effect on ore production at the mine, which operates throughout the entire year. The topography of the mine operating area is characterized by steep, rugged ridges and peaks ranging in elevation from 4,400 metres to over 5,100 metres above sea level. Vegetation is sparse and wildlife is limited to mostly birds and small mammals, amphibians, and reptiles.

5.3 Surface rights, land availability, infrastructure, and local resources

Following the June 2010 agreement with MCP, surface rights for mining operations are sufficient and secure. The known mineralized zones, mineral resources, mineral reserves, mine workings, the processing plant, existing tailing impoundments, effluent management and treatment systems, and waste rock storage facilities are located within the mining concessions. The existing processing plant must be replaced and a new processing plant constructed in a new location pursuant to the June 2010 agreement with MCP.

The mine is authorized through payment of a water use permit to take water from the nearby Huacracocha and Venecia lakes for mining and processing activities and typically uses on the order of 1.1 million cubic metres per annum. The mine is also permitted to take water from Huacracocha Lake for human consumption and typically uses around 50,000 cubic metres per

annum for that use. This permitted volume of water is more than sufficient for the mine's requirements.

The mine is also authorized to dispose of mine tailings at the adjacent Huascacocha Lake, which has been used for this purpose since 1960. Several mine development waste disposal sites exist on the Property and are sufficient to meet the needs of mining operations.

The primary source of power for the mine is the Peruvian national power grid and is sufficient for the mine's current requirements. The annual power consumption at Morococha is approximately 60 million kilowatt hours, distributed between about 31 million kilowatt hours at the mine, 22 million kilowatt hours at the plant, and 7 million kilowatt hours for other buildings and services.

The nearby areas of Casapalca and La Oroya provide a large local labour pool.

6 History

Mining began in the region around the Morococha mine before the 1500s, and production has been continuous in the district since the late 1800s. The former owners of the mines that comprise the Morococha operations conducted only minimal systematic exploration in the district. Most of the older exploration efforts were limited to underground development along strike of known structures, which was immediately followed by stope development and mining. The Morococha District has excellent exploration potential owing to the prevalence of carbonate units favourable for replacement mineralization as well as the significant vertical extents of known mineralization. As a result, drilling was not typically part of the exploration efforts. Prior to Pan American's acquisition of the Property, little effort was given to the exploration and economic evaluation of areas that were not immediately adjacent to the existing mine workings. Previous operators utilized both surface and underground diamond drilling only to test for potential economic mineralization in the various veins, replacement mantos, and skarn bodies. Once the presence of economic mineralization was confirmed, the vein or manto was accessed by underground crosscutting and drifting for further exploration. None of the historical drillhole data is used in the current estimation of mineral resources and mineral reserves at Morococha.

Between 1915 and 1918, much of the district was reorganized and incorporated into Cerro de Pasco. By 1924, Cerro de Pasco was producing at a rate of 1,500 tonnes per day from primarily copper ores containing 6% copper. Between 1929 and 1934, Cerro de Pasco excavated the 11.5 kilometre long Kingsmill Tunnel, successfully dewatering all of the Morococha District mine workings above the 4,020 metre elevation of the tunnel. The Kingsmill Tunnel is still in use and is a vital feature of the Morococha mining district.

In the 1940s, the Gubbins family began operating mines in the Morococha District through Minera Santa Rita S.A. and Minera Yauli S.A., which were subsequently consolidated in the late 1990s into Sociedad Minera Corona S.A. ("SMC"). Cerro de Pasco continued to operate in other areas around the Morococha District until 1974, when its mines were nationalized by the Peruvian government. Production from the Cerro de Pasco mines in the district continued under the Peruvian national mining company, Centromin, until 2003, when SMC acquired these operations from Centromin through privatization.

On January 20, 2004, Pan American entered into an agreement with 14 individuals, estates and companies, all of whom were arm's length to Pan American and are members of the Gubbins family or entities in which members of the Gubbins family hold beneficial interests (the "Morococha Vendors"), to purchase 92.014% of the voting shares of Argentum, a sociedad anónima organized under Peruvian company law, for $35,425,390 in cash. Argentum acquired, through a corporate restructuring undertaken under Peruvian company law, the Anticona and Manuelita mining units and related infrastructure and processing assets from SMC. At the time of acquisition, Argentum held in its treasury as cash, all profits earned by SMC's Anticona and

Manuelita mining operations since November 1, 2003. The transaction was subject to regulatory approval and a number of conditions, including: (i) the completion of the corporate restructuring; (ii) the listing on the Lima Stock Exchange of 100% of the shares of Argentum, including those issued in connection with the corporate restructuring; and (iii) Pan American successfully undertaking a public bid for not less than 92.014% of the voting shares of Argentum through the Lima Stock Exchange.

On February 24, 2004, Pan American entered into a further agreement with the Morococha Vendors to purchase all of the issued and outstanding shares of Natividad, a corporation organized under Peruvian company law which holds mining concessions and operations that are complementary to the Anticona and Manuelita mining units, for $1.5 million in cash. Closing of the acquisitions of Argentum and Natividad occurred contemporaneously in August 2004, with effect as of July 1, 2004 and in 2005, Argentum amalgamated with Natividad. Argentum made all necessary applications for delisting its shares from the Lima Stock Exchange and the delisting process was completed in 2006. In addition, Pan American Peru continues to acquire the labour shares in Argentum when able to do so. The labour shares were created as a means through which workers would be able to take part in Pan American's success (but do not afford the holders of such shares influence over Pan American's decision-making, as they are non-voting), and are held either by current workers, former workers or by third parties who have bought labour shares in the free market.

Extensive mining has taken place at the Property prior to Pan American's acquisition in 2004, but there are no known reliable historical production figures. For the 15 years between 1989 and 2003, approximately 7.9 million tonnes of ore was mined at a grade of 227 ppm Ag, 0.5% Cu, 1.7% Pb, and 4.6% Zn.

7 Geological setting and mineralization

7.1 Regional, local, and property geology

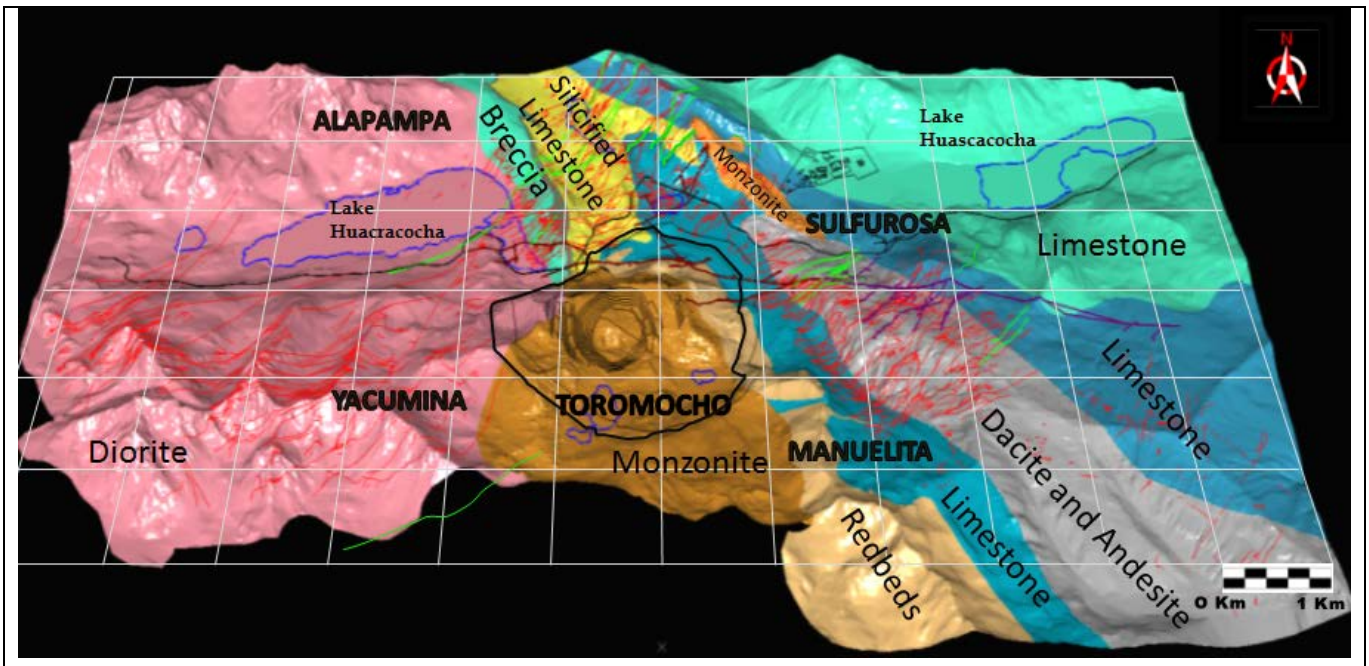
The Property is located on the eastern side of the Western Cordillera of the Andes Mountains. The host rocks for the mineralization in the Morococha District comprise a 2,000 metre thick Palaeozoic to Mesozoic aged sequence of schists, volcanic rocks, and predominantly carbonate sediments cut by a series of Upper Tertiary aged intrusions. The structures that account for the majority of the vein mineralization in the Morococha District trend predominantly northeast to east-northeast.

The structural setting of the area is dominated by shallowly northwest plunging folds, the most important of which is the anticlinal feature referred to as the Yauli Dome, which trends north-northwest and divides the district roughly in half. The Mitu volcanics outcrop in the core of the dome, with Pucará limestones on the east and other sediments on the west. Continued compression apparently gave rise to early northwest trending shears, and the uplifting effect of the intrusion of quartz monzonite stocks produced an arching of the Yauli Dome and an associated phase of tension faulting generally trending perpendicular (northeast-southwest) to the axis of the anticline. This latter set is the most heavily mineralized set of fractures and accounts for the majority of fault hosted mineralization in the Morococha District. A schematic diagram of the local geology and the orientation of the veins is given in Figure 7.1

Vein mineralization formed along the dominant system of northeast trending tensional faults. With the exception of an agglomerate unit in the upper Mitu Group and the sedimentary breccias in the upper and lower Pucará, the Mitu volcanics, Anticona diorite, and much of the sedimentary sequence are good vein hosts. Mineralization associated with the veins is mostly fracture filling in nature except in some carbonate hosts where irregular replacement can take place in the wall rocks.

Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favourable lithologies are intersected by mineralized veins or are proximal to pre-mineral intrusives. Some of the replacement mineralization occurs as structurally controlled irregular chimneys within generally favourable stratigraphic horizons. Intrusive contact related skarn bodies are common the in the Pucará, generally in areas of pre-mineral intrusives, giving rise to contact related silicification and/or calc-silicate alteration. For the most part these skarns are generally small and irregular, with disseminated rather than massive sulphide mineralization.

Figure 7.1 Schematic of local geology



7.2 Mineralization

Mineralization at the Morococha mine includes epi-mesothermal silver-zinc-lead-copper veins, bedded silver-base metal replacements or mantos (which together account for the majority of the previously mined and presently known mineralization at the Property), intrusive-sediment contact skarns, and the quartz porphyry-hosted Toromocho disseminated copper system. The size and geometry of individual ore shoots are lithology and structure dependent. Shoots range up to 400 metres in length with some traced for over 800 metres down plunge. Economic widths in the veins range from 0.5 metres to more than 6.0 metres. Vein width averages in the district are on the order of 1.2 metres.

Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favourable lithologies, especially carbonates, are intersected by mineralized veins or are proximal to pre-mineral intrusive rocks. Mantos can have a significant strike extent where the veins are closely spaced, and can range from less than one metre to up to 12 metres in width.

Ore and gangue mineralogy is similar in veins and mantos but varies considerably across the Property. Sphalerite, galena, and chalcopyrite are the most important primary minerals for zinc, lead, and copper while silver is generally present as freibergite (silver-tetrahedrite) or argentiferous galena. Gangue generally consists of quartz, calcite, barite, and rhodochrosite.

Similar to most large Peruvian polymetallic deposits, Morococha exhibits a distinct lateral and vertical metal zonation. The central Toromocho copper deposit grades outward through a

lead-zinc minor silver zone and then into an outermost zone that is richer in silver with significant lead-zinc grades. There is also a distinct trend of higher silver grades at higher elevations on the west side of the Morococha mine. Silver assays of greater than 2,200 grams per tonne are not uncommon above 4,800 metres above sea level, and greater than 300 grams per tonne silver grades are also common in the outer silver-lead-zinc zone above the 4,400 metre elevation. In veins with significant vertical extents, silver grades tend to decrease as zinc grades increase with depth.

The hydrothermal alteration present at Morococha is typical of central Peruvian zoned polymetallic deposits.

8 Deposit types

The geological setting of the Morococha District includes a wide range of deposit types. There are four principal types of mineralization in the district, including epi-mesothermal silver-zinc-lead-copper veins, stratiform silver and base metal replacements (mantos), intrusive-sediment contact skarns and mantos, and the quartz porphyry-hosted Toromocho disseminated copper system. The first two types account for the great majority of mineralization at the Morococha mine and are the primary types that have been and will be mined under the current operating plan.

9 Exploration

There is no available exploration data collected by previous operators. Prior to Pan American's acquisition of the Property, there was no systematic traditional exploration in the district other than underground development.

Since Morococha is an active mining operation, exploration is conducted using a combination of underground diamond drilling and channel sampling from drifts excavated along the mineralized zones. Generally, underground drillholes that intersect promising economic grade mineralization are followed up by drifting. Vein intersections and sample grade information from both the channel samples and the diamond drillholes are used to estimate mineral resources and mineral reserves of the volumes anticipated to be mined.

During 2013, 10,085 metres of underground drifting were advanced for mining, and channel samples collected in the drifts are added to the database of channel samples used for mineral resource and mineral reserve estimation. Channel samples are collected from the backs of drifts, the ribs of crosscuts, the backs of stopes, and the ribs of raises. The channel samples are taken every two metres across the veins or mantos in exploration drifts and the stopes are sampled on two metre centres along strike. The samples are always taken perpendicular to the structures, and where cross-cutting vein systems or other mineralization is present, care is taken to avoid sampling along the strike of the cross cutting structure. The surface to be sampled is cleaned to avoid sample contamination by washing with a hose and scrubbing with a brush. The samples are collected using a hammer and chisel, and weigh between 4.0 to 6.0 kg, and are usually between 0.2 m and 2.0 m wide. As of December 31, 2013, Pan American has collected 106,224 samples from 90,885 channels spanning a combined total of 110,954 m.

Channel sampling generally provides reliable data for the estimation of mineral resources and mineral reserves, provided that appropriate measures are taken to prevent contamination and to ensure a representative sample is taken. Because the channel samples are taken at a regular spacing in drifts above and below the mineral reserve volumes, the samples are as spatially representative as possible. There are no known issues that could materially impact the reliability of the results.

10 Drilling

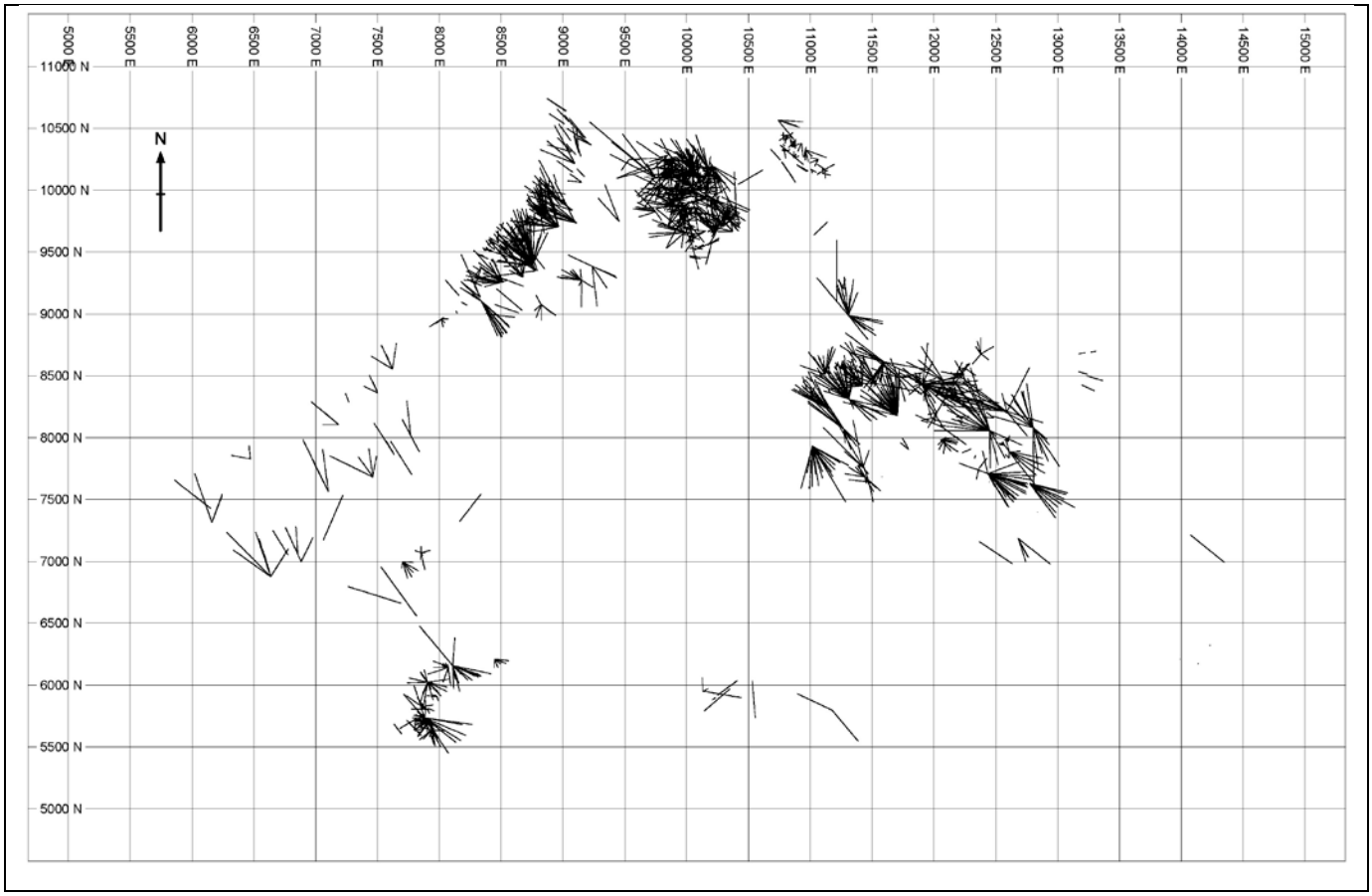
Pan American orients diamond drillholes to intersect the targeted vein as close to perpendicular as possible and they are spaced as regularly as possible to ensure representative sample coverage. As of December 31, 2013, 2,033 diamond drillholes have been drilled on the Property for a total of 345,559 m. 62,204 samples have been selected from these holes. A plan showing the location of the drillholes is given in Figure 10.1.

Both surface and underground holes are drilled by external drilling contractors, including Rock Drill and Remicsa Drilling S.A., both of Lima, under Pan American supervision using BQ, NQ, and HQ diameter industry standard underground diamond drill rigs. The collar coordinates and the bearing and dip are surveyed with a total station instrument and the drillhole deviation is measured regularly using a downhole survey instrument.

Samples from diamond drill core are selected based on lithology and estimated metal content, and vary between 0.1 metres and 1.5 metres in length. Hangingwall and footwall host rocks are sampled for at least 3 metres beyond visible mineralization. Internal unmineralized material located between mineralized intersections is sampled over the entire length if the unmineralized zone is less than 6 metres wide.

Diamond drilling at Morococha generally provides reliable data for the estimation of mineral resources and mineral reserves, provided appropriate measures are taken to minimize material loss, to prevent contamination, and to ensure a representative sample is taken. Ground conditions for diamond drilling at Morococha are generally good, resulting in high drill core recovery, and measures are taken to minimize potential contamination. There are no known drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

Figure 10.1 Drillhole location map



11 Sample preparation, analyses, and security

11.1 On-site sample preparation and security

Drill cores are placed in corrugated plastic core boxes and transported to the core logging facility on site. The boxes are marked and numbered by the drill crews and tags are inserted between drill core runs to indicate the drill depths. Diamond drillhole samples are cut in half with a diamond bladed saw after the core has been logged and the sample intervals have been marked by the geologist. Downhole intervals are logged for fracture density and core recovery to determine the rock quality, and for lithology, structure, and alteration types.

The veins mostly comprise massive sulphides in a clear and sharp contact with the unmineralized wall rock. For sampling diamond drillholes, the geologist marks the sample intervals across the entire vein width and at least 3 metres into the hangingwall and footwall waste beyond the vein contacts. Sample intervals within the veins vary in length between 0.10 and 1.5 metres, depending on the total vein width and the complexity of the mineralization. Unmineralized intervals less than 6 m wide between the veins are sampled at a maximum length of 1.5 m.

The channel samples are taken every two metres across the veins or mantos in exploration drifts and the stopes are sampled on two metre centres along strike. The samples are always taken perpendicular to the structures, and where cross-cutting vein systems or other mineralization is present, care is taken to avoid sampling along the strike of the cross cutting structure. If the vein contains different types of mineralization, separate samples are taken of each type. Mantos are similarly sampled across their entire width, perpendicular to the mineralization. The surface to be sampled is cleaned to avoid sample contamination by washing with a hose and scrubbing with a brush. The samples are collected using a hammer and chisel, and weigh between 4.0 to 6.0 kg.

The rock mass is generally of good quality and there have been few issues regarding sample loss or contamination during sample collection and splitting. There are no known drilling, sampling, or recovery issues that could materially impact the reliability of the results.

No out of the ordinary security measures are taken with the samples, but as the samples are prepared and analysed within the confines of the general mine security enclosures, there is no reason to believe that the validity and integrity of the samples have been compromised.

Both channel and drill core samples are placed in new, clean plastic bags with two sample number tags on the inside and one number and barcode tag on the outside, and sealed with a metal strip.

11.2 Laboratory sample preparation and analytical methods

Both the channel and the underground diamond drillhole samples are sent to the on-site laboratory at Morococha, which is not certified by any standards association but is run by the international commercial laboratory firm, SGS. Assays are performed using acid digestion and atomic absorption spectroscopy, and analysed for silver, zinc, lead, and copper content. Any sample with an assay greater than 500 grams per tonne of silver is re-assayed for silver content using fire assay methods. Wet chemical analyses are undertaken for lead and zinc assays exceeding 10%.

11.3 Quality assurance and quality control

The laboratory conducts a routine internal quality assurance/quality control ("QAQC") program that includes external check samples and the routine submission of standards. One internal standard sample and one blank sample are analyzed with each sample batch, and a sieve analysis of a randomly selected pulp from each sample batch is assessed to ensure that the particle size distribution follows the sample preparation protocol.

A QAQC programme supervised by the geology department is also implemented which includes the submission of certified standards and blanks on a daily basis to the onsite laboratory. Duplicate samples comprising one quarter of the second half of the diamond drill core and duplicate samples obtained by collecting a sample of equal weight from the same channel sample location as the original are also submitted to the onsite laboratory. Pulp duplicates are sent to a second laboratory, ALS in Lima, to act as a check on the onsite laboratory. A system is in place to ensure that any failed QAQC samples are identified and that the required corrective action is taken in a timely manner, which usually involves a review of procedures to ensure that the established sample preparation and analysis protocols are being followed.

Between January 2006 and December 2013, nearly 1,700 samples from five different standard samples were submitted to the onsite laboratory with the drill core and channel samples. The standards performed slightly worse than the 0.3% failure rate expected by sampling error, with 5% of the results exceeding three standard deviations, and the results exhibit a high bias. Despite this, the standard deviation values are quite low and overall the results are acceptable and indicate reasonable accuracy at the laboratory. Regardless, the cause of the high bias is being followed up with the laboratory. Details of the standard performance are given in Table 11.1.

Table 11.1 Standard sample results

	Standard 1	Morococha	Standard 5	Standard 6	Standard 7
Count	519	333	210	172	432
Fail +1 SD	271	50	23	172	309
Fail -1 SD	21	15	0	0	15
% Fail 1 SD	56	20	11	100	75

	Standard 1	Morococha	Standard 5	Standard 6	Standard 7
Fail + 2 SD	117	7	5	65	123
Fail - 2 SD	13	5	0	0	11
% fail 2 SD	25	4	2	38	31
Fail +3 SD	24	7	0	17	14
Fail -3 SD	8	1	0	0	8
% Fail 3 SD	6	2	0	10	5
% Negative bias failure	7	23	0	0	5
% Positive bias failure	93	77	100	100	95

Between January 2006 and December 2013, approximately 1,500 samples of unmineralized "blank" material were submitted with the drill core and channel samples to the onsite laboratory to assess for sample grade contamination during sample preparation and analysis. No significant failures (approximately 0.4%) are noted for the samples.

Also between January 2006 and December 2013, just over 2,000 duplicate pulp samples were sent to ALS in Lima and just over 1,700 quarter core samples and duplicate channel samples were submitted with the drill core and channel samples to the onsite laboratory. The results of precision pairs may be assessed using a ranked half absolute relative difference plot, with acceptable results corresponding to ±30% agreement on 90% of field duplicates and ±10% agreement on 90% of pulp duplicates. The results indicate relatively poor precision between both types of duplicate samples, with the external laboratory returning lower grade values than the onsite laboratory. A bias is noted between duplicate samples submitted to the onsite laboratory with grades greater than 1,000 ppm Ag, which is attributed to the ¼ core duplicate sample size. The duplicate sampling protocol has been adjusted to select ½ core duplicates as of December 31, 2013 to eliminate the unequal size factor. A summary of the duplicate results is given in Table 11.2.

Table 11.2 Duplicate sample results

Laboratory	Sample Numbers	± Agreement %
Onsite laboratory	1,742	49.6
ALS, Lima	2,029	19.1

The Qualified Person responsible for this section of the report is of the opinion that the sample preparation, security, and analytical procedures are adequate and that the sample assays are reliable for the estimation of mineral resources and reserves at Morococha.

12 Data verification

12.1 Geology data reviews

On an annual basis, the qualified person reviews the diamond drilling plans and the mineral resource estimation procedures including the vein interpretations, treatment of extreme sample grade values, and the estimate of tonnes and grade. The reconciliation between the mine plan and the processing plant are reviewed quarterly, and the drillhole vein intersection width and grade results and QAQC results are reviewed monthly. During mine visits, the exploration drilling, sample, and security protocols are reviewed, along with the operational mine plan, actual mine operation data, and grade control protocols.

In the opinion of the qualified person, the data and parameters used to estimate mineral resources and reserves are sufficiently reliable for those purposes.

12.2 Mine engineering data reviews

The qualified person undertakes regular reviews of the mine engineering data, including the mining fleet and mine operational and production data, grade control data including dilution and ore loss, geotechnical and hydrological studies, waste disposal requirements, environmental and community factors, processing data, development of the life of mine plan including production and recovery rates, capital and operating costs estimates for the mine and processing facilities, transportation, logistics, and power and water consumption and future requirements, taxation and royalties, and the parameters and assumptions used in the economic model.

In the opinion of the qualified person, the data and assumptions and parameters used to estimate mineral resources and reserves are sufficiently reliable for those purposes.

12.3 Metallurgy data reviews

The qualified person undertakes regular reviews of the processing plant and operational data including metallurgical results, production, reagent consumption, treatment rates, plant availabilities and utilization, pumping capacities, pond levels, solution concentrations, metallurgical lab procedures, analytical lab procedures, and general business performance.

In the opinion of the qualified person, the data and assumptions used to estimate the metallurgical recovery model for the mineral resource and reserve estimates are sufficiently reliable for those purposes.

13 Mineral processing and metallurgical testing

No metallurgical test work prior to Pan American's interest in the mine is available for disclosure. Metal recovery forecasts are based on the historical performance of the plant operations, taking into consideration metal grades and tonnages of material that have been processed as well as blending and the mine plan. As part of normal plant operating procedures, routine metallurgical test work is undertaken on an annual or more frequent basis as necessary to optimize metallurgical performance and to manage the ore blend necessary to produce an optimal concentrate product. The majority of this test work comprises flotation tests to assess for metallurgical recovery, the presence and concentration of deleterious metals, and the proportion of each economic metal present in the silver-rich zinc, lead, and copper concentrates. Spatially representative samples are selected from the principal veins comprising the majority of the plant feed and the results of the test work form part of the parameters used to estimate annual mineral resources and reserves as well as to determine the optimal blending for the process plant. The distribution of silver production is typically between 60% and 65% to the copper concentrates, between 21% and 28% to the lead concentrates, and between 12% and 15% to the zinc concentrates. The typical copper concentrates contain approximately 19% copper and approximately 4,000 ppm of Ag, the typical lead concentrates contain approximately 49% lead and approximately 2,000 ppm of Ag, and the typical zinc concentrates contain between approximately 47% and 49% zinc and 330 ppm of Ag. A summary of the metallurgical recoveries by metal achieved in the plant over the past five years is given in Table 13.1.

Table 13.1 Metallurgical recovery by year

Year	% recovery Ag	% recovery Zn	% recovery Pb	% recovery Cu
2013	88	83	74	72
2012	85	79	72	66
2011	86	81	70	72
2010	87	85	76	66
2009	86	82	75	67

14 Mineral resource estimates

14.1 Disclosure

Pan American updates mineral resource estimates on an annual basis following reviews of metal price trends, treatment and refining charge trends for base metal concentrates, operational performance and costs experienced in the previous year, and forecasts of production and costs over the life of the mine. Other than normal course changes in metal prices, which fluctuate from time to time, no new material information has become available between June 30, 2014 and the signature date given on the certificates of the qualified persons.

Pan American conducts infill and near-mine drilling through much of the year. The drillhole data cut-off date for the commencement of the mineral resource estimate was December 31, 2013. Mineral resource estimates are prepared on an annual basis by Pan American staff under the supervision of and reviewed by Michael Steinmann, P. Geo., Executive Vice President, Corporate Development and Geology of Pan American Silver, who is a qualified person as that term is defined by NI43-101.

There are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors or risks that could materially affect the development of the mineral resources. Mineral resources that are not mineral reserves do not have demonstrated economic viability. Mineral resources reported here are in addition to mineral reserves.

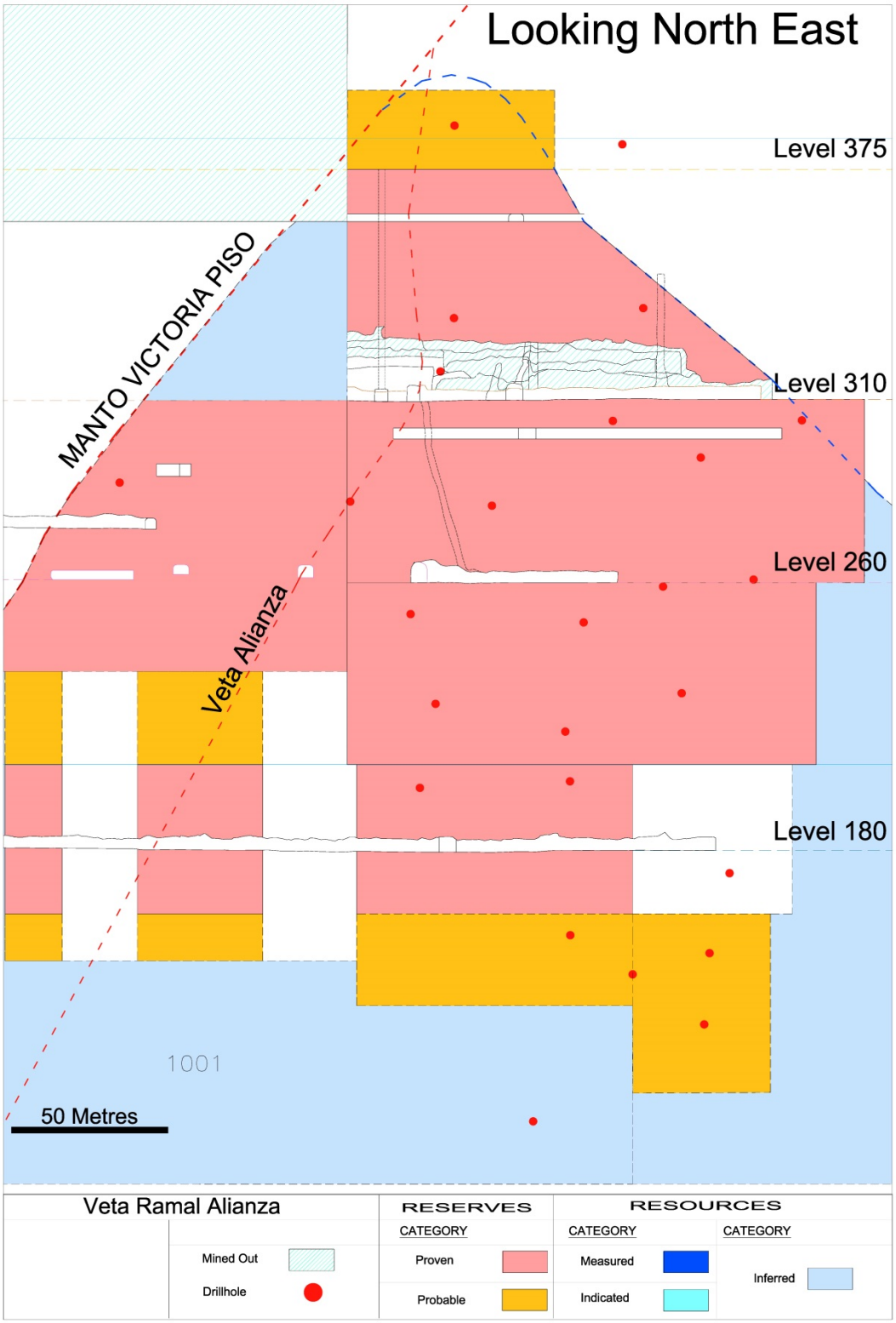
14.2 Method

Mineral resource estimates are prepared on an annual basis and updated with the additional diamond drilling and channel samples collected during the year, using a variation of the polygonal method in AutoCAD and Excel software. Each vein structure is projected onto a longitudinal section and divided into a series of geometrical blocks created to best fit an area of mineralization into a minable block, if the mineralization present is considered economic. The dimensions of the mining blocks are based on mining levels, stope layouts, and previously mined out areas, and range in length from between 20 metres and 70 metres. They are generally on the order of 50 metres long and 20 metres high. An example longitudinal section from the Veta Ramal Alianza structure is given in Figure 14.1.

The average true width of the vein intersections is applied to the block area to determine the volume. Sample grades are reviewed and treated for extreme values if necessary, and then the average grade of the intersections within each block is assigned to the block. Bulk density values are applied to the volume of the block to estimate the tonnes of each block, based on the average bulk density measured from samples selected from the different veins.

The blocks are then depleted for previous mining. Planned mining dilution is applied to each block considering the width, dip angle, mining method, and expected ground conditions of each vein. A value per tonne is applied to each block based on metal content, metal prices, concentrate sales terms, concentrate quality, processing recovery, transportation, refining, and other selling costs such as storage fees, port fees, etc. Processing costs are assumed to be the same for all ore types, and metallurgical recoveries are based on averages for all of the groups of veins or structures. Metal prices used to estimate mineral resources were $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. Any blocks that do not meet the criteria of resources are removed. Each block is classified for measured, indicated, and inferred confidence categories depending on the location of the block relative to mine workings, the type of sample available in each block, and the number of samples available to estimate each block.

Figure 14.1 Example longitudinal section through Veta Ramal Alianza structure



14.3 Mineral resource tabulation

Mineral resources for Morococha as at June 30, 2014 are given in Table 14.1. This tabulation includes material classified as measured, indicated, and inferred, using metal prices of $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. The mineral resources were estimated as of December 31, 2013 and depleted for mining as of June 30, 2014. Mineral resources are given for Pan American's 92.3% share of the Property.

There are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors or risks that could materially affect the development of the mineral resources. Mineral resources that are not mineral reserves do not have demonstrated economic viability. Mineral resources reported here are in addition to mineral reserves.

Table 14.1 Morococha mineral resources as at June 30, 2014

Classification	Tonnes (Mt)	Ag ppm	Ag contained metal (Moz)	Cu%	Pb%	Zn%
Measured	0.8	150	3.9	0.41	1.31	3.57
Indicated	1.1	202	7.4	0.54	1.45	3.37
Measured + Indicated	1.9	180	11.3	0.49	1.39	3.45
Inferred	8.0	209	53.9	0.43	1.45	5.11

Notes: Mineral resources do not have demonstrated economic viability. Totals may not add up due to rounding. Mineral resource estimates were prepared under the supervision of or were reviewed by Michael Steinmann, P. Geo., Executive Vice President, Business Development and Geology of Pan American. Metal prices used for the mineral resource estimate were $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. Mineral resources are given for Pan American's 92.3% share of the Property. Mineral resources are in addition to mineral reserves.

15 Mineral reserve estimates

15.1 Disclosure

Pan American updates mineral reserve estimates on an annual basis following reviews of metal price trends, treatment and refining charge trends for base metal concentrates, operational performance and costs experienced in the previous year, and forecasts of production and costs over the life of the mine. Other than normal course changes in metal prices, which fluctuate from time to time, no new material information has become available between June 30, 2014 and the signature date given on the certificates of the qualified persons.

Mineral reserve estimates were prepared by Pan American technical staff under the supervision of and reviewed by Martin Wafforn, P. Eng., Vice President, Technical Services of Pan American, who is a qualified person as that term is defined by NI 43-101.

Mineral reserve estimates are based on assumptions that include mining, metallurgical, infrastructure, permitting, taxation, and economic parameters. Increasing costs and taxation and lower metal prices will have a negative impact on the quantity of estimated mineral reserves. There are no other known factors that may have a material impact on the estimate of mineral reserves at Morococha.

15.2 Method

Mineral resource blocks classified as measured and indicated that can be mined economically are converted to mineral reserves. Some small isolated blocks may be removed if the cost associated with development, production, and logistics make them uneconomic to mine. A value per tonne is applied to each block based on metal content, metal prices, concentrate sales terms, concentrate quality, metallurgical recovery, transportation, refining, and other selling costs such as storage fees, port fees, etc. A minimum required value per tonne cut-off is calculated for the blocks depending on the block location in the mine. A minimum required value per tonne cut-off is calculated for the blocks depending on the block location in the mine. As the plant has an annual processing capacity of 800,000 tonnes and the annual mining capacity is currently 630,000 tonnes, the minimum required value per tonne cut-off is calculated to be a percentage of the full break even cost. This allows for processing of incremental material that pays for all of the variable costs of the operation, utilizing more of the existing plant capacity, and providing a margin for profitability. Processing costs are assumed to be the same for all ore types, and metallurgical recoveries are based on averages for all of the groups of veins or structures. Metal prices used to estimate mineral reserves were $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper.

Any blocks which are considered uneconomic after these parameters are applied either remain as mineral resources or may be removed from the inventory completely if they do not meet

the criteria of resources. The mineral reserves are classified as proven or probable depending on the resource classification.

15.3 Mineral reserve tabulation

Mineral reserves for Morococha as at June 30, 2014, comprising material classified as proven and probable reserves using metal prices of $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper, are given in Table 15.1. The mineral reserves were estimated as of December 31, 2013 and depleted for mining as of June 30, 2014. Mineral reserves are given for Pan American's 92.3% share of the Property. Mineral reserves are in addition to mineral resources.

Table 15.1 Morococha mineral reserves as at June 30, 2014

Classification	Tonnes (Mt)	Ag ppm	Ag contained metal (Moz)	Cu%	Pb%	Zn%
Proven	2.4	192	15.2	0.46	1.34	4.38
Probable	2.7	206	18.1	0.69	1.31	4.06
Proven + Probable	5.1	199	33.3	0.58	1.32	4.21

Notes: Totals may not add up due to rounding. Mineral reserve estimates were prepared under the supervision of or were reviewed by Martin Wafforn, P. Eng., Vice President, Technical Services of Pan American. Metal prices used for the mineral reserve estimate were $22 per ounce of silver, $1,950 per tonne of lead, $1,850 per tonne of zinc, and $6,800 per tonne of copper. Mineral reserves are given for Pan American's 92.3% share of the Property. Mineral reserves are in addition to mineral resources.

16 Mining methods

16.1 Mining methods

Underground mining operations take place in four different mining areas referred to as Alapampa, Sulfurosa, Manuelita, and Codiciada. Mineral reserves are estimated for those zones as well as for the Yacumina zone. The mineral reserves comprise estimates from approximately 130 different structures distributed throughout the mine and stopes from typically 25 of these structures are in production in any given year. About half of the mining is undertaken by mechanized cut and fill, with the remainder approximately equally distributed between conventional cut and fill, long hole open stoping, and stope development. The selection of the mining method depends on the location, width, orientation, and ground conditions of the vein to be mined, as well as the ground conditions of the footwall and hangingwall. Classified tailings pumped hydraulically to stopes and waste rock are used for backfill where needed.

Conventional cut and fill stoping is typically used in the narrowest veins, where blast holes are drilled using hand held jackleg drills and slushers are used to remove the blasted ore. The cut and fill stopes are generally 80 m in length along strike and extend between levels which are typically spaced 70 m apart vertically. Each cut is 1.5 m in height. Depending on ground conditions, the blast holes are drilled either upward or horizontally with a hand held drill. Mechanised cut and fill is often used in areas where the development of an access ramp can be economically justified. This is typically the case where sufficiently wide and economic veins are present or where economic mineralization is present in wider manto or replacement ore bodies. Drilling is undertaken with hand held drills (jacklegs or stopers) or electric hydraulic jumbo drills and the broken ore is removed using scoop trams. Mechanized cut and fill mining using development jumbos is limited to horizontal holes only. Each cut is 2.4 m in height. Cycloned mill tailings are piped into the cut and fill stopes as backfill. Waste material in the veins is typically blasted down and left as backfill.

Sub-level long hole mining is undertaken in wider spatially continuous economic veins with good wall conditions. The dimensions of the mining blocks are based on mining levels, stope layouts, and previously mined out areas, and range in length from between 20 m and 70 m. They are generally on the order of 40 m long with sub levels spaced 10 m apart vertically.

The minimum mining width is 1.0 m and planned dilution is included in the mine design, which varies according to the ground conditions, mining method, vein width, and the dip of the vein. The dilution factors range from approximately 8% to 44%, but on average they are around 20%. In the long hole stoping areas, the actual mined dilution is measured with a cavity monitoring survey instrument. In the cut and fill areas the width of the vein and the width of the cut is measured on a regular basis as mining advances, and compared with the predicted dilution.

Sub-levels, cross cuts, and drifts are excavated at 3.0 m wide by 3.5 m high in sub level stoping areas. Ramps are excavated at 4.0 m wide by 4.0 m high. In the cut and fill mining areas the cross cuts and ramps are mined using the same dimensions except for sub levels and drifts, which are excavated at 3.0 m by 3.0 m.

In the Manuelita and Sulfurosa areas of the mine, locomotives transport the ore in rail cars from the chutes to the shafts for hoisting. Highway dump trucks then haul the ore from the coarse ore bins at the shaft to the stockpiles at the mill. In the Codiciada and Alapampa areas of the mine, ore is transported to underground stockpiles using scoop trams and then loaded onto haul trucks for transportation to surface via a haulage ramp. Later in the mine life, underground development from the Alapampa area to the Yacumina area will be necessary to provide access and ore haulage.

The Yauli (also known as the Manuelita) production shaft provides access from an underground adit down to the Kingsmill drainage tunnel level at an elevation of 4,020 metres above sea level. It is equipped with two 2.6 tonne skips which feed into chutes from where it is then transported in rail cars by a small locomotive to an adjacent subsurface truck loading facility. The Maria shaft provides access from surface down to one level above the Kingsmill tunnel, and is comprised of a single split drum hoist with two skips, each with a capacity of 2 tonnes.

Pan American plans to develop the Manuelita and Sulfurosa areas of the mine to 70 m below the Kingsmill drainage tunnel. This development was started by a previous operator and is now in the process of being extended and expanded using a small inclined shaft to haul waste and a limited amount of ore up to the Kingsmill tunnel elevation, where it is transferred to the Manuelita shaft. The long term plan for the development of these zones includes the deepening of the Manuelita shaft by a further 70 m.

The mine has been reducing the use of third party contractors but still relies on contractors for several important aspects of the underground mine. These include raise boring; Alimak raising; the preparation, transport, and application of wet mix shotcrete; truck haulage of plant feed for processing up the mine ramp to surface stockpiles; diamond drilling; and maintenance of the Kingsmill drainage tunnel.

16.2 Geotechnical and hydrological parameters

The Kingsmill drainage tunnel drains all of the Morococha mine workings with the exception of the level being developed below the Kingsmill tunnel in the Manuelita area of the mine, where water is pumped approximately 70 m vertically to the Kingsmill tunnel. A third party contractor engaged by Pan American and 6MCP maintains the tunnel and removes any slimes. A water treatment plant constructed by MCP near the outlet of the tunnel treats the 1.5 to 1.8 cubic metres per second of water that drains from the district and flows through the Kingsmill tunnel.

The mine covers a large area and has been in operation for many years and therefore a wide range of ground conditions are present at the mine. Pan American's minimum ground support policy is to support each round after blasting with split sets before the next blast in the heading occurs. The mine employs a team of geotechnical engineers and periodically requests assistance from third party geotechnical consultants.

The geotechnical engineers have developed a matrix for designing the ground support in the development headings that considers the ground conditions in each mining area, including the degree of rock fracturing, the condition of the fractures, water inflow, the width of the excavation, and whether the excavation will remain permanently open or whether it will be backfilled. The resulting design matrices specify systematic pattern bolting at a range of bolt spacing and orientations, as well as any necessary addition of welded wire mesh or straps, two different thicknesses of fibre reinforced shotcrete plus welded wire mesh, and steel arches.

16.3 Production rates and expected mine life

The life of mine plan is based on the mineral reserves presented in Section 15.3 and contemplates, on a 100% basis, an annual processing rate of 630,000 tonnes (1,726 tonnes per day) and then gradually increasing as more mining areas become available in Manuelita and Sulfurosa below the Kingsmill tunnel, in Alapampa, and later in Yacumina. This processing rate results in a remaining mine life of an estimated 7.3 years. The Morococha deposit is extensive and if current mineral resources can be converted to mineral reserves and/or if new mineral resources are defined and can be converted to mineral reserves, then a new plant will be required to replace the current Amistad plant prior to 2020. The future economic justification of a new plant will rely primarily on mineral reserve growth and metal prices. Although no up to date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant, on the order of up to $100 million. This cost would be partially offset by the remaining payments due from MCP to honour the June 2010 agreement.

The bottom level of the currently estimated mineral reserves and the life of mine plan is assumed to be the Kingsmill drainage tunnel in all areas except for the Manuelita and Sulfurosa, where the bottom is 70 m below the bottom of the Kingsmill tunnel. There is no reason to believe that the veins and other mineralized structures stop at the Kingsmill tunnel, and so if pumping operations can be conducted economically, the mine life could be extended considerably.

16.4 Waste mining requirements

Waste development requirements are extensive with an annual average of over 12 km of waste development for each of the last three years, generating approximately 490,000 tonnes of waste per year. Where possible, the waste is retained inside the mine as backfill in the long hole and mechanized cut and fill stopes. Waste encountered while mining cut and fill stopes is blasted where possible and left in the stope when it is backfilled. Any waste that is hauled to

the surface is typically used for construction and any excess material is deposited in engineered waste rock dumps.

16.5 Mining fleet and machinery

The current underground mobile mining equipment fleet owned by Pan American and the mine contractors is shown in Table 16.1.

Table 16.1 Current underground mobile mining equipment

Item	Specification	Quantity
Scoop tram	0.7 cubic yard	9
Scoop tram	2.2 cubic yard	6
Scoop tram	4.0 to 4.1 cubic yard	6
Scoop tram	6.0 cubic yard	1
Drill jumbo	Single boom	6
Long hole drill	18 m	2
Bolting jumbo	Single boom	2
Dump truck	16 tonne	1
Utility / scissor lift	Various	3
Haul truck	40 tonne	4
Haul truck	25 tonne	9
Locomotive	3 tonne	6
Locomotive	6 to 10 tonne	4
Heavy equipment utility trucks	3.5 tonne	4
Service and personnel transport trucks	Tractor and Kubota	18

17 Recovery methods

17.1 Introduction

Morococha operates an 803,000 tonne per year capacity mill, known as the Amistad mill, using froth induced selective flotation technology to produce silver in zinc, lead, and copper concentrates. The mill flowsheet consists of two-stage crushing, ball mill grinding, selective flotation of the ore to concentrates, followed by thickening and filtering of the concentrates.

17.2 Crushing

Ore is delivered from the mine to separate stockpiles for blending purposes. The ore is fed into a 600 tonne capacity coarse ore bin after passing through an 8 inch screen. Ore from the bin is fed to the crushing circuit by two 24 inch by 18 inch reciprocating feeders that discharge onto separate 36 inches wide by 50.6 feet long conveyors, which both discharge onto one conveyor of 36 inches wide by 85.3 feet long.

The conveyor discharges onto a 4 foot by 8 foot vibrating grizzly with 3 inch openings. Screen oversize is passed through a FIMA 24 inch by 36 inch primary jaw crusher. Screen undersize material is combined with the primary crusher discharge and transported by a 30 inch by 132 foot long conveyor to a 5 foot by 16 foot Allis-Chalmers single deck screen with 1 inch openings.

Screen oversize is fed by a 30 inch by 84 foot conveyor to a 5.5 foot Symons short head secondary cone crusher to produce an 11 mm product. Discharge from the secondary crusher is transported by three in-line conveyors that send the ore through a 5 foot by 10 foot screen with ¾ inch openings. Oversize from this screen is sent back to the 5.5 foot Symons crusher, closing the secondary crushing circuit, and the undersize of this screen is combined with the undersize of the Allis Chalmers screen to be transferred in a succession of in-line conveyors to one of three fine ore bins that have a total capacity of 1,200 tonnes to feed the grinding circuit.

17.3 Grinding and classification

The grinding circuit consists of two stages of grinding and one stage of regrind to produce a final product of 65% passing 200 mesh (or 80% passing 153 microns) that feeds the bulk flotation circuit. Additionally there is a regrind stage for the zinc rougher concentrate at the zinc flotation circuit.

The primary grinding stage consists of a 9 foot diameter by 12 foot long ball mill with a 500 horsepower motor in open circuit with two 20 inch diameter hydro-cyclones, with a third hydro-cyclone available as standby. Underflow from these cyclones is fed to two secondary 8 foot diameter by 6 foot long ball mills with 250 horsepower motors each in closed circuit with the hydro-cyclones. Overflow from the cyclones (50% passing 200 mesh or 80% passing 270 microns) feeds by gravity into two in-line WS-240 flash flotation cells that recover coarse

lead particles. Overflow from these cells is fed to a bulk cleaning circuit, while underflow is sent to the principal regrind stage.

The principal regrind stage consists of an 8 foot diameter by 6 foot long ball mill with a 300 horsepower motor in closed circuit with a bank of four 15 inch diameter hydro-cyclones. The overflow from these hydro-cyclones feeds the bulk rougher flotation circuit and the underflow returns to the principal regrind mill.

Additionally there is a zinc regrind circuit for the rougher concentrate from the zinc flotation circuit. This regrind circuit consists of a 6 foot diameter by 6 foot long ball mill with a 100 horsepower motor in closed circuit with a bank of four 10 inch diameter hydro-cyclones. The overflow from these hydro-cyclones feeds the cleaning stage of the zinc circuit and the underflow returns to the zinc regrind mill.

17.4 Flotation

The flotation circuit includes an initial stage of depression of zinc and flotation of a bulk concentrate. The bulk concentrate consists of copper and lead which are treated in a separation circuit with activated carbon to eliminate residues of the collectors used in the previous stage, followed by the flotation of lead and the depression of copper. The tails of the bulk flotation are activated and conditioned with copper sulfate and lime to modify the pH and to produce a zinc concentrate.

The bulk flotation circuit includes two stages of roughing, five stages of cleaning, and three stages of scavenging. The bulk concentrates are sent to the copper-lead separation circuit and the scavenger tails are sent to the zinc flotation circuit. The copper-lead separation circuit has two conditioning tanks, one stage of roughing, five stages of cleaning, and one stage of scavenging. The lead concentrate is produced in the cleaning stage and the copper concentrates are the scavenging tails.

The zinc flotation circuit consists of four conditioning tanks, three stages of roughing, zinc regrind, three stages of cleaning, and five stages of scavenging of the cleaning tails. The cleaner concentrate and scavenging concentrate are combined to produce the zinc concentrate and the rougher tails are pumped to the Huascacocha tailings facility as final tails.

17.5 Thickening and filtering

The zinc, lead, and copper concentrates are pumped to 30 foot diameter by 10 foot high thickeners for the copper concentrates, 40 foot diameter by 10 foot high thickeners for the lead concentrates, and 50 foot diameter by 10 foot high thickeners for the zinc concentrates to obtain pulps of approximately 58% solids by weight. After the thickeners, the copper and lead concentrates are sent to separate 8 foot by 12 foot drum filters for further dewatering, reducing the overall concentrate moisture content to 10% and 11% respectively. Zinc concentrates are fed into a horizontal 1500 mm x 1500 mm press filter which reduces the concentrate moisture to 12%. Water recovered from the thickener overflow is mixed with the

water from the filter and collected in the decantation pond to recover fines. The concentrates are transported to a warehouse at the port of Callao near Lima for commercialization.

17.6 Tailings storage

About half of the tailings from the concentrator are pumped to a hydrocyclone for classification, then the classified fines are combined with the other half of the tailings and pumped to the Huascacocha tailings facility. Tailings are disposed at a depth of two metres below the water surface in order to prevent the tailings from coming in contact with oxygen and forming acidic water. The underflow from the hydrocyclone is stored in a tank and then transported back underground where it is used for hydraulic backfill.

17.7 Power, water, and process consumable requirements

The primary source of power for the mine is the Peruvian national power grid and is sufficient for the mine's current requirements. The annual power consumption at Morococha is approximately 60 million kilowatt hours, distributed between about 31 million kilowatt hours at the mine, 22 million kilowatt hours at the plant, and 7 million kilowatt hours for buildings and services.

The mine is permitted to take water from the nearby Huacracocha and Venecia lakes for mining and processing activities and typically uses on the order of 1.1 million cubic metres per annum. The mine is also permitted to take water from Huacracocha Lake for human consumption and typically uses around 50,000 cubic metres per annum for that purpose. The permitted volume of water is more than sufficient for the mine's requirements.

A summary of the major process consumable requirements is given in Table 17.1.

Table 17.1 Summary of major process consumables

Item	Annual usage (tonnes)
Grinding media (rods and balls)	671
Lime	971
Copper sulphate	167
Flotation collectors	40
Frother	29

17.8 Summary of metal production

All of the figures cited in this section are for Pan American's 92.3% share of the Property. In 2013, the mill processed around 573,000 tonnes of ore with metallurgical recoveries averaging 87.9% for silver, 83.2% for zinc, 73.6% for lead, and 71.7% for copper. Metal production during 2013 was approximately 2.4 million ounces of silver, 15,200 tonnes of zinc, 3,800 tonnes of lead, and 2,000 tonnes of copper. For the year as of June 30, 2014, the mine had processed 270,000 tonnes of ore, producing 1.1 million ounces of silver, 8,100 tonnes of zinc, 2,400 tonnes of lead, and 1,000 tonnes of copper. Metal production for the past five years is given in Table 17.2.

Table 17.2 Metal production for the past five years[1]

Year	Milled tonnes	Produced silver ounces (Moz)	Produced zinc tonnes	Produced lead tonnes	Produced copper tonnes
2013	573,000	2.40	15,200	3,800	2,000
2012	535,000	2.08	11,900	3,600	1,500
2011	483,000	1.71	10,700	3,000	1,500
2010	620,000	2.63	15,200	4,900	1,500
2009	639,000	2.76	16,900	5,500	2,000
Note[1]: all amounts are for Pan American's 92.3% share of the Property					

18 Project infrastructure

A plan of the mine infrastructure is given in Figure 18.1.

18.1 Transportation and logistics

The Morococha mine is accessible via Peru's paved central highway, by travelling approximately 137 kilometres east of Peru's capital city of Lima, then 2.9 kilometres north via a public, all-weather gravel road. Rail service from Lima is also available via a national rail line that passes adjacent to the operations.

Mining has taken place at the Morococha mine and nearby areas such as Casapalca for more than 100 years, resulting in a well-developed regional transportation and power infrastructure and a large local labour pool. Peru's economy is dependent on mining and currently there is a sufficient local source of mining personnel and related infrastructure. Experienced mining personnel from the region commute to the Property via company sponsored buses, company vehicles, or privately owned vehicles. Materials, fuel, and produced metal concentrates are transported to their destinations by road.

18.2 Mine facilities

The existing infrastructure includes the typical components of an operating underground mine, including the mine workings, workshops, laboratories, storage facilities, offices, drill core and logging sheds, water and power lines, access roads, and the worker's camp and recreational facilities.

18.3 Processing facilities

The Morococha process plant, known as La Amistad, has the capacity to treat up to 803,000 tonnes of ore per year and produces three different silver bearing zinc, lead, and copper concentrates. The process plant consists of crushing, grinding, flotation, reagent preparation areas, thickening, filtration, and concentrate storage areas. The processing facilities area also includes process plant offices, a metallurgical lab, stockpile area, and the Huascacocha tailings facility for the storage of flotation tails.

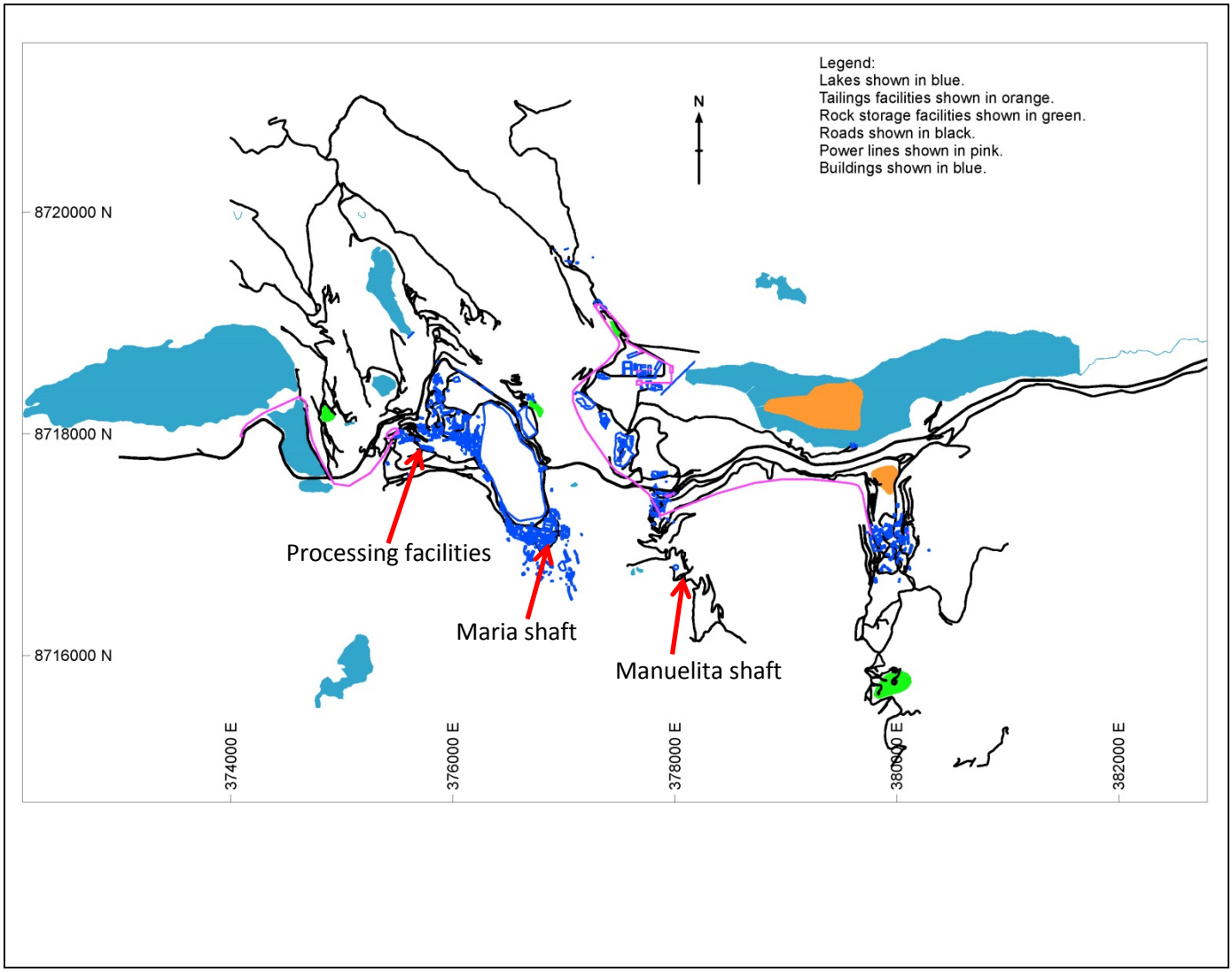
18.4 Power and water

The primary source of power for the mine is the Peruvian national power grid and is sufficient for the mine's current requirements. The annual power consumption at Morococha is approximately 60 million kilowatt hours, distributed between about 31 million kilowatt hours at the mine, 22 million kilowatt hours at the plant, and 7 million kilowatt hours for other buildings and services.

The mine is permitted to take water from the nearby Huacracocha and Venecia lakes for mining and processing activities and typically uses on the order of 1.1 million cubic metres per annum. The mine is also permitted to take water from Huacracocha Lake for human

consumption and typically uses around 50,000 cubic metres per annum for that purpose. The permitted volume of water is more than sufficient for the mine's requirements.

Figure 18.1 Mine infrastructure plan



19 Market studies and contracts

Pan American has been producing silver rich zinc, lead, and copper concentrates at Morococha since 2004, which are sold under contracts with arm's length smelters and concentrate traders. Morococha receives payment for an agreed upon percentage of the silver, zinc, lead, and copper contained in the concentrates it sells after deduction of smelting and refining costs, based on average spot prices over defined 30-day periods that may differ from the month in which the concentrate was produced. Under these circumstances, Pan American may, from time to time, fix the price for a portion of the payable metal content during the month that the concentrates are produced. To date, Pan American has been able to secure contracts for the sale of all concentrates produced, however, there can be no certainty that Pan American will always be able to do so or what terms will be available at the time.

Morococha has contracts in place with NCA of Lima, Peru, for the transport of ore and waste in the mine, with Tumi of Lima, Peru for raise boring, Seprocal of Lima, Peru for Alimak raising, and with Robocon of Lima, Peru for the preparation and transport of concrete.

Martin Wafforn, the qualified person responsible for this section of the technical report, has reviewed the contract terms, rates, and charges for the production and sale of the silver, zinc, lead, and copper produced at Morococha, and consider them sufficient to support the assumptions made in this technical report.

20 Environmental studies, permitting, and social or community impact

20.1 Environmental factors

There are no known environmental or social issues that could materially impact the mine's ability to extract the mineral resources or mineral reserves.

20.2 Environmental studies

A full suite of environmental baseline and impact assessment studies were completed by Pan American for an Environmental Impact Assessment ("EIA") that covers the construction of new offices, workshops and camp facilities and the relocation of the process plant. The studies performed include surface water, groundwater, biodiversity, seismic hazards, soils, geomorphology, transport, air quality, and climate. No material issues were identified in any environmental studies and the EIA was approved by the Peruvian Ministry for Energy and Mines in 2010.

20.3 Permitting factors

Morococha holds all necessary environmental permits for the continued operation of the mine, including environmental licenses, water use and discharge permits, an approved closure plan, approved management plans, and approved operating permits for the sub-aqueous tailings facility.

20.4 Waste disposal

Waste rock is used principally as backfill in the underground mine and any excess material is deposited in an engineered waste rock facility located on top of a small backfilled open pit referred to as Tajo Nelly.

The coarse fraction of the process tailings are used as backfill in the underground mine, and the fine fraction of the process tailings is delivered to a sub-aqueous tailings impoundment area via a pipeline. The tailing impoundment area is a constructed lake and tailings are deposited to within 4 metres of the surface of the water. The dam was raised to its current level by Centromin in 2007 and Pan American has the capacity for approximately 20 years of production at the current plant throughput. Monitoring instrumentation is in place to confirm that the dam performance is within design limits.

20.5 Site monitoring

Pan American conducts environmental monitoring in and around the mine as part of its approved environmental management plans and continues to confirm legal compliance and add to the extensive database of environmental information. This monitoring includes water flow and quality monitoring, air quality, noise, soil, and flora and fauna. The mine also records waste generation, recycling, energy consumption, water use, and effluent quality and flow.

20.6 Water management

Pan American conducts quality and flow monitoring of all effluent discharges including domestic wastewater treatment plants and the discharge of the sub-aqueous tailings facility. There are no material issues arising from the results of this monitoring. The existing water quality complies with the new Peruvian discharge water quality limits without additional treatment, and an Adaptation Plan was approved by the Ministry of Energy and Mines in 2013.

The most significant environmental liability identified at the Morococha mine is the mine's potential share of the cost to operate the Kingsmill Tunnel water treatment plant. The Kingsmill Tunnel is an 11.5 kilometre long underground opening excavated between 1929 and 1934 to dewater the Morococha District mine workings above 4,020 metres above sea level. The water treatment plant was built and is currently being operated by MCP to treat the 1.5 to 1.8 cubic metres per second of water draining from the Kingsmill Tunnel into the Rio Yauli. Morococha's share of the cost was defined by a hydrogeological study completed in 1997 which apportioned responsibility for the costs of constructing and operating the treatment plant as follows: (i) Centromin (72.2%); (ii) Morococha operations (12.3%); (iii) Soc. Minera Puquiococha (8.5%); (iv) Soc. Minera Austria Duvaz (4.9%); and (v) Minera Centrominas (2.1%). Subsequent to the apportionment of costs, it appears that in connection with the acquisition by MCP of the mining concessions near Morococha, MCP assumed the cost of the construction of the Kingsmill water treatment plant.

The treatment and operating costs for the water treatment facility are directly proportional to both the constituent load and flow determined in the 1997 study. The distribution of responsibility stated in the 1997 study has been accepted by all involved parties. Pan American's potential share of the responsibility for treatment of the baseline flows, 12.3%, was included in the terms of its purchase of the applicable mining concessions. As a purchase contract entered into during 2003 between Natividad and Argentum establishes that the purchaser is responsible for incremental flows in those concessions, subsequent studies in 2004 were carried out to further characterize the baseline flow conditions in order to establish benchmarks for the determination of responsibility for potential future increases. The results of this study estimated that 38.46% of the baseline flows were derived from Natividad and Corona concessions now under Pan American's control. Pan American challenged this estimate but the challenge was not accepted. The scope of the study and the resulting recommendations exceeded the terms of the study and presented conclusions that conflicted with previous conclusions and the terms of Pan American's purchase of the applicable concessions. Pan American has included the estimated costs for 12.3% of the operations of the water treatment facility in its closure and reclamation estimates.

20.7 Social and community factors

There are no social or community pressures that materially affect Pan American's ability to extract the mineral reserves and resources. Pan American's Peruvian community relations team implements an extensive programme of community engagement activities including

information sessions, health services, infrastructure works, and educational and training programs for the local people, which have resulted in the establishment of several small businesses.

20.8 Project reclamation and closure

In October 2003, the Peruvian government passed legislation requiring active mining operations to file closure plans within six months of the date of passage of the legislation. Administrative rules associated with this legislation which laid out detailed closure requirements, including bonding and tax deductibility of reclamation and rehabilitation expenses, were promulgated in October 2005. These rules require that detailed closure plans and cost estimates be compiled by a certified third party consultant by October 2006. The original closure plan for Morococha was filed by mid-year 2004.

In August of 2006, Pan American submitted a comprehensive closure plan for Morococha to the MEM in accordance with that ministry's regulations. The closure plan was prepared by third party consultants registered with the Peruvian authorities as qualified to present closure plans to the MEM. The closure plan includes a summary of the proposed closure scheme for each of the major areas of impact such as mine water, tailing facilities areas, waste rock facilities, plant site infrastructure, and the underground mine. A detailed cost estimate was prepared based on Pan American's and the consultant's shared experience with closure works and experience with other projects in Peru. As required by the MEM, the costs were summarized in three phases: concurrent closure, final closure, and post closure. Updated closure plans are filed as required, with the most recent closure plan modification approved in 2012.

A closure cost estimate for Morococha was prepared according to State of Nevada approved Standard Reclamation Cost Estimator methodology in 2011 and is updated every year. The current undiscounted value of closure expenditures at Morococha as at December 31, 2013 is estimated at $9.8 million.

20.9 Expected material environmental issues

There are no known environmental or social issues that could materially impact the mine's ability to extract the mineral resources or mineral reserves.

21 Capital and operating costs

Since the mine is in operation, any sustaining capital expenditures are justified on an on-going basis based on actual experience at the mine. Sustaining capital expenditures throughout the life of mine are assumed to average $8.6 million per annum, excluding diamond drilling. The amount of diamond drilling conducted to extend the mine life beyond the existing mineral reserves forming the basis of the current life of mine plan will be at the discretion of Pan American and may depend on the success of exploration and diamond drilling programs, if any, and prevailing market conditions.

On the basis of the current mineral reserves, the majority of the sustaining capital expenditures at the mine will be for on-going development, equipment replacement, and major equipment overhauls. The mine plans to develop a new level in the Manuelita and Sulfurosa areas which will involve deepening the Manuelita shaft and developing the infrastructure for the Yacumina area.

The Morococha deposit is extensive and if current mineral resources can be converted to mineral reserves and/or if new mineral resources are defined and can be converted to mineral reserves, then a new plant will be required to replace the current Amistad plant prior to 2020. The future economic justification of a new plant will rely primarily on mineral reserve growth and metal prices. Although no up to date engineering studies are available, the estimated cost of a new 800,000 tonne per annum processing plant could be significant, on the order of up to $100 million. This cost would be partially offset by the remaining payments due from MCP to honour the June 2010 agreement.

The long term assumptions for the operating cost estimates are shown in Table 21.1. The assumptions are justified on the basis of the current actual operating costs at the mine, and on the basis of an annual throughput of 680,000 tonnes. As there are a number of fixed costs associated with operating a large underground mine such as Morococha, an increase in the annual throughput could reasonably be expected to increase the total costs and reduce unit operating costs, and similarly a reduction in throughput could reasonably be expected to decrease the total costs and to increase the unit operating costs.

Table 21.1 Estimated annual operating costs

Area	Estimated costs (US$ millions)	Estimated unit costs (US$ per tonne)
Mining	32.0	47.01
Processing	4.1	6.01
Maintenance	8.0	11.77
Electrical power and distribution	4.3	6.28
Safety, environment, and water treatment	2.2	3.17
Engineering and geology	3.0	4.42
Camp administration	9.9	14.56

Area	Estimated costs (US$ millions)	Estimated unit costs (US$ per tonne)
Subtotal production costs	63.4	93.22
Administration, insurance, legal, concessions	2.3	3.36
Management costs allocated	3.7	5.41
Shipping, selling, ocean freight	2.7	3.92
Total operating costs[1]	72.0	105.91
Note[1]: totals do not add up due to rounding		

22 Economic analysis

Because Morococha is a producing mine and there is no proposed material expansion of the current production at the mine other than an incremental increase that will be realized as part of Pan American's June 2010 agreement with MCP to relocate the processing plant to accommodate MCP's Toromocho open pit, there is no requirement under NI 43-101 to include the information disclosed under Item 22. For current information about Pan American and its business activities at Morococha and elsewhere, please refer to Pan American's quarterly Management's Discussion and Analysis of Financial Condition and Results of Operations, as well as the Company's Annual Information Form, which are available on SEDAR at www.sedar.com.

23 Adjacent properties

There is no relevant information on adjacent properties to report.

24 Other relevant data and information

There is no additional information to report.

25 Interpretation and conclusions

Pan American has been operating Morococha since 2004, processing between 524,000 and 693,000 tonnes of ore annually (on a 100% basis), producing approximately 2.5 million ounces of silver, 14,900 tonnes of zinc, 4,400 tonnes of lead, and 1,800 tonnes of copper in zinc, lead, and copper concentrates. Pan American expects to process approximately 630,000 tonnes per annum (on a 100% basis) in the near future and then gradually increase the annual production rate as more mining areas become available, resulting in an estimated remaining mine life of 7.3 years, based solely on the existing mineral reserves..

Pan American conducts infill and near-mine drilling through much of the year and updates mineral resource and mineral reserve estimates on an annual basis following reviews of metal price trends, treatment and refining charge trends for base metal concentrates, operational performance and costs experienced in the previous year, and forecasts of production and costs over the life of the mine.

There are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other factors or risks that could materially affect the development of the mineral resources. Mineral reserve estimates are based on assumptions that include mining, metallurgical, infrastructure, permitting, taxation, and economic parameters. Increasing costs and taxation and lower metal prices will have a negative impact on the quantity of estimated mineral reserves. Other than normal course changes in metal prices, which fluctuate from time to time, there are no other known factors that may have a material impact on the estimate of mineral reserves at Morococha.

Morococha is a producing mine and there is no proposed material expansion of the current production at the mine other than an incremental increase that will be realized as part of Pan American's June 2010 agreement with MCP to relocate the processing plant to accommodate MCP's Toromocho open pit. No economic analyses or engineering studies are currently underway. For current information about Pan American and its business activities at Morococha and elsewhere, please refer to Pan American's quarterly Management's Discussion and Analysis of Financial Condition and Results of Operations, as well as the Company's Annual Information Form, which are available on SEDAR at www.sedar.com.

26 Recommendations

Morococha is an operating mine and no economic analyses or engineering studies are currently underway. Therefore, the authors of this report have no recommendations to make at this time.

27 References

There are no references in this technical report to cite.

28 Date, signatures, and certificates

CERTIFICATE of QUALIFIED PERSON

I, Dr. Michael Steinmann, Executive Vice President, Corporate Development and Geology of Pan American Silver Corp., 1500-625 Howe St, Vancouver, BC, V6C 2T6, Canada do hereby certify that:

a) I am the co-author of the technical report titled "Technical Report for the Morococha Property, Yauli, Peru", with an effective date of June 30, 2014 (the "Technical Report").

b) I graduated with a Master of Science in Geology degree from the University of Zurich, Switzerland, in 1993. I earned a Doctor of Natural Science in Geology degree from the Swiss Federal Institute of Technology, Zurich, Switzerland, in 1997. I am a Professional Geologist in good standing with The Association of Professional Engineers and Geoscientists of the Province of British Columbia. My experience is primarily in the areas of mining geology and exploration and I have worked as a geologist for a total of 21 years since my graduation from the University of Zurich.

c) I have read the definition of 'qualified person' set out in National Instrument 43 101 ("the "Instrument") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

d) I am responsible for the preparation of the sections of the Technical Report as detailed in Table 2.1 – Responsibilities of each Qualified Person.

e) I am currently employed as the Executive Vice President, Corporate Development and Geology for Pan American Silver Corp., the majority owner of the Morococha Property, and by reason of my employment, I am not considered independent of the issuer as described in Section 1.5 of the Instrument.

f) I have had prior involvement with the Morococha Property that is the subject of the Technical Report; I am an employee of Pan American Silver Corp. and have conducted numerous site visits to the Morococha Property, including as described in Section 2 – Introduction of the Technical Report, and most recently on February 6, 2013.

g) I have read the Instrument and Form 43 101F1, and the Technical Report has been prepared in compliance with the Instrument and that form.

h) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, British Columbia, this 12th day of November, 2014.

"Signed and sealed"

Michael Steinmann, P.Geo.

CERTIFICATE of QUALIFIED PERSON

I, Martin Wafforn, Vice President, Technical Services of Pan American Silver Corp., 1500-625 Howe St, Vancouver, BC, V6C 2T6, Canada do hereby certify that:

a) I am the co-author of the technical report titled "Technical Report for the Morococha Property, Yauli, Peru", with an effective date of June 30, 2014 (the "Technical Report").

b) I graduated with a Bachelor of Science in Mining degree from the Camborne School of Mines in Cornwall, England in 1980. I am a Professional Engineer in good standing with The Association of Professional Engineers and Geoscientists of the Province of British Columbia. I am also a Chartered Engineer in good standing in the United Kingdom. My experience is primarily in the areas of mining engineering and I have worked as an engineer in the mining industry for a total of 33 years since my graduation from the Camborne School of Mines.

c) I have read the definition of 'qualified person' set out in National Instrument 43 101 ("the "Instrument") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

d) I am responsible for the preparation of the sections of the Technical Report as detailed in Table 2.1 - Responsibilities of each Qualified Person.

e) I am currently employed as the Vice President, Technical Services for Pan American Silver Corp., the majority owner of the Morococha Property, and by reason of my employment, I am not considered independent of the issuer as described in Section 1.5 of the Instrument.

f) I have had prior involvement with the Morococha Property that is the subject of the Technical Report; I am an employee of Pan American Silver Corp. and have conducted site visits to the Morococha Property, including as described in Section 2 – Introduction of the Technical Report, and most recently on June 24, 2014.

g) I have read the Instrument and Form 43 101F1, and the Technical Report has been prepared in compliance with the Instrument and that form.

h) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, British Columbia, this 12th day of November, 2014.

"Signed and sealed"

Martin Wafforn, P. Eng.

CERTIFICATE of QUALIFIED PERSON

I, Americo Delgado, Director, Metallurgy of Pan American Silver Corp., 1500-625 Howe St, Vancouver, BC, V6C 2T6, Canada, do hereby certify that:

a) I am the co-author of the technical report titled "Technical Report for the Morococha Property, Yauli, Peru", with an effective date of June 30, 2014 (the "Technical Report").

b) I graduated with a Master of Science in Metallurgical and Material Engineering from the Colorado School of Mines in Golden, Colorado, in 2007, and with a Bachelor of Science in Metallurgical Engineering degree from the Universidad Nacional de Ingenieria, Lima, Peru, in 2000. I am a Professional Engineer in good standing with the Association of Professional Engineers and Geoscientists of the Province of British Columbia. My experience is primarily in the areas of metallurgy and mineral processing engineering and I have worked as a metallurgist in the mining industry for a total of 14 years since my graduation from the Universidad Nacional de Ingenieria.

c) I have read the definition of 'qualified person' set out in National Instrument 43 101 ("the "Instrument") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

d) I am responsible for the preparation of the sections of the Technical Report as detailed in Table 2.1 - Responsibilities of each Qualified Person.

e) I am currently employed as the Director, Metallurgy for Pan American Silver Corp., the majority owner of the Morococha Property, and by reason of my employment, I am not considered independent of the issuer as describe in Section 1.5 of the Instrument.

f) I have had prior involvement with the Morococha Property that is the subject of the Technical Report; I am an employee of Pan American Silver Corp. and have conducted visits to the Morococha Property, including as described in Section 2- Introduction of the Technical Report, and most recently on February 6, 2013.

g) I have read the Instrument and Form 43 101F1, and the Technical Report has been prepared in compliance with the Instrument and that form.

h) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Vancouver, British Columbia, this 12th day of November, 2014.

"Signed and sealed"

Americo Delgado, P. Eng.