

PAN AMERICAN SILVER CORP

Form 6-K

January 31, 2008

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
FORM 6-K  
REPORT OF FOREIGN PRIVATE ISSUER TO RULE 13A or 15D-16  
UNDER THE SECURITIES EXCHANGE ACT OF 1934**

**For the Month of: January, 2008**

**File No.: 000-13727**

**PAN AMERICAN SILVER CORP.**

(Translation of Registrant's Name into English)

**Suite 1500, 625 Howe Street Vancouver British Columbia, Canada V6C 2T6**

(Address of Principal Executive Office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20F or Form 40F:

Form 20F  Form 40F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1). Yes  No

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7). Yes  No

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes  No

If  Yes is marked, indicate below the file number assigned to the registrant in connection with rule 12g-3-2(b): 82 -

\_\_\_\_\_.

**Submitted herewith:**

**1. Form 43-101 Technical Report for the Morococha Property.**

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**PAN AMERICAN SILVER  
CORP.**

**Date: January 30, 2008**

*Robert Pirooz*

General Counsel

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**MOROCOCHA PROPERTY  
TECHNICAL REPORT  
YAULI PROVINCE, PERU  
EFFECTIVE DATE: DECEMBER 30, 2007  
PREPARED BY:  
MICHAEL STEINMANN, P.Geo.  
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-1-43-101 (PanAm)

Morococha Mine

1

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**TABLE OF CONTENTS**

|  |           |
|--|-----------|
| <b>TABLE OF CONTENTS</b>   | <b>2</b>  |
| <b>LIST OF FIGURES</b>   | <b>4</b>  |
| <b>LIST OF TABLES</b>  | <b>4</b>  |
| <b>LIST OF GRAPHS</b>  | <b>4</b>  |
| <b>1.0 TITLE PAGE</b>  | <b>5</b>  |
| <b>2.0 TABLE OF CONTENTS</b>   | <b>5</b>  |
| <b>3.0 SUMMARY</b>   | <b>5</b>  |
| 3.1 Property Description and Location, Access, Infrastructure, and History | 5         |
| 3.2 Geological Setting, Deposit Type, and Mineralization                   | 6         |
| 3.3 Exploration and Drilling   | 6         |
| 3.4 Sampling Method and Approach   | 7         |
| 3.5 Sample Preparation, Analysis, Security, and Data Verification          | 7         |
| 3.6 Mineral Processing and Metallurgical Testing                           | 7         |
| 3.7 Mineral Resources and Mineral Reserves                                 | 8         |
| 3.8 Additional Requirements for Production Properties                      | 9         |
| 3.8.1 Mining and Processing Operations                                     | 9         |
| 3.8.2 Markets and Contracts  | 9         |
| 3.8.3 Environmental Considerations   | 10        |
| 3.8.4 Taxes and Royalties  | 10        |
| 3.8.5 Capital and Operating Cost Estimates                                 | 10        |
| 3.8.6 Economic Analysis  | 10        |
| <b>4.0 INTRODUCTION</b>  | <b>11</b> |
| <b>5.0 RELIANCE ON OTHER EXPERTS</b>                                       | <b>12</b> |
| <b>6.0 PROPERTY DESCRIPTION AND LOCATION</b>                               | <b>12</b> |

|   |           |
|---|-----------|
| 6.1 Mineral Tenure  | 12        |
| 6.1.1 General Provisions  | 12        |
| 6.1.2 Morococha Properties  | 14        |
| 6.2 Permits and Agreements  | 33        |
| 6.2.1 Agreements  | 33        |
| 6.2.2 Permits and Licenses  | 33        |
| 6.3 Environmental Issues  | 36        |
| <b>7.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY</b> | <b>36</b> |
| <b>8.0 HISTORY</b>  | <b>37</b> |
| <b>9.0 GEOLOGIC SETTING</b>   | <b>38</b> |
| <b>10.0 DEPOSIT TYPES</b>   | <b>39</b> |
| <b>11.0 MINERALIZATION</b>  | <b>39</b> |
| <b>12.0 EXPLORATION</b>   | <b>41</b> |
| 12.1 Exploration Prior to PAS Acquisition of Morococha                              | 41        |
| 12.2 PAS Exploration (2004-2005)  | 41        |
| <b>13.0 DRILLING</b>  | <b>44</b> |
| <b>14.0 SAMPLING METHOD AND APPROACH</b>  | <b>54</b> |
| 14.1 General Sampling Procedures  | 54        |
| 14.2 Drill Core Samples   | 54        |
| 14.3 Chip-Channel Samples   | 55        |
| <b>15.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY</b>                               | <b>55</b> |
| <b>16.0 DATA VERIFICATION</b>   | <b>58</b> |
| <b>17.0 ADJACENT PROPERTIES</b>   | <b>64</b> |
| <b>18.0 MINERAL PROCESSING AND METALLURGICAL TESTING</b>                            | <b>64</b> |
| 18.1 Metallurgical Testing and Assumptions  | 64        |

|  |                |   |
|--|----------------|---|
| 18.2 Plant Improvement Projects                            | 69             |   |
| <b>19.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES</b> | <b>70</b>      |   |
| 19.1 Mineral Reserve Estimation Methodology                | 70             |   |
| 19.1.1 Block Volumes                                       | 70             |   |
| 19.1.2 Block Grades  | 70             |   |
| 19.1.3 Dilution  | 70             |   |
| 19.1.4 Block Tonnes  | 72             |   |
| 19.1.5 Adjustment Factors                                  | 72             |   |
| -2-43-101 (PanAm)  | Morococha Mine | 2 |

---

|  |           |
|--|-----------|
| 19.2 Mineral Reserves and Mineral Resources  | 73        |
| 19.2.1 Mineral Reserves  | 73        |
| 19.2.2 Mineral Resources   | 77        |
| <b>20.0 OTHER RELEVANT DATA AND INFORMATION</b>  | <b>78</b> |
| <b>21.0 INTERPRETATION AND CONCLUSION</b>  | <b>78</b> |
| <b>22.0 RECOMMENDATIONS</b>  | <b>79</b> |
| <b>23.0 REFERENCES</b>   | <b>80</b> |
| <b>24.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON PRODUCTION AND DEVELOPMENT PROPERTIES</b> | <b>82</b> |
| 24.1 Mining Operations   | 82        |
| 24.1.1 Manuelita Zone  | 83        |
| 24.1.2 Sulfurosa Zone  | 84        |
| 24.1.3 Codiciada Zone  | 84        |
| 24.1.4 San Antonio Zone  | 84        |
| 24.1.5 Yacumina Zone   | 84        |
| 24.1.6 Potential Impact of the Proposed Toromocho Development on the Mine Plan                     | 85        |
| 24.2 Recoverability  | 86        |
| 24.2.1 Crushing  | 87        |
| 24.2.2 Grinding and Classification   | 87        |
| 24.2.3 Flotation   | 87        |
| 24.2.4 Thickening and Filtration   | 88        |
| 24.2.5 Tailings Disposal   | 89        |
| 24.2.6 Water Supply and Consumption  | 89        |
| 24.3 Markets   | 89        |
| 24.3.1 Trading of Peruvian Copper, Lead, and Zinc Concentrates                                     | 90        |



|  |     |
|--|-----|
| 24.3.2 Weighing, Sampling and Moisture Determination           | 90  |
| 24.4 Contracts   | 90  |
| 24.5 Environmental Considerations                              | 91  |
| 24.5.1 General   | 91  |
| 24.5.2 External Review   | 92  |
| 24.5.3 Kingsmill Drainage Tunnel Discharge                     | 92  |
| 24.5.4 Huascacocha Tailings Facility                           | 94  |
| 24.5.5 Environmental Improvement and Management Program (PAMA) | 94  |
| 24.5.6 Closure and Reclamation Plan                            | 95  |
| 24.5.7 Environmental Monitoring                                | 95  |
| 24.6 Taxes   | 95  |
| 24.6.1 Fiscal Depreciation Rates                               | 95  |
| 24.6.2 Income Tax and Workers Participation                    | 96  |
| 24.6.3 Value Added Taxes                                       | 96  |
| 24.6.4 Mining Royalties  | 96  |
| 24.6.5 Voluntary Contributions                                 | 96  |
| 24.7 Capital and Operating Costs                               | 96  |
| 24.7.1 Capital Costs   | 96  |
| 24.7.2 Operating Costs   | 97  |
| 24.8 Economic Analysis   | 98  |
| 24.8.1 Metal Price Sensitivity                                 | 101 |
| 24.8.2 Grade Sensitivity                                       | 101 |
| 24.8.3 Capital Cost Sensitivity                                | 102 |
| 24.8.4 Operating Cost Sensitivity                              | 102 |
| 24.9 Mine Life   | 103 |

**25.0 DATE AND SIGNATURE PAGE** **104**

**26.0 FIGURES** **105**

-3-43-101 (PanAm)

Morococho Mine

3

---

**LIST OF FIGURES**

|  |     |
|--|-----|
| Figure 1: Location Map                       | 105 |
| Figure 2: Morococha Mine Surface Rights      | 106 |
| Figure 3: Morococha Mine Concessions         | 107 |
| Figure 4: Morococha Surface Installments     | 108 |
| Figure 5: Regional Geology Map Plan          | 109 |
| Figure 6: District Geology Map               | 110 |
| Figure 7: Mineral Reserve Blocks Isabel Vein | 111 |
| Figure 8: Mineral Processing Flowsheet       | 112 |
| Figure 9: Mining Method                      | 113 |

**LIST OF TABLES**

|   |     |
|---|-----|
| Table 6-1: List of Morococha Concessions  | 19  |
| Table 6-2: List of Morococha Concessions transferred from Silver Lead Mining Company S.A. | 28  |
| Table 6-3: List of Morococha Concessions transferred from Sociedad Minera Corona          | 29  |
| Table 6-4: List of Morococha Concessions Held with Different Third Party Mining Companies | 29  |
| Table 6-5: List of concessions in negotiation with Minera Saracancha S.A.C.               | 30  |
| Table 6-6: List of Concessions Reviewed by Rodrigo, Elias and Medrano Abogados            | 31  |
| Table 13-1: Summary of PAS Diamond Drilling   | 44  |
| Table 13-2: Summary of Manto Italia Diamon Drill Holes                                    | 46  |
| Table 16-1: Summary of Budget vs. Ore Processed   | 63  |
| Table 18-1: Life of Mine Head Grade Projections   | 66  |
| Table 18-2: Life of Mine Recovery Projections   | 66  |
| Table 18-3: Life of Mine Concentrate Projections  | 66  |
| Table 24-1: Concentrate Revenues 2006   | 90  |
| Table 24-2: List of Existing Sale Contracts   | 91  |
| Table 24-3: Life of Mine Projected Capital Expenditures                                   | 97  |
| Table 24-4: Operating Cost Estimate for the Life of Mine Plan                             | 97  |
| Table 24-5: Operating Unit Cost Estimate for the Life of Mine Plan                        | 98  |
| Table 24-6: Economic Model  | 100 |
| Table 24-7: Metal Price Sensitivity   | 101 |
| Table 24-8: Metal Grade Sensitivity   | 102 |
| Table 24-9: Capital Cost Sensitivity  | 102 |
| Table 24-10: Operating Cost Sensitivity   | 103 |

**LIST OF GRAPHS**

|  |    |
|--|----|
| Graph 16-1: Blank Results Silver           | 58 |
| Graph 16-2: Blank Results Lead             | 59 |
| Graph 16-3: Blank Results Zinc             | 59 |
| Graph 16-4: Standard No. 1 Results Silver  | 60 |
| Graph 16-5: Standard No. 1 Results Lead    | 60 |
| Graph 16-6: Standard No. 1 Results Zinc    | 61 |
| Graph 16-7: Check Sample Results Silver    | 61 |
| Graph 16-8: Check Sample Results Lead      | 62 |
| Graph 16-9: Check Sample Results Zinc      | 62 |
| Graph 18-1: Silver Head Grade vs. Recovery | 67 |

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|  |    |
|--|----|
| Graph 18-2: Copper Head Grade vs. Recovery | 68 |
| Graph 18-3: Lead Head Grade vs. Recovery   | 68 |
| Graph 18-4: Zinc Head Grade vs. Recovery   | 69 |

-4-43-101 (PanAm)

Morococha Mine

4

## **1.0 TITLE PAGE**

This Technical Report has been prepared in accordance with the National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ( NI 43-101 ) and the contents herein are organized and in compliance with Form 43-101F1 *Contents of the Technical Report* ( Form 43-101 F1 ). The first two items are the Title Page and the Table of Contents presented previously in this report. They are mentioned here simply to maintain the specific report outline numbering required in Form 43-101F1.

## **2.0 TABLE OF CONTENTS**

See discussion in Section 1.0.

## **3.0 SUMMARY**

### **3.1 Property Description and Location, Access, Infrastructure, and History**

The Morococha property is located in the Morococha District, Yauli Province, Junin Department, Peru, on the east side of the continental divide just below Ticlo summit, approximately 38 kilometres west of the city of La Oroya and 137 kilometres east of Lima. The Morococha property's general coordinates are latitude 11° 36' S and longitude 76° 10' W.

The Morococha property is owned and operated by Compania Minera Argentum ( Argentum ), a Peruvian company in which Pan American Silver Corp. ( PAS ), through its subsidiary Pan American Peru ( PASP ), holds an 89.35% interest as of October 31, 2007 (the remaining interest is held mainly by Alejandro Gubbins and Compañía Minera Casapalca S.A. as well as some minority shareholders). The Morococha property is comprised of three economic administrative units ( UEAs ) and various concessions held outside of these UEAs. The three UEA's contain 458 mining concessions owned outright by Argentum, 11 concessions have been transferred to Argentum from Silver Lead Mining Company (public registry pending) and 5 concessions have been transferred to Argentum from Sociedad Minera Corona ( Corona ) (public registry pending). 37 concessions are under a lease agreement with Corporación Minera Sacracancha S.A., for a grand total of 12,192.01 hectares. In addition, there are 21 mining concessions held with different third party participations covering 106.23 hectares. The majority of the mining concessions comprising the Morococha property are contiguous. All known mineralized zones in which mining operations are currently conducted, and in which known mineral reserves exist, are contained within the boundaries of these concessions.

Argentum does not hold registered legal title to most of the surface lands that overlie the mining concessions which comprise the Morococha property. These surface rights are owned by Centromin Peru ( Centromin ), the Peruvian national mining company. The Morococha property's process plants, shafts and access roads are all located on surface lands where legal title is registered in the name of Centromin. Argentum's use (and that of its predecessor) of these surface lands have been exercised for decades with Centromin's knowledge and Argentum's claim to continued use is based on long term use under Peruvian law. Peru Copper Inc., a copper mining company carrying on business in Peru, has been granted by Centromin the option to acquire mining concessions and surface rights to the Toromocha property. In June 2007, Aluminum Corporation of China ( Chinalco ) purchased 100% of the outstanding shares in Peru Copper Inc. PAS had discussions with Chinalco with respect to negotiating surface rights issues that may arise between PAS and Chinalco in connection with their respective operations.

Mining began in the region around Morococha before 1500, and since the late 1800 s production has been continuous in the district. In the 1940 s the Gubbins family began operating mines in the Morococha district, eventually consolidating its holdings into Sociedad Minera Corona. Current underground mining operations consist primarily of typical overhand cut and fill, shrinkage, and mechanized room and pillar methods using waste rock for backfill where needed. The Yauli, Maria and Central production shafts provide access down to the Kingsmill drainage tunnel level at an elevation of 4,020 metres above sea level. The Maria shaft extends down to the 1200 level (4165 metre elevation, or 140 metres above the Kingsmill tunnel). Pique Inclinado 067 provides access to the 7 level from the 6 level in the Buenaventura vein, and Pique Codiciada provides access between the 460 and 310 levels in the Codiciada zone.

There are two process plant facilities on the property, approximately 5 kilometres apart. The Sacracancha plant was the primary milling facility for Corona until the acquisition of the Amistad plant which is currently the only process facility in use. Some of the processing equipment from the Sacracancha plant has been removed to be used at other PASP plants. Both process plants are conventional selective flotation facilities capable of producing individual copper, lead, and zinc concentrates, which are then shipped to third party smelters for final refining. The tailings from both plants are deposited sub-aqueously in the Huascacocha Lake to the north of the Sacracancha plant. The facility contains tailings storage capacity for over 20 years. The Peruvian government is investigating the possibility of using the Huascacocha water for human consumption in Lima. To the best of the authors knowledge, there is no study confirming the technical or environmental feasibility of this project. No change of the tailings area has been contemplated in the economic study, as the chance for execution of such a project is very remote and would happen in the distant future.

### **3.2 Geological Setting, Deposit Type, and Mineralization**

Mineralization in the Morococha deposit includes epi-mesothermal silver-lead-copper-zinc veins and bedded silver-base metal replacements or mantos (which together account for the majority of the past and present economic mineralization at the Morococha operations), intrusive-sediment contact skarns, and the quartz porphyry-hosted Toromocho disseminated copper system.

Ore and gangue mineralogy is similar in veins and mantos but it varies considerably across the property. Sphalerite, galena, and chalcopyrite are the most important primary minerals for zinc, lead and copper. Silver is generally present as freibergite (Ag-tetrahedrite) or argentiferous galena. Gangue minerals generally consist of quartz, calcite, barite and rhodochrosite, the latter having a strong correlation with higher silver grades.

### **3.3 Exploration and Drilling**

Corona conducted only minimal exploration in the district between the late 1990 s and PAS s acquisition of the Morococha operations in early 2004. However, exploration potential is considered to be excellent throughout the district due to the significant vertical extent (over 800 m) of economic veins and the prevalence of multiple carbonate units favorable for replacement mineralization. Shortly after acquiring the Morococha operation, PAS started aggressive exploration programs based on underground and surface diamond drilling. From late 2004 to September 2007 a total of 743 underground diamond drill holes and 110 surface diamond drill holes were completed for a grand total of 146,402 m of diamond drilling. There are no core or sample recovery issues which could have materially impacted the accuracy and reliability of the assay results.

### **3.4 Sampling Method and Approach**

PAS has standardized sampling procedures throughout the Morococha operations and the authors of this Technical Report have ensured that these practices meet or exceed industry standards. All sampling that provided data for estimation of the December 31, 2006 mineral reserves and mineral resources was done by Argentum (PAS) personnel under the direct supervision of the Geology department. The data used for the estimation of mineral reserves and resources at the Morococha property were derived from underground chip channel samples from the backs of drifts, the ribs of crosscuts, the backs of stopes, the ribs of raises, and from diamond drill hole samples. Chip-channel samples are taken every 2 metres across the veins or mantos in exploration drifts. Stopes are sampled at least once a month on 2 metre centers along strike. As of July 31, 2007, the Morococha database contained records from 57,563 samples 26,538 samples from diamond drilling and 31,025 samples from underground chip-channeling.

### **3.5 Sample Preparation, Analysis, Security, and Data Verification**

All sample preparation and analyses are done on site, and the operation maintains chain of custody throughout the sampling, sample preparation, and analytical processes. All samples from both the Morococha mines and mill are first run for silver, lead, copper, and zinc using an atomic absorption ( AA ) unit. Samples with initial AA analyses for silver greater than 500 grams per tonne are re-run by fire assay, using assay charges that vary in size from 15 to 50 grams depending on the grade of the initial AA assay (the larger the AA assay value, the larger the fire assay charge) and the oxidation state of the sample. Wet chemical analysis for lead and zinc is reserved for concentrate samples or base metal grades over 10%.

In 2005, Argentum hired the third party laboratory MINLAB S.R.L. Lima (MINLAB) in order to ensure that the appropriate sampling and analytical standards were applied to the mineral samples obtained from the Morococha operations. In addition, a LIMS system has been installed in the lab to assure an automated quality control of standards, blanks and check samples. The mine laboratory conducts a routine internal QA/QC program that includes external check samples and the routine submission of standards. Additionally, there is a QA/QC program supervised by the geology department that includes the submission of at least one certified standard and one blank per day as well as third party laboratory check assays on 2-5% of the samples and 1-2% of the check samples.

### **3.6 Mineral Processing and Metallurgical Testing**

Forecasts for metal recovery at Morococha are based on historical performance of plant operations. The Morococha operation has many years of production history, and as a result the metallurgical behavior of the ores from the deposit is very well established, and there is sufficient experience and knowledge to predict the metallurgical recoveries used in the life of mine (LOM) plan to a reasonable degree of accuracy. Additional metallurgical testing is undertaken from time to time to explore ideas for improvement or the application of new technology as it becomes available.

### 3.7 Mineral Resources and Mineral Reserves

Mineral reserves and mineral resources are reported separately for the Morococha operations. No mineral reserves are included in the tabulation of mineral resources. The proven and probable mineral reserves and the measured, indicated, and inferred mineral resources for the Morococha operations as of December 31, 2006 are summarized in Table 2-1:

**Table 2-1 Summary of Mineral Reserves and Mineral Resources as of 12-31-06**

| Category                        | Proven and Probable Reserves     |            |                   |             |             |             |
|---------------------------------|----------------------------------|------------|-------------------|-------------|-------------|-------------|
|                                 | DMT                              | Ag g/mt    | Ag Cont. (oz)     | Cu %        | Pb %        | Zn %        |
| Proven                          | 4,073,423                        | 155        | 20,300,280        | 0.36        | 1.49        | 3.84        |
| Probable                        | 2,304,141                        | 157        | 11,649,101        | 0.41        | 1.83        | 4.16        |
| <b>Total Reserves</b>           | <b>6,377,564</b>                 | <b>156</b> | <b>31,949,381</b> | <b>0.38</b> | <b>1.61</b> | <b>3.96</b> |
| Category                        | Measured and Indicated Resources |            |                   |             |             |             |
|                                 | DMT                              | Ag g/mt    | Ag Cont. (oz)     | Cu %        | Pb %        | Zn %        |
| Measured                        | 2,052,231                        | 192        | 12,659,352        | 0.30        | 1.47        | 3.52        |
| Indicated                       | 810,905                          | 178        | 4,642,780         | 0.41        | 1.26        | 2.90        |
| <b>Total M&amp;I Resources</b>  | <b>2,863,135</b>                 | <b>188</b> | <b>17,302,132</b> | <b>0.33</b> | <b>1.41</b> | <b>3.34</b> |
| Category                        | Inferred Resources               |            |                   |             |             |             |
|                                 | DMT                              | Ag g/mt    | Ag Cont. (oz)     | Cu %        | Pb %        | Zn %        |
| <b>Total Inferred Resources</b> | <b>9,783,592</b>                 | <b>227</b> | <b>71,402,748</b> | <b>0.47</b> | <b>1.90</b> | <b>4.37</b> |

- 1 Estimated using prices of \$9.00 per ounce of silver, \$2,100 per tonne of zinc, \$1,000 per tonne of lead and \$5,000 per tonne of copper.
- 2 Mineral resources are in addition to mineral reserves and were estimated using prices of \$9.00 per ounce of silver, \$2,100 per tonne of zinc, \$1,000 per tonne of lead and \$5,000 per tonne of copper. .
- 3 Mineral reserve estimates for Morococha were prepared under the supervision of, or were reviewed by, Michael Steinmann, P.Ge., Senior Vice President Geology & Exploration, and Martin G. Wafforn, P.Eng. Vice-President of Mine Engineering, as Qualified Persons, as that term is defined in NI 43-101.
- 4 Mineral reserves are based on net value cut-offs that range from US\$ 32.00 per tonne to US\$ 45.00 per tonne, depending on the mining area and planned mining method.
- 5 DMT means dry metric tonnes.

There are no known environmental, permitting, legal, title, socio-economic, marketing, or political issues that could materially affect the above mineral reserves, and other than depletion of mineral reserves by normal mining (which should be offset by ongoing new mineral reserve additions from exploration and delineation work), there are no mining or metallurgical factors that could have a similar material effect. The Morococha mineral reserves were estimated in accordance with the guidelines set forth in NI 43-101 and accepted North American mining industry practices.



### **3.8 Additional Requirements for Production Properties**

#### **3.8.1 Mining and Processing Operations**

The Morococha operations produce ore from the Manuelita, Codiciada, Sulfurosa, San Florencio, Yacumina, and Alapampa mining areas. Since the completion of the initial Morococha Operations NI 43-101 Technical Report in February 2004, PAS closed the Sacracancha mill and shifted all processing of ore from the various mines that comprise the Morococha operations to the 2,000 tonne/day capacity Amistad mill and concentrating plant, which processes ore by selective flotation methods.

In order to determine the life of the Morococha operation, a long-range life of mine (LOM) plan and development program has been completed which assumes that the adjacent Toromocho project is not developed during the term of the plan. This LOM plan is based on the current production rate of 661,000 tonnes of ore per annum in its early years, increasing to a maximum of 705,000 tonnes per annum as the development currently underway in the north and west zones of the mine is advanced. Production is scheduled to come from all areas of the operation at different levels through 2017, with the mineral reserves in the Sulfurosa, Yacumina and San Antonio zones being exhausted by the end of 2014.

The Toromocho deposit is contained within the boundaries of the Morococha property, overlying portions of the Morococha underground mining operations. The development and operation of the Toromocho open pit during the expected life of the Morococha underground operations would present operational challenges to PAS. The LOM plan would have to be re-worked to increase production from Codiciada earlier in order to minimize any production delays resulting from loss of infrastructure (underground haulage ways, shaft collar access, the Amistad processing plant, etc.). The capital requirements to refurbish the Sacracancha plant or to build new facilities net of any compensation from Chinalco for the development of Toromocho presently are not known to any normal degree of accuracy.

#### **3.8.2 Markets and Contracts**

The principal products from the Morococha operations are silver-rich copper, lead, and zinc concentrates. All of these concentrates are sold under arm's length contracts to metals trading companies or integrated mining and smelting companies. Under the terms of all of its sales contracts, the Morococha operation receives payment for an agreed percentage of the silver, copper, lead, or zinc contained in the concentrate, after deductions for smelting and refining costs. To date, PAS has been able to secure contracts for the sale of the Morococha concentrates. The terms of smelting contracts are confidential as specified within each contract, and are considered to be within industry norms.

### **3.8.3 Environmental Considerations**

The single largest environmental liability identified at the Morococha operations is the Morococha share of the proposed Kingsmill tunnel water treatment plant. Argentum's defined share of this liability is 12.3%. In addition to the Kingsmill tunnel discharge, Argentum also retains a 21.01% share of responsibility for mitigation of the Huascacocha Lake tailings beach, where tailings have been discharged since 1960. An estimate of the mitigation costs of these liabilities has been included in the economic analysis. The final site closure cost estimate is \$8.59 million, and an additional \$3.35 million is included in the economic analysis for concurrent reclamation.

### **3.8.4 Taxes and Royalties**

The corporate tax rate on income in Peru is 30%. In addition, there is an 8% employee profit sharing tax, which is deductible from income for the purposes of calculating net income tax, thereby resulting in an effective tax rate on Morococha income of 35.6%. Also, a 1.0% royalty is payable to the government of Peru on the first \$60 million of revenue, with a 2% royalty applied to the balance of revenue generated. All taxes and royalties are included in the economic analysis.

### **3.8.5 Capital and Operating Cost Estimates**

Sustaining capital expenditures totaling US\$95 million are estimated to be required over the term of the LOM plan. These capital expenditures are necessary in order to maintain the overall planned production rate of 58,750 metric tonnes per month (705,000 tonnes per annum). Capital requirements to sustain production include expenditures to develop the mineral reserves, diamond drilling to upgrade mineral resources to mineral reserves, purchase of additional mining equipment as required by the LOM plan and schedule, and replacement of major equipment as it exceeds its economic life.

The total operating costs used in the LOM plan range from US\$52.55 per tonne to US\$63.52 per tonne of ore processed in a given year of the plan. These estimated unit operating costs are projected from historical actual costs, and certain of these costs (such as mine site labour), are in Peruvian Soles. For the LOM plan, PAS has assumed that the Sol will remain near its current levels of 3.00 Soles per United States Dollar (USD). However, operating costs may well increase above projected levels due to fluctuating Sol/USD exchange rates, which as of the date of this Technical Report reflect a strengthening of the Sol compared to the USD.

### **3.8.6 Economic Analysis**

A cash flow forecast was generated from the proven and probable mineral reserves stated as of December 31, 2006. The cash flow forecast determines net after-tax cash flows of the future production profile incorporating estimates for production rates, metallurgical performance, mined ore grades, direct mine operating costs, development costs, exploration drilling costs, general and administration costs, marketing costs, sustaining capital expenditures, and employee profit sharing and corporate income taxes. The undiscounted cash flow estimate is US\$39.6 million on a 100% basis at the assumed metal prices (primarily silver @ \$9.00 per ounce and zinc @ \$2,100 per tonne).

Sensitivity analyses were conducted for variances in metal prices, metal grades, capital costs and operating costs. These analyses show that the LOM plan is most sensitive to metal prices (where use of December 31, 2005 mineral reserve prices caused negative net profit values (NRV s) for all discount rate assumptions), and mineral reserve grade, where 25% lower grades also resulted in negative NPV s for all discount rate cases (0%, 10%, and 15%). Similarly, a 25% increase in operating costs also resulted in across the board negative NPV s. The LOM plan is relatively insensitive to sustaining capital costs increases of 25% still returned positive NPV s for all discount cases. However, sensitivity analyses such as these must be considered as very cursory when applied to underground mines. To be meaningful, metal price, grade, and operating cost sensitivity factors should be applied as part of a redesign of each individual underground stope in the LOM Base Case (and also to potential stope blocks) in order to arrive at a valid estimate of the reductions and/or additions that result to the proven and probable mineral reserve base and subsequent cash flow analyses.

#### **4.0 INTRODUCTION**

PAS, the parent company of PASP asked its qualified senior personnel to review mineral resource and mineral reserve estimates for the silver-copper-lead-zinc deposit at the Morococha Mine in Peru, and to prepare a technical report to support the public disclosure of mineral reserve and mineral resource estimates as of December 31 2006, as required by NI 43-101. This Technical Report has been prepared in accordance with NI 43-101 and the format and contents of this Technical Report are intended to conform to Form 43-101 F1.

Mr. Martin Wafforn, P.Eng., PAS Vice President of Mine Engineering serves as the Qualified Person ( QP ) as that term is defined in NI 43-101 with respect to the mineral reserve statements described herein and sections 1, 2, 3, 4, 5, 6, 7, 8, 18, 19, 20, 21, 22, 23, 24 and 25 and Figures 4, 7, 8 and 9, contained in this Technical Report. Mr. Wafforn last visited the Morococha Mine site from October 2nd to October 4th, 2007 but travels to the site at least five times per year.

Dr. Michael Steinmann, P.Geo., PAS Senior Vice President of Exploration and Geology serves as the QP with respect to the mineral resource statements described herein and sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24 and Figures 1, 2, 3, 5 and 6, contained in this Technical Report. Dr. Steinmann last visited the Morococha Mine site from October 2nd to October 4th, 2007 but travels to the site at least six times per year.

Resource Evaluation Inc. ( REI ) was retained by PAS to provide an independent Qualified Person s review and Technical Report for the Morococha property, located in Yauli Province, Junin Department, Peru. REI s work included a review of the December 31, 2006 mineral reserves for the property as stated by the Morococha Mine geology department. Mr. Donald Earnest, P.Geo., President of REI, served as the QP responsible for preparing this Technical Report. Mr. Earnest visited the Morococha operation site on October 3 and 4, 2007.

Mr. Elmer Ildefonso, a consulting mining engineer to PAS, assisted the mine geology department for the mineral resource evaluation and modeling of the Manto Italia ore body under the direct supervision of Dr. Steinmann.

Information and data for the preparation of the report were obtained from the Morococha Mine operations personnel during site visits carried out in several occasions during 2007 and were checked for accuracy by the authors of this Technical Report.

Sources of information and data contained in this Technical Report or used in its preparation are summarized in section 23 References.

All tonnages stated in this report are dry metric tonnes ( DMT ) unless otherwise specified. Ounces pertaining to silver metal content are expressed in troy ounces. Precious metal grades are reported in grams per metric tonne ( g/t ).

## 5.0 RELIANCE ON OTHER EXPERTS

Mr. Donald Earnest, Mr. Martin Wafforn and Dr. Michael Steinmann, as authors of this Technical Report, have relied upon the references, opinions and statements contained within the references listed in Section 23. These reports, documents, and statements were found to be generally well organized and presented, and where applicable, the conclusions reached are judged reasonable.

It is assumed that technically qualified and competent persons prepared these reports and documents. It is the authors opinion that the materials referenced above are prepared and presented according to mining and engineering industry standards. The authors conclude that the contents are reasonably organized and presented and the conclusions reached are prudent.

The authors of this Technical Report have relied upon the land title opinion produced by Rodrigo, Elias & Medrano (a Peruvian law firm) dated December 20, 2007 and expressly disclaim information derived from the opinion. Rodrigo, Elias & Medrano is a well known and established Peruvian law firm that has a good-standing working relationship with PAS, having produced high quality work for PAS in the past.

## 6.0 PROPERTY DESCRIPTION AND LOCATION

The Morococha property is located in the Morococha district, Yauli Province, Junín Department, Peru, on the east side of the continental divide just below Ticlio summit, approximately 38km west of the city of La Oroya (see Figure 1). The district s general co-ordinates are latitude 11° 36 S and longitude 76° 10 W.

### 6.1 Mineral Tenure

PAS retained the Peruvian law firm of Rodrigo, Elías & Medrano Abogados to provide a legal opinion regarding the mining properties (including surface rights) held by the Morococha operations. During the course of the review, it was determined that reviewing all of the 457 properties was not required and the review thus was limited to those 101 mining properties belonging to the Morococha operations from which production is currently taking place or has occurred (the Mining Properties ). The report on the Mining Properties is dated December 20, 2007 and is relied upon by the authors of this Technical Report. Figures 2 and 3 show the surface rights and concession boundaries respectively for the Morococha operation.

#### 6.1.1 General Provisions

The main legal features related to the requirements for maintaining the Mining Properties in good standing and a brief explanation of the main administrative requirements have been summarized from the legal report as follows:

-12-43-101 (PanAm)

Morococha Mine

12

Under Peruvian law, the right to explore for and exploit minerals is granted by way of concessions. Pursuant to the Peruvian mining laws, any local or foreign individual or legal entity is required to hold a specific concession granted by the Ministry of Energy and Mines ( MEM ) to carry out any mining activity other than sampling, prospecting and/or trading in mining products or minerals of any type and condition. The exploration for and extraction of mineral substances from the ground or underground is governed by Peruvian mining laws;

Under the Peruvian mining laws, the system of concessions includes:

Mining concessions, which grant their holders the right to explore and exploit the mineral resources, whether metallic or non-metallic, within the area conferred by the concession;

Processing concessions, which grant the right to process minerals;

General service concessions, which grant the right to render auxiliary services to one or more mining concessions;

Mining transportation concessions, which grant the holders the right to operate a continuous mass transportation system of mineral products between one or more mining units.

A Peruvian mining concession is a property-related right; distinct and independent from the ownership of land on which it is located. Consequently, pursuant to Peruvian legislation, ownership or a possession title over the surface land should be negotiated with the corresponding landowners. The mining concessionaire has three options available in order to be able to conduct exploration or exploitation activities:

- i) Purchase the corresponding surface land;
- ii) Reach an agreement with landholders for its temporary use;
- iii) Obtain a legal easement from the MEM.

The term of a concession is indefinite, provided that related annual fees are duly paid. The rights manifested in a mining concession are protected against third parties, are transferable, chargeable and, in general, may be the subject of any transaction or contract. Mining concessions may be privately owned and no state participation is required. Buildings and other permanent structures used in a mining operation are considered real property accessories to the concession on which they are situated;

The concession grants to the concessionaire the right to perform, on an exclusive basis, certain mining activities within a duly determined area. All the concessions governed by the Peruvian mining laws should be registered with the Registry of Mining Rights, which forms part of the National System of Public Registers. They are also based on UTM coordinates and registered in the National Mining Cadastre, which is managed by the National Institute of Mining, Metallurgical and Geological Studies. Concession boundaries are not physically marked in the field.

Concessions are irrevocable as long as the concession holder complies with the annual payment of the validity fee (US\$3 per hectare) and penalties for not achieving minimum production requirements (US\$100 per hectare per year) within six years following the year in which the respective concession is granted. If the minimum production is not reached, as of the first semester of the seventh year, the holder of the concession shall pay a US\$6 penalty per hectare per year until such production is reached (the penalties increase to US\$20 as of the twelfth year). It is possible to avoid payment of the penalty if evidence is presented to the mining authorities that an amount equal to ten times the applicable penalty or more has been invested in the concession. Non-compliance with any of these obligations for two consecutive years will result in the extinction of the concession. Any payment made the year following a year of non-compliance will apply to the immediate previous year;

To comply with the established work and production obligations, holders of more than one mining concession of the same type and nature may group them in economic administrative units, provided the concessions are located within the same 5-km surface radius, in the case of non-ferrous metallic minerals. The formation of such economic administrative units requires approval from the General Mining Directorate;

Concessions may be transferred, assigned and mortgaged. Any movable assets used in mining activities, as well as any minerals extracted and/or processed from such concessions that belong to the concessionaire may be pledged. Any and all of these transactions and contracts must be formalized through a Public Deed and registered before the Mining Public Registry for them to be enforceable against the State and third parties;

It is important to note that overlap between current and predecessor mineral titles is common in Peru as a result of a change to the Peruvian official system of granting mining concessions implemented in 1991, which is based on UTM coordinates. In cases where overlap exists, the older mining concessions have priority.

Administrative requirements include the filing of a document that provides information to the mining authorities on the activities performed on the mining property during the previous year;

#### **6.1.2 Morococha Properties**

In order to confirm and assess the 101 Mining Properties, the following information was reviewed in detail from the sources listed:

The status of the Mining Properties, as entered into the computerized system of the INGEMMET (Instituto Nacional Geológico Minero y Metalúrgico);

The Public Registry records for each one of the Mining Properties;

The official list of mining rights updated to December 31, 2006 ( Padrón Minero ), published by the INGEMMET;

Information and documentation provided by PAS.

The opinions provided by the law firm of Rodrigo, Elías & Medrano Abogados have been relied upon by the authors of this Technical Report, and these are summarized as follows:

-14-43-101 (PanAm)

Morococha Mine

14

1. All of the 101 Mining Properties reviewed by the firm are in good standing, and as such, remain valid and in full force and effect, with no circumstances which are likely to give rise to the Mining Properties being declared extinguished by the Peruvian State, in the ordinary course of events;
2. Mining concession titles have been granted with respect to all Mining Properties;
3. There is a small degree of overlap between Morococha concessions and third party concessions. Similarly, there is some potential for blank (open) spaces between existing concessions, but in the case of Morococha these spaces would be small.;
4. All titles to the Mining Properties except one have been registered with the Public Registry. Although the rights derived from the concession title exist and may be exercised by PAS, additional protection will be provided by the Public Registry when registration is completed. In addition, there are minor name changes for seven properties that have not been duly recorded with the Public Registry.
5. Compañía Minera Argentum S.A. (Argentum) or Pan American Silver Peru S.A.C. are the current 100% registered titleholders of all the Mining Properties, except for twelve of the mining concessions where a number of third parties appear to have registered interests. Due to the time elapsed since such rights were granted (more than 50 years) and the lack of documentation available, it is not possible to determine whether or not such interests are valid and/or enforceable to date. In the event that the third parties or their successors could claim and obtain recognition of their respective interests, the creation of a legal mining partnership would be required. Under this scenario, the Morococha operations, being the largest single shareholder of each concession, should be appointed as general manager. These concessions and their corresponding ownership breakdowns are as follows:
  - a) Carmen 1.4087 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - b) Felipina 2.8172 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - c) Gravina 3.9928 Hectares: An unknown percentage Interest held by Compañía Minera Argentum S.A.; Empresa Minera Natividad S.A, 42.84%, and an unknown percentage interest held by third parties;
  - d) Laura 1.1067 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - e) Llapita 3.0584 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - f) Manuelita 1.4084 Hectares: 80% Compañía Minera Argentum S.A, 20% third parties;
  - g) San Esteban 2.8176 Hectares: 80% Compañía Minera Argentum S.A, 20% third parties;
  - h) San Luis 1.5848 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - i) Santa Maria 1.5845 Hectares: 80% Compañía Minera Argentum S.A, 20%, third parties;
  - j) Saturno 2.9356 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - k) Scotland 2.5953 Hectares: 50% Compañía Minera Argentum S.A, 50% third parties;
  - l) Welevich 1.4083 Hectares: 80% Compañía Minera Argentum S.A, 20% third parties.





6. Four Mining Properties (concessions) are registered in the name of third parties: San Nicolas 1.4089 hectares, Begonia 0.9754 hectares, Pachitea 2.0792 hectares and Pachitea 3ra 0.5474 hectares. Rodrigo, Elias & Medrano were not able to confirm the interest that Argentum (PAS) has in these Mining Properties. PAS has documentation from Corona and predecessor companies indicating PAS ownership of these four mining properties that require updating and formalizing in order to confirm PAS ownership.
7. All Mining Properties (concessions) are free from liens or encumbrances in favor of third parties. However, certain Mining Properties are subject to assignment rights granted by former titleholders in favor of different entities some of which currently do not exist due to their extinction as legal entities. Registration of their termination is required in order for the assignment of rights not to appear to cloud the responsibilities of subsequent Mining Properties in the Public Registry, if in fact the assignment rights are still in force and effect. The concessions for which there may still be valid assignment rights recorded in the Public Registry are summarized as follows:

Catalina

Catinca

Ruperto

Codiciada 1A

Codiciada 2A

Danton

Desdemona

Triple Alianza

Gorizia

Manuelita

Felipina

Welevich

Santa Maria

Hernani

Nudo Gordiano

Josefina

La Capitana

La Codiciada

La Yaulina

Lealtad

Maria Luisa

Raul

Roma

San Esteban

San Francisco

Santa Catalina

Santa Catalina 3A

Scotland

-16-43-101 (PanAm)

Morococha Mine

16

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8. As discussed in Section 6.1.1, mining concessions are a real property right, different and independent from surface land rights. With respect to surface rights at the Morococha operations, Argentum (PAS) furnished to Rodrigo, Elias & Modreno several public and private documents evidencing its property and other similar rights over a number of lands required for conducting mining activities at the Morococha operations. The Real Property Public Registry reflects the registration of ownership rights for Argentum (PAS) to six portions of land located in the district of Morococha, Province of Yauli, Department of Junin, that were transferred in favor of Argentum (PAS), together with other Morococha assets, as per public deed of July 5, 2005 granted before the Notary of Public for Lima. The six portions of land include; Lote Camamento Dolores 0.3020 hectares; Lote Campamento Maestranza 0.0988 hectares; Lote Cajoncillo Bajo / Lote Urbano 1.8402 hectares; Lote Cancha Relaves 107.2206 hectares; Lote Campamento Morococha Antigua 1.5838 hectares; Lote Campamento Vista Alegre 0.7395 hectares.
9. By means of a Public Deed dated May 26, 2003, executed before the Notary Public for Lima, Mr. Luis Benjamin Gutierrez Adrianzen, Centromin and Empresa Minera Natividad S.A. ( Natividad ) entered into a Right of Usufruct Easement and Surface Rights Agreement, according to which Centromin granted the facilities, and easement and surface rights on other superficial areas as detailed in such agreement. According to this agreement, Natividad has the right of way on the area covered by the easements, the right to fully use and build facilities on those other areas covered by the granted surface rights, and to use and modify the structure of the existing facilities granted in usufruct. The rights under the agreement shall remain valid and effective during the mine's life and be subject to not interfering with the development of the Toromocho Project. Upon termination of this agreement, all granted rights shall revert in favor of Centromin, including all new facilities that may have been built at Empresa Natividad expense.

Natividad was absorbed by Argentum (PAS) as a consequence of a merger of the companies executed by means of public deed dated July 5, 2005, the rights and obligations of Natividad established in the Right of Usufruct, Easement and Surface Rights Agreement dated May 26, 2003 between Natividad and Centromin were transferred to Argentum (PAS). Thus, Centromin has granted Argentum (PAS) 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 to exploit the Toromocha disseminated copper deposit, which is contained within certain of Argentum's mining concessions and which overlies portions of the Morococha underground mining operations. Argentum began payments to Centromin of US\$60,000 quarterly (an amount to be adjusted annually to account for inflation) commencing May 28, 2003, as consideration for this right.

Peru Copper Inc., a copper mining company carrying on business in Peru, has been granted by Centromin the option to acquire mining concessions and surface rights in respect of the Toromocha property. In June 2007, Chinalco purchased all of the outstanding shares in Peru Copper Inc. PAS has had discussions with respect to negotiating resolution of surface rights issues that may arise between them in connection with their respective operations.

9. The following mining concessions owned by Argentum (PAS) are subject to access easement rights, liens and / or encumbrances:

Morococha 1-A

Morococha 1-E

Morococha 1-F

Galera Segunda M.H.I.

Galera M.H.

Rey

Maria Rosa

Barranco 32

Animas

Avella

Jupiter Tres

Jupiter Cuatro

Mellizos

Rayo

Numero Cuarentiocho

El Barranco

A summary of all Mining Properties (concessions) that cover the Morococha operations is shown in Tables 6-1 through 6-5.

-18-43-101 (PanAm)

Morococha Mine

18

**Table 6-1: List of Morococha Concessions**

| Nº | CODE        | CONCESION         | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STATE                |
|----|-------------|-------------------|----------|--------|------|-------------------------------|--------------|----------------------|
|    |             | 10 DE JULIO       |          |        |      |                               |              | D.M.                 |
| 1  | 08012129X01 | ACAYA-S.R.        | 9.9831   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/25/1942    | Titulado<br>D.L. 109 |
| 2  | 08021979X01 | ADELANTE          | 5.9973   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | Titulado<br>D.L. 109 |
| 3  | 08002033Y01 | ADRIANA           | 1.0487   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1906    | Titulado<br>D.L. 109 |
| 4  | 08001038Y01 | AGATA             | 1.4086   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1887-03-04   | Titulado<br>D.L. 109 |
| 5  | 08000614Y01 | AGATA<br>SEGUNDA  | 2.8166   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1893-05-19   | Titulado<br>D.L. 109 |
| 6  | 08003388Y01 | AJUSTADA          | 0.0181   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 2/26/1930    | Titulado<br>D.L. 109 |
| 7  | 08001049Y01 | ALBERTO           | 2.8170   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1899-03-15   | Titulado<br>D.L. 109 |
| 8  | 08002558X01 | ALEJANDRO         | 0.6420   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1906    | Titulado<br>D.L. 109 |
| 9  | 08014142X01 | ALERTA            | 1.1830   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/14/1951    | Titulado<br>D.L. 109 |
| 10 | 08001290Y01 | ALIANZA           | 9.9804   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/2/1900     | Titulado<br>D.L. 109 |
| 11 | 08001036Y01 | AMPHITRITE        | 5.6428   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1884-12-23   | Titulado<br>D.L. 109 |
| 12 | 08001466Y01 | AMPLIACION<br>2A  | 1.7313   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/24/1901    | Titulado<br>D.L. 109 |
| 13 | 08002303Y01 | ANA LUISA<br>S.R. | 1.9962   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/16/1907    | Titulado<br>D.L. 109 |
| 14 | 08022468X01 | ANA MARIA<br>S.R. | 585.1791 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/14/1984    | Titulado<br>D.L. 109 |
| 15 | 08022463X01 |                   | 656.8239 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/2/1984     | Titulado<br>D.L. 109 |

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|    |             |          |      |    |                               |            |          |                  |
|----|-------------|----------|------|----|-------------------------------|------------|----------|------------------|
|    | ANGELICA    |          |      |    |                               |            |          | D.M.<br>Titulado |
| 16 | 08001053Y01 | 0.1330   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1899-08-14 | D.L. 109 | D.M.<br>Titulado |
|    | ANIMAS      |          |      |    |                               |            |          | D.M.<br>Titulado |
| 17 | 08000685X01 | 4.2259   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/17/1979  | D.L. 109 | D.M.<br>Titulado |
|    | AÑO NUEVO   |          |      |    |                               |            |          | D.M.<br>Titulado |
| 18 | 0823079AX01 | 21.9008  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/19/1989 | D.L. 109 | D.M.<br>Titulado |
|    | ARAPA S.R.  |          |      |    |                               |            |          | D.M.<br>Titulado |
| 19 | 08021959X01 | 30.0004  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.L. 109 | D.M.<br>Titulado |
|    | ATLANTE     |          |      |    |                               |            |          | D.M.<br>Titulado |
| 20 | 08001482Y01 | 3.9385   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/14/1902 | D.L. 109 | D.M.<br>Titulado |
|    | AURORA      |          |      |    |                               |            |          | D.M.<br>Titulado |
| 21 | 08001212Y01 | 4.2249   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1894-10-29 | D.L. 109 | D.M.<br>Titulado |
|    | AURORA      |          |      |    |                               |            |          | D.M.<br>Titulado |
| 22 | 08002289Y01 | 5.9907   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/6/1906  | D.L. 109 | D.M.<br>Titulado |
|    | AURORA      |          |      |    |                               |            |          | D.M.<br>Titulado |
| 23 | 08010041X01 | 0.2429   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/20/1929 | D.L. 109 | D.M.<br>Titulado |
|    | AVELLA      |          |      |    |                               |            |          | D.M.<br>Titulado |
| 24 | 08009725X01 | 1.9952   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/20/1928  | D.L. 109 | D.M.<br>Titulado |
|    | BAJAZET     |          |      |    |                               |            |          | D.M.<br>Titulado |
| 25 | 08001551X01 | 1.0019   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/15/1904  | D.L. 109 | D.M.<br>Titulado |
|    | BARBARITA   |          |      |    |                               |            |          | D.M.<br>Titulado |
| 26 | 08013916X01 | 3.9929   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/8/1950   | D.L. 109 | D.M.<br>Titulado |
|    | BARBAS 4    |          |      |    |                               |            |          | D.M.<br>Titulado |
| 27 | 08021210X01 | 836.7675 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/30/1979 | D.L. 109 | D.M.<br>Titulado |
|    | BARBAS 5    |          |      |    |                               |            |          | D.M.<br>Titulado |
| 28 | 08021211X01 | 0.9054   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/30/1979 | D.L. 109 | D.M.<br>Titulado |
|    | BARBAS 5A   |          |      |    |                               |            |          | D.M.<br>Titulado |
| 29 | 0821211AX01 | 548.7852 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/30/1979 | D.L. 109 | D.M.<br>Titulado |
|    | BARRANCO    |          |      |    |                               |            |          | D.M.<br>Titulado |
| 30 | 08003420Y01 | 0.0068   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/25/1927  | D.L. 109 | D.M.<br>Titulado |
|    | BARRANCO 27 |          |      |    |                               |            |          | D.M.<br>Titulado |
| 31 | 08010456X01 | 1.1416   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/6/1934   | D.L. 109 | D.M.<br>Titulado |
|    | BARRANCO 32 |          |      |    |                               |            |          | D.M.<br>Titulado |
| 32 | 08010538X01 | 3.9235   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/8/1935   | D.L. 109 | D.M.<br>Titulado |

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|    |             |                    |         |      |    |                               |            |                              |
|----|-------------|--------------------|---------|------|----|-------------------------------|------------|------------------------------|
| 33 | 08003421Y01 | BARRANCO<br>N° 26  | 1.9962  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/1/1931   | D.M.<br>Titulado<br>D.L. 109 |
| 34 | 08010762X01 | BARRANCO<br>N° 30  | 5.9882  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/16/1935 | D.M.<br>Titulado<br>D.L. 109 |
| 35 | 08010760X01 | BARRANCO<br>N° 31  | 5.9872  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/16/1935 | D.M.<br>Titulado<br>D.L. 109 |
| 36 | 08002555X01 | BERNARDO<br>BOER   | 1.4155  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1906  | D.M.<br>Titulado<br>D.L. 109 |
| 37 | 08001959Y01 | BRILLANTINA        | 4.2264  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/4/1900   | D.M.<br>Titulado<br>D.L. 109 |
| 38 | 08002554X01 | BRUJULITA          | 2.6269  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1906  | D.M.<br>Titulado<br>D.L. 109 |
| 39 | 08002306Y01 | BRUNHILDE          | 0.5578  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.M.<br>Titulado<br>D.L. 109 |
| 40 | 08001407Y01 | BULA               | 4.2258  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/15/1900  | D.M.<br>Titulado<br>D.L. 109 |
| 41 | 08002277Y01 | CAJA DE<br>AHORROS | 2.2054  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/19/1907  | D.M.<br>Titulado<br>D.L. 109 |
| 42 | 08019778X01 | CANDADO            | 1.9963  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/11/1971 | D.M.<br>Titulado<br>D.L. 109 |
| 43 | 08003203X01 | CARMEN             | 0.1318  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.M.<br>Titulado<br>D.L. 109 |
| 44 | 08001026Y01 | CARMEN<br>ADELA    | 1.4087  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1899-07-16 | D.M.<br>Titulado<br>D.L. 109 |
| 45 | 08012181X01 | CARMENCITA         | 51.9077 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/16/1942 | D.M.<br>Titulado<br>D.L. 109 |
| 46 | 08001044Y01 | CAROLINE           | 1.4085  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1889-01-11 | D.M.<br>Titulado<br>D.L. 109 |
| 47 | 08013449X01 | CAROLITA           | 3.9930  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/29/1949  | D.M.<br>Titulado<br>D.L. 109 |
| 48 | 08013117X01 |                    | 17.9662 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/5/1947   | D.L. 109                     |





| CODE        | CONCESION     | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STAT                      |
|-------------|---------------|----------|--------|------|-------------------------------|--------------|---------------------------|
| 08003467Y01 | CATALINA      | 2.6448   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/8/1933    | D.M.<br>Titulac<br>D.L. 1 |
| 08002109Y01 | CATINCA       | 1.5429   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/20/1904    | D.M.<br>Titulac<br>D.L. 1 |
| 010169295   | CENTROMIN 20  | 500.0000 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/2/1995     | D.M.<br>Titulac<br>D.L. 7 |
| 08002734Y01 | CHAPANA       | 0.3385   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/25/1954    | D.M.<br>Titulac<br>D.L. 1 |
| 08003207X01 | CHAVETA       | 0.0896   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906    | D.M.<br>Titulac<br>D.L. 1 |
| 08003133Y01 | CHIARA        | 1.9185   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/13/1927    | D.M.<br>Titulac<br>D.L. 1 |
| 08021091X01 | CIPRIANA      | 13.9729  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/17/1979    | D.M.<br>Titulac<br>D.L. 1 |
| 08003203Y01 | CLARA         | 3.9922   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 3/2/1927     | D.M.<br>Titulac<br>D.L. 1 |
| 08001040Y01 | CLARISA       | 2.8168   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1889-07-24   | D.M.<br>Titulac<br>D.L. 1 |
| 08021810X01 | CLAUDIA       | 2.0001   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/19/1980   | D.M.<br>Titulac<br>D.L. 1 |
| 08002304Y01 | CLAVITO       | 0.4958   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906    | D.M.<br>Titulac<br>D.L. 1 |
| 08001573Y01 | CLEO          | 1.3164   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 3/17/1903    | D.M.<br>Titulac<br>D.L. 1 |
| 08021960X01 | CLOTILDE S.R. | 3.9920   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.M.<br>Titulac<br>D.L. 1 |
| 08001690Y01 | CODICIADA 1A  | 1.4521   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/19/1901    | D.M.<br>Titulac<br>D.L. 1 |
| 08001608Y01 | CODICIADA 2A  | 1.9969   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/19/1901    | D.L. 1                    |
| 08001043Y01 | COLORADA      | 2.8149   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1889-07-15   |                           |

|             |              |         |      |    |                               |            |                           |
|-------------|--------------|---------|------|----|-------------------------------|------------|---------------------------|
|             | CONCORDIA    |         |      |    |                               |            | D.M.<br>Titulac<br>D.L. 1 |
| 08001034Y01 | CONDENADO 1  | 1.4086  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/20/1984 | D.M.<br>Titulac<br>D.L. 1 |
| 0804352AY01 | CONDENADO 10 | 42.3281 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804355FY01 | CONDENADO 11 | 1.2813  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804357AY01 | CONDENADO 12 | 0.9946  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804357BY01 | CONDENADO 13 | 0.7127  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804357CY01 | CONDENADO 14 | 0.9126  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804357DY01 | CONDENADO 15 | 1.1688  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804357EY01 | CONDENADO 16 | 3.0424  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804357FY01 | CONDENADO 2  | 3.5575  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804352BY01 | CONDENADO 3  | 15.2163 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804352CY01 | CONDENADO 4  | 4.6447  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804352DY01 | CONDENADO 5  | 5.8089  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804352EY01 | CONDENADO 6  | 6.4503  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804352FY01 | CONDENADO 7  | 8.1042  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804352GY01 | CONDENADO 8  | 4.1263  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulac<br>D.L. 1 |
| 0804354IY01 |              | 0.1085  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.L. 1                    |

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|             |                               |          |      |    |                               |            |                |
|-------------|-------------------------------|----------|------|----|-------------------------------|------------|----------------|
|             | CONDENADO 9                   |          |      |    |                               |            | D.M.<br>Titula |
| 0804355EY01 |                               | 0.1927   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.L. 1         |
|             | CONFLAGRACION                 |          |      |    |                               |            | D.M.<br>Titula |
| 08020929X01 |                               | 5.0352   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/14/1979  | D.L. 1         |
|             | CONTINUACION<br>DE SAN MIGUEL |          |      |    |                               |            | D.M.<br>Titula |
| 08001472Y01 |                               | 1.9962   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/6/1901   | D.L. 1         |
|             | CORONA IV 2003                |          |      |    |                               |            | D.M.<br>Titula |
| 010144303   |                               | 200.0000 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/22/2003  | D.L. 7         |
|             | CORONA1 2003                  |          |      |    |                               |            | D.M.<br>Titula |
| 010144203   |                               | 100.0000 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/22/2003  | D.L. 7         |
|             | COSMOPOLITA                   |          |      |    |                               |            | D.M.<br>Titula |
| 08004156Y01 |                               | 1.4087   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/17/1979  | D.L. 1         |
|             | CRISTINA                      |          |      |    |                               |            | D.M.<br>Titula |
| 08003202X01 |                               | 0.0675   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.L. 1         |
|             | CUÑA M.C.                     |          |      |    |                               |            | D.M.<br>Titula |
| 010091400   |                               | 4.1893   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/2/2000   | D.L. 7         |
|             | CYBELE                        |          |      |    |                               |            | D.M.<br>Titula |
| 08001953Y01 |                               | 1.1122   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/19/1906  | D.L. 1         |
|             | DANALLIS                      |          |      |    |                               |            | D.M.<br>Titula |
| 010119204   |                               | 68.4030  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/3/2004   | D.L. 7         |
|             | DANTON                        |          |      |    |                               |            | D.M.<br>Titula |
| 08001428X01 |                               | 0.5593   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/25/1903 | D.L. 1         |
|             | DECIMA                        |          |      |    |                               |            | D.M.<br>Titula |
| 08001976Y01 |                               | 0.4824   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/12/1906  | D.L. 1         |
|             | DEMASIA DIANA                 |          |      |    |                               |            | D.M.<br>Titula |
| 08021919X01 |                               | 0.7099   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981   | D.L. 1         |
|             | DEMASIA ELVIRA                |          |      |    |                               |            | D.M.<br>Titula |
| 08021920X01 |                               | 4.7797   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981   | D.L. 1         |
|             | DEMASIA LIMA                  |          |      |    |                               |            | D.M.<br>Titula |
| 08021921X01 |                               | 1.1915   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981   | D.L. 1         |
|             | DEMASIA<br>LUCILITA           |          |      |    |                               |            | D.M.<br>Titula |
| 08021925X01 |                               | 0.3992   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981   | D.L. 1         |
|             | DEMASIA<br>MARIANITA          |          |      |    |                               |            | D.M.<br>Titula |
| 08021922X01 |                               | 2.1443   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981   | D.L. 1         |

|                   |                   |        |      |    |                               |          |                          |
|-------------------|-------------------|--------|------|----|-------------------------------|----------|--------------------------|
| 08021924X01       | DEMASIA<br>MARTHA | 4.2610 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981 | D.M.<br>Titula<br>D.L. 1 |
| -20-43-101(PanAm) |                   |        |      |    | Morococha Mine                |          | 20                       |

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| CODE          | CONCESION             | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STAT   |
|---------------|-----------------------|----------|--------|------|-------------------------------|--------------|--------|
|               | DEMASIA PAS 1         |          |        |      |                               |              | D.M. 4 |
| 9 010075607   |                       | 100.0000 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/11/2007    | D.L. 7 |
|               | DEMASIA PAS 2         |          |        |      |                               |              | D.M. 4 |
| 0 010075707   |                       | 100.0000 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/11/2007    | D.L. 7 |
|               | DEMASIA PAS 3         |          |        |      |                               |              | D.M. 4 |
| 1 010075907   |                       | 100.0000 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/11/2007    | D.L. 7 |
|               | DEMASIA PAS 4         |          |        |      |                               |              | D.M. 4 |
| 2 010075807   |                       | 100.0000 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/11/2007    | D.L. 7 |
|               | DEMASIA PATY          |          |        |      |                               |              | D.M. 4 |
| 3 08021928X01 |                       | 0.8446   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/24/1981    | D.L. 1 |
|               | DEMASIA REYNALDO      |          |        |      |                               |              | D.M. 4 |
| 4 08021957X01 |                       | 1.5815   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981     | D.L. 1 |
|               | DEMASIA SANTA BARBARA |          |        |      |                               |              | D.M. 4 |
| 5 08021926X01 |                       | 0.0998   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981     | D.L. 1 |
|               | DEMASIA SUSANITA      |          |        |      |                               |              | D.M. 4 |
| 6 08021918X01 |                       | 1.0291   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1981     | D.L. 1 |
|               | DESDEMONA             |          |        |      |                               |              | D.M. 4 |
| 7 08001312Y01 |                       | 1.4084   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1895-06-14   | D.L. 1 |
|               | DIANA                 |          |        |      |                               |              | D.M. 4 |
| 8 08000970X01 |                       | 1.5539   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 10/27/1902   | D.L. 1 |
|               | DIANA 1980            |          |        |      |                               |              | D.M. 4 |
| 9 08021622X01 |                       | 5.9897   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/19/1980    | D.L. 1 |
|               | DINA                  |          |        |      |                               |              | D.M. 4 |
| 0 08000861Y01 |                       | 5.6347   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1888-01-16   | D.L. 1 |
|               | DIOS DA               |          |        |      |                               |              | D.M. 4 |
| 1 08002961X01 |                       | 0.8970   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/15/1906    | D.L. 1 |
|               | DON CARLOS            |          |        |      |                               |              | D.M. 4 |
| 2 08001961Y01 |                       | 7.3945   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 7/4/1900     | D.L. 1 |
|               | DON LUNES-S.R.        |          |        |      |                               |              | D.M. 4 |
| 3 08021957X02 |                       | 3.7364   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.L. 1 |
| 4 08021965X01 |                       | 1.0600   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.L. 1 |

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|               |                       |        |      |    |                               |           |                          |
|---------------|-----------------------|--------|------|----|-------------------------------|-----------|--------------------------|
|               | DON MIERCOLES<br>S.R. |        |      |    |                               |           | D.M.<br>Titula<br>D.L. 1 |
|               | DON RICARDO           |        |      |    |                               |           | D.M.<br>Titula           |
| 5 08001960Y01 | EDELMIRA AM           | 4.2252 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/4/1900  | D.L. 1<br>D.M.<br>Titula |
| 5 010191799   | EDELMIRA DOS          | 2.6206 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/3/1999 | D.L. 7<br>D.M.<br>Titula |
| 7 08003400Y01 | EDUARDO               | 0.0711 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/26/1930 | D.L. 1<br>D.M.<br>Titula |
| 8 08001285Y01 | EL CONDOR             | 7.9846 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/22/1901 | D.L. 1<br>D.M.<br>Titula |
| 9 08001839Y01 | EL DORADITO           | 0.8148 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/5/1904  | D.L. 1<br>D.M.<br>Titula |
| 0 08001469Y01 | EL DORADO             | 1.5424 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/13/1902 | D.L. 1<br>D.M.<br>Titula |
| 1 08001291Y01 | EL GUARDIAN           | 1.9961 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/2/1900  | D.L. 1<br>D.M.<br>Titula |
| 2 08001604Y01 | EL LOQUITO            | 3.4698 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/23/1902 | D.L. 1<br>D.M.<br>Titula |
| 3 08002402Y01 | EL MAJADERO           | 0.1745 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906 | D.L. 1<br>D.M.<br>Titula |
| 4 08001332Y01 | EL MEK                | 8.4519 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/15/1900 | D.L. 1<br>D.M.<br>Titula |
| 5 08003044Y01 | EL MILAGRO            | 5.9892 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/21/1922 | D.L. 1<br>D.M.<br>Titula |
| 5 08012293X01 | EL PERNO              | 5.9893 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/4/1907  | D.L. 1<br>D.M.<br>Titula |
| 7 08001295Y01 | EL SEÑOR QUE<br>SUDA  | 1.9359 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/12/1901 | D.L. 1<br>D.M.<br>Titula |
| 8 08002276Y01 | EL TRIANGULO          | 3.9929 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/7/1946  | D.L. 1<br>D.M.<br>Titula |
| 9 08010036X01 | ELECTRA 11            | 0.9954 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/9/1929 | D.L. 1<br>D.M.<br>Titula |
| 0 08020855X01 |                       | 2.2805 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/14/1979 | D.L. 1                   |

## Edgar Filing: PAN AMERICAN SILVER CORP - Form 6-K

|   |                                  |         |      |    |                               |            |                |
|---|----------------------------------|---------|------|----|-------------------------------|------------|----------------|
|   | ELECTRA 14                       |         |      |    |                               |            | D.M.<br>Titula |
| 1 | 08020851X01                      | 2.1927  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/14/1979  | D.L. 1         |
|   | ELECTRA 15                       |         |      |    |                               |            | D.M.<br>Titula |
| 2 | 08020853X01                      | 1.4789  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/14/1979  | D.L. 1         |
|   | ELECTRA N° 1                     |         |      |    |                               |            | D.M.<br>Titula |
| 3 | 08004185Y01                      | 1.4085  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELECTRA N° 10                    |         |      |    |                               |            | D.M.<br>Titula |
| 4 | 08020740X01                      | 1.9961  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/21/1978 | D.L. 1         |
|   | ELECTRA N° 12                    |         |      |    |                               |            | D.M.<br>Titula |
| 5 | 08020852X01                      | 1.2971  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/14/1979  | D.L. 1         |
|   | ELECTRA N° 13                    |         |      |    |                               |            | D.M.<br>Titula |
| 6 | 08020854X01                      | 0.3172  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/14/1979  | D.L. 1         |
|   | ELECTRA N° 17                    |         |      |    |                               |            | D.M.<br>Titula |
| 7 | 08021275X01                      | 1.9962  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/30/1979 | D.L. 1         |
|   | ELECTRA N° 18                    |         |      |    |                               |            | D.M.<br>Titula |
| 8 | 08021276X01                      | 0.8994  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/30/1979 | D.L. 1         |
|   | ELECTRA N° 18-A<br>(FRACCIONADO) |         |      |    |                               |            | D.M.<br>Titula |
| 9 | 0821276AX02                      | 5.4892  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/30/1979 | D.L. 1         |
|   | ELECTRA N° 19                    |         |      |    |                               |            | D.M.<br>Titula |
| 0 | 08021274X01                      | 4.9906  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/30/1979 | D.L. 1         |
|   | ELECTRA N° 2                     |         |      |    |                               |            | D.M.<br>Titula |
| 1 | 08020713X01                      | 3.9885  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELECTRA N° 3                     |         |      |    |                               |            | D.M.<br>Titula |
| 2 | 08020714X01                      | 5.6340  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELECTRA N° 4                     |         |      |    |                               |            | D.M.<br>Titula |
| 3 | 08020715X01                      | 1.8152  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELECTRA N° 5                     |         |      |    |                               |            | D.M.<br>Titula |
| 4 | 08020716X01                      | 3.1465  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELECTRA N° 7                     |         |      |    |                               |            | D.M.<br>Titula |
| 5 | 08020718X01                      | 3.1936  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELECTRA N° 8                     |         |      |    |                               |            | D.M.<br>Titula |
| 6 | 08020719X01                      | 4.1918  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/15/1978 | D.L. 1         |
|   | ELIAS-S.R.                       |         |      |    |                               |            | D.M.<br>Titula |
| 7 | 08021961X01                      | 17.9987 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.L. 1         |





| CODE       | CONCESION                       | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | ST                 |
|------------|---------------------------------|----------|--------|------|-------------------------------|--------------|--------------------|
| 8002288Y01 | ELISA                           | 1.9964   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/24/1906   | D.M<br>Titu        |
| 8021092X01 | ELVIRA                          | 1.9962   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/17/1979    | D.L<br>D.M<br>Titu |
| 8021983X01 | ENREDO                          | 4.8586   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.L<br>D.M<br>Titu |
| 8021983X01 | ENREDO-I                        | 4.8586   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.L<br>D.M<br>Titu |
| 8022278X01 | ESCARAMUZA                      | 3.9668   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/10/1982   | D.L<br>D.M<br>Titu |
| 8001288Y01 | ESPERANZA                       | 1.9961   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/24/1900   | D.L<br>D.M<br>Titu |
| 8000841Y01 | ESPERANZA                       | 1.4086   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1896-12-22   | D.L<br>D.M<br>Titu |
| 8000865Y01 | ESTHERITA                       | 1.4084   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1883-12-20   | D.L<br>D.M<br>Titu |
| 8002267Y01 | ESTRELLA                        | 5.9893   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/21/1947    | D.L<br>D.M<br>Titu |
| 8001047Y01 | EUGENIO                         | 2.8168   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1898-05-09   | D.L<br>D.M<br>Titu |
| 8013810X01 | EUGENITA                        | 1.9962   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 3/8/1907     | D.L<br>D.M<br>Titu |
| 8005649X01 | EXALTACION S.R.                 | 1.1582   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 7/25/1912    | D.L<br>D.M<br>Titu |
| 8022780X01 | EXALTACION<br>SR-A(FRACCIONADO) | 1.3556   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/4/1987     | D.L<br>D.M<br>Titu |
| 822780AX01 | EXPLORAR N° 3-M.H.              | 3.8758   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/4/1987     | D.L<br>D.M<br>Titu |
| 8022647X01 | EXPLORAR N° 3-M.H.-I            | 399.2416 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/2/1986     | D.L<br>D.M<br>Titu |
| 8022981X01 | FEDERICO                        | 38.0114  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/12/1988    | D.L                |
| 8001050Y01 | FEDERICO                        | 1.4083   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1899-03-11   |                    |

|            |                          |         |      |    |                               |            |  |  |                                      |
|------------|--------------------------|---------|------|----|-------------------------------|------------|--|--|--------------------------------------|
|            | FELICIDAD                |         |      |    |                               |            |  |  | D.M.<br>Titu<br>D.L.<br>D.M.<br>Titu |
| 8012290X01 |                          | 19.9638 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/1/1927   |  |  | D.L.<br>D.M.<br>Titu                 |
|            | FELIPINA                 |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8001111Y01 |                          | 2.8172  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1893-08-12 |  |  | D.L.<br>D.M.<br>Titu                 |
|            | FRINE                    |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8001297Y01 |                          | 1.9931  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/23/1900 |  |  | D.L.<br>D.M.<br>Titu                 |
|            | FRIOLERA                 |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8002646X01 |                          | 11.9776 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/1/1906   |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GALERA SEGUNDA<br>M.H.I. |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8022738X01 |                          | 0.7732  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/19/1986 |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GALERA<br>SEGUNDA-M.H.   |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8022580X01 |                          | 0.9727  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/19/1985  |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GALERA-M.H               |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8022514X01 |                          | 13.6958 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/19/1984 |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GENOVA A                 |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8003192Y01 |                          | 5.9882  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/1/1925   |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GENOVA M.G.              |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8023173X01 |                          | 5.0213  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/30/1990 |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GENOVA-A-N° 1            |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8022621X01 |                          | 23.9558 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/22/1986  |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GENOVA-A-N° 2            |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8022645X01 |                          | 19.9615 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1986  |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GENOVEVA                 |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8013108X01 |                          | 11.9774 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/28/1947  |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GERMAN                   |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8014172X01 |                          | 2.4004  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/6/1953   |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GORIZIA                  |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8002733Y01 |                          | 2.6192  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/22/1915 |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GRACIELA M.S.R.          |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 822776AX01 |                          | 0.6821  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/4/1987   |  |  | D.L.<br>D.M.<br>Titu                 |
|            | GRACIELA S.R.            |         |      |    |                               |            |  |  | D.L.<br>D.M.<br>Titu                 |
| 8021982X01 |                          | 30.6601 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   |  |  | D.L.<br>D.M.<br>Titu                 |

## Edgar Filing: PAN AMERICAN SILVER CORP - Form 6-K

|            |                             |         |      |    |                               |            |                      |
|------------|-----------------------------|---------|------|----|-------------------------------|------------|----------------------|
| 8001708Y02 | GRAN SAN MIGUEL<br>DE PLATA | 23.9547 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/24/1902 | D.M.<br>Titu<br>D.L. |
| 8001118Y01 | GRICELA                     | 2.8017  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1899-09-12 | D.M.<br>Titu<br>D.L. |
| 8000840Y01 | GRIMALDA                    | 1.4091  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1896-11-19 | D.M.<br>Titu<br>D.L. |
| 8001497Y01 | GRIMHILDE                   | 1.4091  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1896-11-19 | D.M.<br>Titu<br>D.L. |
| 8001497Y01 | GRIMHILDE<br>SEGUNDA        | 2.5806  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/26/1902  | D.M.<br>Titu<br>D.L. |
| 8003379Y01 | GUILLERMO III J.C.          | 0.0265  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/26/1930  | D.M.<br>Titu<br>D.L. |
| 8023125X01 | GUILLERMO TELL              | 9.9800  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/30/1990  | D.M.<br>Titu<br>D.L. |
| 8001294Y01 | HERNANI                     | 3.4912  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/22/1901  | D.M.<br>Titu<br>D.L. |
| 8001549Y01 | HILDEGARD                   | 1.9965  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/16/1901 | D.M.<br>Titu<br>D.L. |
| 8001555Y01 | HUAIURURO                   | 2.0796  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/6/1903   | D.M.<br>Titu<br>D.L. |
| 8002722Y01 | HUARASINA S.R.              | 3.9926  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/18/1915 | D.M.<br>Titu<br>D.L. |
| 8021958X01 | HURACAN S.R.                | 49.0584 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.M.<br>Titu<br>D.L. |
| 8021970X01 | INDECISO S.R.               | 0.3835  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.M.<br>Titu<br>D.L. |
| 8021968X01 | INESPERADA                  | 12.4735 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.M.<br>Titu<br>D.L. |
| 8001039Y01 | ISABEL                      | 1.4083  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1896-09-22 | D.M.<br>Titu<br>D.L. |
| 8001620Y01 | ISOLDE                      | 0.8361  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/10/1902  | D.M.<br>Titu<br>D.L. |
| 8001498Y01 | ITALIA                      | 1.4559  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/8/1902   | D.M.<br>Titu<br>D.L. |
| 8001391Y01 |                             | 2.1589  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1887-10-24 | D.L.                 |



|   | CODE        | CONCESION             | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY<br>DATE | STAT<br>DATE               |
|---|-------------|-----------------------|----------|--------|------|-------------------------------|-----------------|----------------------------|
|   |             | ITALIA-S.R.           |          |        |      |                               |                 | D.M.                       |
| 7 | 08021966X01 | JAI ME                | 1.7714   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981        | D.L. 10<br>D.M.<br>Titulad |
| 8 | 08021757X01 | JAVIER                | 2.9027   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 10/7/1980       | D.L. 10<br>D.M.<br>Titulad |
| 9 | 08013522X01 | JEANNE                | 3.8286   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/16/1949      | D.L. 10<br>D.M.<br>Titulad |
| 0 | 08013479X01 | JOSEFINA              | 19.9642  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/22/1933      | D.L. 10<br>D.M.<br>Titulad |
| 1 | 08001471Y01 | JOSEFINA              | 1.0547   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 7/18/1902       | D.L. 10<br>D.M.<br>Titulad |
| 2 | 08002947Y01 | JUANA ROSA            | 3.4959   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/6/1919       | D.L. 10<br>D.M.<br>Titulad |
| 3 | 08000864Y01 | JUANA ROSA<br>PRIMERA | 11.2687  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1887-05-23      | D.L. 10<br>D.M.<br>Titulad |
| 4 | 08005297X01 | JUANA ROSA S.R.       | 5.9887   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/16/1911       | D.L. 10<br>D.M.<br>Titulad |
| 5 | 08021953X01 | JUANA ROSA<br>SEGUNDA | 5.7415   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981        | D.L. 10<br>D.M.<br>Titulad |
| 6 | 08005298X01 | JUANITA               | 3.9925   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/16/1911       | D.L. 10<br>D.M.<br>Titulad |
| 7 | 08001051Y01 | JUANITO               | 1.4072   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1899-03-15      | D.L. 10<br>D.M.<br>Titulad |
| 8 | 08002354Y01 | JULIA                 | 0.1480   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906       | D.L. 10<br>D.M.<br>Titulad |
| 9 | 08001569Y01 | JULIA ELENA           | 2.3173   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 10/30/1901      | D.L. 10<br>D.M.<br>Titulad |
| 0 | 08001298Y01 | JUNO                  | 5.9888   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/12/1900      | D.L. 10<br>D.M.<br>Titulad |
| 1 | 08001677Y01 |                       | 1.1813   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 2/4/1903        | D.L. 10                    |
| 2 | 08003409Y01 | JUPITER CUATRO        | 1.2945   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/13/1929      |                            |

|               |                      |        |      |    |                               |            |                            |
|---------------|----------------------|--------|------|----|-------------------------------|------------|----------------------------|
|               | JUPITER TRES         |        |      |    |                               |            | D.M.<br>Titulad<br>D.L. 10 |
| 3 08003394Y01 | KALIPSO              | 2.3534 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/13/1929 | D.M.<br>Titulad<br>D.L. 10 |
| 4 08000601Y01 | KALIPSO<br>SEGUNDA   | 2.8147 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1890-05-29 | D.M.<br>Titulad<br>D.L. 10 |
| 5 08003377Y01 | LA CAPITANA          | 0.2935 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/8/1930   | D.M.<br>Titulad<br>D.L. 10 |
| 6 08001268Y01 | LA CODICIADA         | 3.9930 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/23/1900  | D.M.<br>Titulad<br>D.L. 10 |
| 7 08000859Y01 | LA CONCLUSION        | 8.4521 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1887-12-12 | D.M.<br>Titulad<br>D.L. 10 |
| 8 08002346Y01 | LA<br>CONCORDIA-S.R. | 3.6992 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/9/1908   | D.M.<br>Titulad<br>D.L. 10 |
| 9 08021954X01 | LA FACILITADA        | 0.8980 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.M.<br>Titulad<br>D.L. 10 |
| 0 08001470Y01 | LA INNOVACION        | 1.9962 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/26/1902  | D.M.<br>Titulad<br>D.L. 10 |
| 1 08012137X01 | LA LUNA              | 3.9927 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/22/1907  | D.M.<br>Titulad<br>D.L. 10 |
| 2 08001292Y01 | LA MADAMA            | 3.6527 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/7/1901   | D.M.<br>Titulad<br>D.L. 10 |
| 3 08020930X01 | LA PICA              | 1.9963 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/14/1979  | D.M.<br>Titulad<br>D.L. 10 |
| 4 08021879X01 | LA REPUBLICA         | 3.6813 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/26/1981  | D.M.<br>Titulad<br>D.L. 10 |
| 5 08001629Y01 | LA SUIZA             | 1.4636 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/2/1901   | D.M.<br>Titulad<br>D.L. 10 |
| 6 08003206X01 | LA TORTUGA           | 3.1272 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.M.<br>Titulad<br>D.L. 10 |
| 7 08001611Y01 | LA UNICA             | 1.9960 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/25/1902  | D.M.<br>Titulad<br>D.L. 10 |
| 8 08020629X01 |                      | 6.0029 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/7/1978  | D.L. 10                    |

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|               |              |         |      |    |                               |            |                 |
|---------------|--------------|---------|------|----|-------------------------------|------------|-----------------|
|               | LA UNIDAD    |         |      |    |                               |            | D.M.<br>Titulad |
| 9 08021042X01 |              | 28.3498 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/25/1979  | D.L. 10         |
|               | LA VICTORIA  |         |      |    |                               |            | D.M.<br>Titulad |
| 0 08002556X01 |              | 1.3566  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1906  | D.L. 10         |
|               | LA YAULINA   |         |      |    |                               |            | D.M.<br>Titulad |
| 1 08000860Y01 |              | 3.1722  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1894-03-07 | D.L. 10         |
|               | LA YAULINA   |         |      |    |                               |            | D.M.<br>Titulad |
| 2 08001041Y01 |              | 1.4100  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1889-06-01 | D.L. 10         |
|               | LAOMEDON     |         |      |    |                               |            | D.M.<br>Titulad |
| 3 08001706Y01 |              | 1.0743  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/7/1903   | D.L. 10         |
|               | LAURA        |         |      |    |                               |            | D.M.<br>Titulad |
| 4 08001139Y01 |              | 1.1067  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/20/1900  | D.L. 10         |
|               | LAURA        |         |      |    |                               |            | D.M.<br>Titulad |
| 5 08001571Y01 |              | 0.9016  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/17/1903  | D.L. 10         |
|               | LEALTAD      |         |      |    |                               |            | D.M.<br>Titulad |
| 6 08001289Y01 |              | 1.9960  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/18/1900  | D.L. 10         |
|               | LEONOR       |         |      |    |                               |            | D.M.<br>Titulad |
| 7 08001682Y01 |              | 3.9919  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/11/1903 | D.L. 10         |
|               | LILA         |         |      |    |                               |            | D.M.<br>Titulad |
| 8 08001683Y01 |              | 2.8923  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/5/1901  | D.L. 10         |
|               | LIMA         |         |      |    |                               |            | D.M.<br>Titulad |
| 9 08001357Y01 |              | 2.8170  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/7/1900   | D.L. 10         |
|               | LIMA         |         |      |    |                               |            | D.M.<br>Titulad |
| 0 08002325Y01 |              | 11.9788 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/15/1945  | D.L. 10         |
|               | LLAPITA      |         |      |    |                               |            | D.M.<br>Titulad |
| 1 08001503Y01 |              | 3.0584  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/11/1902  | D.L. 10         |
|               | LLAVE DE ORO |         |      |    |                               |            | D.M.<br>Titulad |
| 2 08002161Y01 |              | 6.3177  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/26/1902  | D.L. 10         |
|               | LONDRES      |         |      |    |                               |            | D.M.<br>Titulad |
| 3 08012817X01 |              | 2.6092  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/5/1907   | D.L. 10         |
|               | LUCILA       |         |      |    |                               |            | D.M.<br>Titulad |
| 4 08003481Y01 |              | 5.9896  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/23/1934 | D.L. 10         |
|               | LUCILITA     |         |      |    |                               |            | D.M.<br>Titulad |
| 5 08013975X01 |              | 1.9963  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/29/1950 | D.L. 10         |

LUCIO

D.M.

Titulad

6 08001653Y01

1.9960

24-K

18

COMPAÑIA MINERA ARGENTUM S.A.

11/2/1901

D.L. 10

-23-43-101(PanAm)

Morococha Mine

23

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| Nº | CODE        | CONCESION         | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STATE         |
|----|-------------|-------------------|----------|--------|------|-------------------------------|--------------|---------------|
|    |             | LUISITA           |          |        |      |                               |              | D.M.          |
| 47 | 08011019X01 |                   | 3.9926   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/12/1937    | D.L. 109      |
|    |             | LUZ ELECTRICA     |          |        |      |                               |              | D.M. Titulado |
| 48 | 08001293Y01 |                   | 1.9964   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/30/1901    | D.L. 109      |
|    |             | LUZMILA           |          |        |      |                               |              | D.M. Titulado |
| 49 | 08001046Y01 |                   | 2.8794   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1898-11-19   | D.L. 109      |
|    |             | LUZMILA           |          |        |      |                               |              | D.M. Titulado |
| 50 | 08010522X01 |                   | 3.9922   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/16/1934   | D.L. 109      |
|    |             | MANUELITA         |          |        |      |                               |              | D.M. Titulado |
| 51 | 08001109Y01 |                   | 1.4084   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1892-07-27   | D.L. 109      |
|    |             | MAQUINITA         |          |        |      |                               |              | D.M. Titulado |
| 52 | 08002321Y01 |                   | 0.4637   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/23/1906    | D.L. 109      |
|    |             | MARGARITA         |          |        |      |                               |              | D.M. Titulado |
| 53 | 08000862Y01 |                   | 1.5089   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1888-03-12   | D.L. 109      |
|    |             | MARIA             |          |        |      |                               |              | D.M. Titulado |
| 54 | 08001362Y01 |                   | 2.8168   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1899-11-29   | D.L. 109      |
|    |             | MARIA CRISTINA    |          |        |      |                               |              | D.M. Titulado |
| 55 | 08001210Y01 |                   | 7.9845   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/17/1900    | D.L. 109      |
|    |             | MARIA ELENA       |          |        |      |                               |              | D.M. Titulado |
| 56 | 08006629X01 |                   | 5.9894   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/30/1906    | D.L. 109      |
|    |             | MARIA ELENA S. R. |          |        |      |                               |              | D.M. Titulado |
| 57 | 010045896   |                   | 500.0000 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 2/5/1996     | D.L. 709      |
|    |             | MARIA ESTHER      |          |        |      |                               |              | D.M. Titulado |
| 58 | 08001296Y01 |                   | 2.8174   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 3/18/1902    | D.L. 109      |
|    |             | MARIA LUISA       |          |        |      |                               |              | D.M. Titulado |
| 59 | 08001052Y01 |                   | 1.3948   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1899-08-03   | D.L. 109      |
|    |             | MARIA LUISA       |          |        |      |                               |              | D.M. Titulado |
| 60 | 08001348Y01 |                   | 1.9961   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/24/1900   | D.L. 109      |
|    |             | MARIA ROSA        |          |        |      |                               |              | D.M. Titulado |
| 61 | 08020939X01 |                   | 4.3007   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/17/1979    | D.L. 109      |
| 62 | 08021963X01 | MARIA S.R.        | 2.8660   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     |               |

|                 |                  |         |      |    |                               |            |          |                  |
|-----------------|------------------|---------|------|----|-------------------------------|------------|----------|------------------|
|                 | MARIANITA        |         |      |    |                               |            |          | D.M.<br>Titulado |
| 063 08013448X01 | MARTHA S.R.      | 15.9712 | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 8/29/1949  | D.L. 109 | D.M.<br>Titulado |
| 064 08021620X01 | MEDUSA           | 3.9927  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 5/19/1980  | D.L. 109 | D.M.<br>Titulado |
| 065 08001570Y01 | MELPOMENE        | 2.3880  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 3/17/1903  | D.L. 109 | D.M.<br>Titulado |
| 066 08000499Y01 | MELPOMENE<br>DOS | 1.4084  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1890-01-18 | D.L. 109 | D.M.<br>Titulado |
| 067 08003383Y01 | MERCEDES         | 0.2537  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/17/1930  | D.L. 109 | D.M.<br>Titulado |
| 068 08003195X01 | MERION           | 0.0767  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 12/4/1906  | D.L. 109 | D.M.<br>Titulado |
| 069 08001093X01 | MIGUEL N° 1      | 1.5322  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/6/1903   | D.L. 109 | D.M.<br>Titulado |
| 070 08022527X01 | MIGUEL N° 2      | 7.9443  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 071 08022528X01 | MIGUEL N° 3      | 5.9892  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 072 08022529X01 | MIGUEL N° 4      | 5.9720  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 073 08022530X01 | MIGUEL N° 5      | 3.9616  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 074 08022531X01 | MIGUEL N° 6      | 1.9965  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 075 08022532X01 | MIGUEL N° 7      | 2.1641  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 076 08022533X01 | MINERVA          | 2.2821  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/23/1985  | D.L. 109 | D.M.<br>Titulado |
| 077 08000602Y01 | MOLTKE           | 2.8169  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1890-10-20 | D.L. 109 | D.M.<br>Titulado |
| 078 08002430Y01 |                  | 3.9925  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 10/16/1935 | D.L. 109 | D.M.<br>Titulado |

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|    |             |                                |          |      |    |                               |           |                              |
|----|-------------|--------------------------------|----------|------|----|-------------------------------|-----------|------------------------------|
| 79 | 08021964X01 | MONTE<br>ALEGRE-S.R.<br>MORADA | 31.0881  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981  | D.M.<br>Titulado<br>D.L. 109 |
| 80 | 010295106   | MOROCOCHA<br>1                 | 500.0000 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/7/2006  | D.M.<br>Titulado<br>D.L. 708 |
| 81 | 08004352Y01 | MOROCOCHA<br>1-A               | 416.1598 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 82 | 0804352HY01 | MOROCOCHA<br>1-B               | 65.9499  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 83 | 0804352IY01 | MOROCOCHA<br>1-C               | 7.4093   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 84 | 0804352JY01 | MOROCOCHA<br>1-D               | 5.2086   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 85 | 0804352KY01 | MOROCOCHA<br>1-E               | 3.5248   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 86 | 0804352LY01 | MOROCOCHA<br>1-F               | 3.9929   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 87 | 0804352MY01 | MOROCOCHA<br>1-G               | 5.5494   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 88 | 0804352NY01 | MOROCOCHA<br>1-H               | 0.2133   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 89 | 0804352OY01 | MOROCOCHA<br>1-I               | 1.8914   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 90 | 0804352PY01 | MOROCOCHA<br>1-J               | 1.8846   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 91 | 0804352QY01 | MOROCOCHA<br>2                 | 5.3609   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 92 | 08004353Y01 | MOROCOCHA<br>2-A               | 378.0057 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 93 | 0804353AY01 | MOROCOCHA<br>3                 | 0.4990   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 94 | 08004354Y01 | MOROCOCHA<br>3-A               | 270.7826 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 95 | 0804354JY01 |                                | 20.6470  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.L. 109                     |

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|                   |                  |          |      |    |                               |           |                              |
|-------------------|------------------|----------|------|----|-------------------------------|-----------|------------------------------|
| 96 0804354KY01    | MOROCOCHA<br>3-B | 0.0896   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| 97 0804354NY01    | MOROCOCHA<br>3-E | 163.3735 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulado<br>D.L. 109 |
| -24-43-101(PanAm) |                  |          |      |    | Morococha Mine                |           | 24                           |

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|   | CODE        | CONCESION HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STAT            |
|---|-------------|--------------------|--------|------|-------------------------------|--------------|-----------------|
| 8 | 0804354OY01 | 11.1313            | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.M.<br>Titulad |
|   |             |                    |        |      |                               |              | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 9 | 08004355Y01 | 41.3259            | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 0 | 0804355IY01 | 0.0837             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 1 | 0804355JY01 | 2.2974             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 2 | 0804355KY01 | 1.9036             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 3 | 0804355LY01 | 2.1551             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 4 | 0804355MY01 | 0.3053             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 5 | 0804355NY01 | 1.3713             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 6 | 0804355OY01 | 0.8646             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 7 | 0804355PY01 | 1.6287             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 8 | 0804355QY01 | 6.9910             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 9 | 0804355RY01 | 1.0631             | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 0 | 08004356Y01 | 99.0755            | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 1 | 0804356DY01 | 63.6337            | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
|   |             |                    |        |      |                               |              | D.M.<br>Titulad |
| 2 | 0804356EY01 | 24.6376            | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |
| 3 | 0804356FY01 | 41.2845            | 24-K   | 18   | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992    | D.L. 10         |

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|               |                  |          |      |    |                               |           |                            |
|---------------|------------------|----------|------|----|-------------------------------|-----------|----------------------------|
|               | MOROCOCHA<br>5-C |          |      |    |                               |           | D.M.<br>Titulad<br>D.L. 10 |
| 4 0804356GY01 | MOROCOCHA<br>5-D | 16.3691  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 5 0804356HY01 | MOROCOCHA<br>5-E | 9.3816   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 6 0804356IY01 | MOROCOCHA<br>5-F | 5.3040   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 7 0804356JY01 | MOROCOCHA<br>5-G | 1.0284   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 8 0804356KY01 | MOROCOCHA<br>5-H | 0.1593   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 9 0804356LY01 | MOROCOCHA<br>5-I | 2.3947   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 0 0804356MY01 | MOROCOCHA<br>5-J | 1.4236   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 1 0804356NY01 | MOROCOCHA<br>5-K | 0.2961   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 2 0804356ÑY01 | MOROCOCHA<br>5-L | 0.2864   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 3 0804356OY01 | MOROCOCHA<br>5-M | 8.0001   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 4 0804356PY01 | MOROCOCHA<br>5-N | 0.1196   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 5 0804356QY01 | MOROCOCHA<br>5-Ñ | 0.1717   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 6 0804356RY01 | MOROCOCHA<br>5-O | 30.4535  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 7 08004357Y01 | MOROCOCHA 6      | 500.3377 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 8 0804357GY01 | MOROCOCHA<br>6-A | 5.7481   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |
| 9 0804357HY01 | MOROCOCHA<br>6-B | 1.0481   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992 | D.M.<br>Titulad<br>D.L. 10 |

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|    |             |                  |          |      |    |                               |            |                            |
|----|-------------|------------------|----------|------|----|-------------------------------|------------|----------------------------|
| 00 | 0804357KY01 | MOROCOCHA<br>6-E | 0.1473   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 01 | 08004358Y01 | MOROCOCHA 7      | 193.5664 | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 02 | 0804358DY01 | MOROCOCHA<br>7-B | 0.5257   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 03 | 010270497   | MOROCOCHA-9      | 300.0000 | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 7/16/1997  | D.M.<br>Titulad<br>D.L. 70 |
| 04 | 0804356AY01 | MUCHCAPATA<br>1  | 1.9978   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 05 | 0804356BY01 | MUCHCAPATA<br>2  | 3.0401   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 06 | 0804356CY01 | MUCHCAPATA<br>3  | 14.5796  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 07 | 0804355GY01 | MUCHCAPATA<br>6  | 116.1360 | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 08 | 0804355HY01 | MUCHCAPATA<br>7  | 18.2943  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 2/11/1992  | D.M.<br>Titulad<br>D.L. 10 |
| 09 | 08001048Y01 | NELLY            | 1.4077   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1898-06-29 | D.M.<br>Titulad<br>D.L. 10 |
| 10 | 08001917Y01 | NELLY<br>PRIMERA | 0.4484   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 1/14/1903  | D.M.<br>Titulad<br>D.L. 10 |
| 11 | 08022575X01 | NERON-1105       | 1.0154   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 8/8/1985   | D.M.<br>Titulad<br>D.L. 10 |
| 12 | 08022574X01 | NERON-3365       | 1.6249   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 8/8/1985   | D.M.<br>Titulad<br>D.L. 10 |
| 13 | 08001993Y01 | NEW YORK         | 1.9961   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 7/26/1906  | D.M.<br>Titulad<br>D.L. 10 |
| 14 | 08022544X01 | NORMA-M.H.       | 100.0016 | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 4/11/1985  | D.M.<br>Titulad<br>D.L. 10 |
| 15 | 08022564X01 | NORMA-M.H.-I     | 76.3786  | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 7/11/1985  | D.M.<br>Titulad<br>D.L. 10 |
| 16 | 08001782Y01 | NUDO<br>GORDIANO | 1.0166   | 24-K | 18 | COMPañIA MINERA ARGENTUM S.A. | 10/4/1902  | D.M.<br>Titulad<br>D.L. 10 |

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|                   |                                 |        |      |    |                               |           |                            |
|-------------------|---------------------------------|--------|------|----|-------------------------------|-----------|----------------------------|
| 7 08001615Y01     | NUEVO PESAR                     | 3.4997 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/6/1901 | D.M.<br>Titulad<br>D.L. 10 |
| 8 08001885Y01     | NUEVO<br>TARTUFFO<br>NUMERO 121 | 2.2927 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 4/22/1901 | D.M.<br>Titulad<br>D.L. 10 |
| 9 08012608X01     |                                 | 1.9961 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/17/1906 | D.M.<br>Titulad<br>D.L. 10 |
| -25-43-101(PanAm) |                                 |        |      |    | Morococha Mine                |           | 25                         |

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| CODE          | CONCESION                | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STAT                       |
|---------------|--------------------------|----------|--------|------|-------------------------------|--------------|----------------------------|
| 0 08021972X01 | NUMERO 200<br>S.R.       | 6.9831   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.M.<br>Titulad            |
| 1 08021949X01 | NUMERO 220<br>S.R.       | 10.2232  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.L. 10<br>D.M.<br>Titulad |
| 2 08022492X01 | NUMERO<br>220-S.R.I.     | 10.8985  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 8/22/1984    | D.L. 10<br>D.M.<br>Titulad |
| 3 08001971Y01 | NUMERO 45                | 1.9965   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1/22/1906    | D.L. 10<br>D.M.<br>Titulad |
| 4 08012312X01 | OLGA<br>MERCEDES         | 3.9931   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/19/1943    | D.L. 10<br>D.M.<br>Titulad |
| 5 08001628Y01 | OLIVIA                   | 13.9732  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/1/1900    | D.L. 10<br>D.M.<br>Titulad |
| 6 08001250X01 | OSIRIS                   | 0.1604   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/13/1903    | D.L. 10<br>D.M.<br>Titulad |
| 7 08001550X01 | OSMIN                    | 0.4719   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/15/1904    | D.L. 10<br>D.M.<br>Titulad |
| 8 08021621X01 | PACHI                    | 8.9836   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/19/1980    | D.L. 10<br>D.M.<br>Titulad |
| 9 08001591Y01 | PANCHITA                 | 1.7497   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/20/1901    | D.L. 10<br>D.M.<br>Titulad |
| 0 08003204X01 | PEDRITO                  | 1.0729   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906    | D.L. 10<br>D.M.<br>Titulad |
| 1 08001283Y01 | PEKIN                    | 1.3983   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/5/1900     | D.L. 10<br>D.M.<br>Titulad |
| 2 08021956X01 | PERPETUO<br>SOCORRO S.R. | 0.1426   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.L. 10<br>D.M.<br>Titulad |
| 3 08020928X01 | PITINA                   | 1.9999   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/14/1979    | D.L. 10<br>D.M.<br>Titulad |
| 4 08001552X01 | PLINIO                   | 0.4236   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/15/1904    | D.L. 10                    |
| 5 0821947AX01 |                          | 30.5362  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     |                            |

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|               |  |         |      |    |                               |            |   |
|---------------|--|---------|------|----|-------------------------------|------------|---|
|               | PRETORIA S.R.<br>A<br>FRACCIONADO<br>PRETORIA-S.R. |         |      |    |                               |            | D.M.<br>Titulad<br>D.L. 10<br>D.M.<br>Titulad |
| 6 08021947X01 | PROSERPINA   | 0.0660  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.L. 10<br>D.M.<br>Titulad                    |
| 7 08001707Y01 | PURGATORIO   | 0.6597  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/7/1903   | D.L. 10<br>D.M.<br>Titulad                    |
| 8 08001042Y01 | RAUL   | 4.2251  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1895-11-14 | D.L. 10<br>D.M.<br>Titulad                    |
| 9 08001311Y01 | RAULADAS   | 2.8168  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1895-07-16 | D.L. 10<br>D.M.<br>Titulad                    |
| 0 08012311X01 | REMACHE  | 29.9463 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/19/1943  | D.L. 10<br>D.M.<br>Titulad                    |
| 1 08003194X01 | REY  | 0.2147  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.L. 10<br>D.M.<br>Titulad                    |
| 2 08021474X01 | REYNA  | 6.2260  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/24/1980  | D.L. 10<br>D.M.<br>Titulad                    |
| 3 08001445X01 | REYNALDO   | 1.9962  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/7/1903  | D.L. 10<br>D.M.<br>Titulad                    |
| 4 08013447X01 | RICARDO  | 7.9858  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/29/1949  | D.L. 10<br>D.M.<br>Titulad                    |
| 5 08001667Y01 | RICHI-RACHI  | 1.9962  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/21/1901  | D.L. 10<br>D.M.<br>Titulad                    |
| 6 08002522Y01 | ROMA   | 1.9961  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/1/1906   | D.L. 10<br>D.M.<br>Titulad                    |
| 7 08005923X01 | ROSA<br>LUCRECIA                                   | 1.9965  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 7/3/1913   | D.L. 10<br>D.M.<br>Titulad                    |
| 8 08001605Y01 | ROSALVINA  | 1.9962  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/23/1901 | D.L. 10<br>D.M.<br>Titulad                    |
| 9 08001477X01 | RUPERTO  | 3.9920  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/20/1904  | D.L. 10<br>D.M.<br>Titulad                    |
| 0 08001688Y01 | RUSIA  | 2.0303  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/15/1901 | D.L. 10<br>D.M.<br>Titulad                    |
| 1 08012818X01 |  | 2.7647  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/5/1907   | D.L. 10                                       |

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|               |                                   |          |      |    |                               |            |                 |
|---------------|-----------------------------------|----------|------|----|-------------------------------|------------|-----------------|
|               | SACRACANCHA                       |          |      |    |                               |            | D.M.<br>Titulad |
| 2 08001037Y01 |                                   | 2.8172   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1887-05-12 | D.L. 10         |
|               | SACRACANCHA                       |          |      |    |                               |            | Planta c        |
| 3 P0100004    |                                   | 11.9775  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. |            | Benefic         |
|               | SACRACANCHA<br>MC                 |          |      |    |                               |            | D.M.<br>Titulad |
| 4 010247999   |                                   | 200.0000 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/23/1999 | D.L. 70         |
|               | SACRAGRANDE                       |          |      |    |                               |            | D.M.<br>Titulad |
| 5 08022796X01 |                                   | 3.0118   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/26/1987  | D.L. 10         |
|               | SALOMON<br>QUINTO                 |          |      |    |                               |            | D.M.<br>Titulad |
| 6 08020583X01 |                                   | 23.7056  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/26/1978 | D.L. 10         |
|               | SALVADORA                         |          |      |    |                               |            | D.M.<br>Titulad |
| 7 08001025Y01 |                                   | 2.8170   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1895-11-14 | D.L. 10         |
|               | SAN ANTONIO<br>O IGNACIA          |          |      |    |                               |            | D.M.<br>Titulad |
| 8 08001045Y01 |                                   | 1.4085   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1887-01-31 | D.L. 10         |
|               | SAN ENRIQUE<br>S.R.               |          |      |    |                               |            | D.M.<br>Titulad |
| 9 08021967X01 |                                   | 1.5562   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981   | D.L. 10         |
|               | SAN ESTEBAN                       |          |      |    |                               |            | D.M.<br>Titulad |
| 0 08001113Y01 |                                   | 2.8176   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1894-10-18 | D.L. 10         |
|               | SAN<br>FRANCISCO                  |          |      |    |                               |            | D.M.<br>Titulad |
| 1 08001700Y01 |                                   | 1.9962   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/20/1901  | D.L. 10         |
|               | SAN<br>FRANCISCO DE               |          |      |    |                               |            | D.M.<br>Titulad |
| 2 08000630Y01 |                                   | 3.9928   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1893-08-05 | D.L. 10         |
|               | GALERA<br>SAN JUAN DE<br>AMANCAES |          |      |    |                               |            | D.M.<br>Titulad |
| 3 08012128X01 |                                   | 29.9464  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/25/1942  | D.L. 10         |
|               | SAN LORENZO                       |          |      |    |                               |            | D.M.<br>Titulad |
| 4 08003215X01 |                                   | 1.7433   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.L. 10         |
|               | SAN LUIS                          |          |      |    |                               |            | D.M.<br>Titulad |
| 5 08000819Y01 |                                   | 1.5848   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1895-12-14 | D.L. 10         |
|               | SAN MIGUEL                        |          |      |    |                               |            | D.M.<br>Titulad |
| 6 08001623Y01 |                                   | 1.9962   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/11/1901  | D.L. 10         |
|               | SAN PEDRO                         |          |      |    |                               |            | D.M.<br>Titulad |
| 7 08001276Y01 |                                   | 5.5797   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1899-02-23 | D.L. 10         |
|               | SAN VICENTE<br>79                 |          |      |    |                               |            | D.M.<br>Titulad |
| 8 08020931X01 |                                   | 3.9932   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/14/1979  | D.L. 10         |
| 9 08013521X01 |                                   | 3.9928   | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/16/1949 |                 |

SANTA  
BARBARA

D.M.  
Titulad  
D.L. 10

-26-43-101(PanAm)

Morococha Mine

26

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| Nº  | CODE        | CONCESION                  | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY DATE | STATE                        |
|-----|-------------|----------------------------|----------|--------|------|-------------------------------|--------------|------------------------------|
| 400 | 08014144X01 | SANTA BARBARA 3            | 0.9982   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/19/1951    | D.M.<br>Titulado<br>D.L. 109 |
| 401 | 08014145X01 | SANTA BARBARA 4            | 0.9982   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/19/1951    | D.M.<br>Titulado<br>D.L. 109 |
| 402 | 08022277X01 | SANTA BARBARA SEGUNDA S.R. | 3.2660   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 11/10/1982   | D.M.<br>Titulado<br>D.L. 109 |
| 403 | 08001092Y01 | SANTA CATALINA             | 5.6344   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1889-11-23   | D.M.<br>Titulado<br>D.L. 109 |
| 404 | 08001286Y01 | SANTA CATALINA 2DA         | 3.9883   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 3/23/1901    | D.M.<br>Titulado<br>D.L. 109 |
| 405 | 08000145X01 | SANTA CATALINA 3A          | 1.1523   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 3/23/1901    | D.M.<br>Titulado<br>D.L. 109 |
| 406 | 08021305X01 | SANTA CRUZ                 | 1.0921   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/21/1979   | D.M.<br>Titulado<br>D.L. 109 |
| 407 | 08001114Y01 | SANTA MARIA                | 1.5845   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1895-12-22   | D.M.<br>Titulado<br>D.L. 109 |
| 408 | 08013934X01 | SANTA RITA                 | 1.6081   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 10/2/1950    | D.M.<br>Titulado<br>D.L. 109 |
| 409 | 08002320Y01 | SARA                       | 0.1592   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906    | D.M.<br>Titulado<br>D.L. 109 |
| 410 | 08001462Y01 | SATELITE                   | 0.7370   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/17/1901    | D.M.<br>Titulado<br>D.L. 109 |
| 411 | 08001541X01 | SATURNO                    | 2.9356   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/5/1904     | D.M.<br>Titulado<br>D.L. 109 |
| 412 | 08002698Y01 | SCOTLAND                   | 2.5953   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 6/3/1915     | D.M.<br>Titulado<br>D.L. 109 |
| 413 | 08021950X01 | SEGUNDA ESPARTA S.R.       | 17.2376  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/2/1981     | D.M.<br>Titulado<br>D.L. 109 |
| 414 | 08000876Y01 | SEGUNDO MANTO              | 5.6338   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1887-12-10   | D.M.<br>Titulado<br>D.L. 109 |
| 415 | 08003148Y01 | SEGURIDAD                  | 0.8658   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 5/13/1927    |                              |

|                 |                     |         |      |    |                               |            |  |                              |
|-----------------|---------------------|---------|------|----|-------------------------------|------------|--|------------------------------|
|                 | SLOGA               |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 416 08003146Y01 |                     | 3.5181  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/8/1927   |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | SOCAVON<br>AUXILIAR |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 417 08003464X01 |                     | 1.9961  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/1/1907   |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | STILSON             |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 418 08013470X01 |                     | 5.2567  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/2/1920   |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | SUSANA              |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 419 08011471X01 |                     | 0.0443  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | SYLVIA              |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 420 08012891X01 |                     | 8.5763  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/1/1946  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | SYLVITA             |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 421 08013480X01 |                     | 1.9965  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/15/1949 |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHIMAN            |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 422 08000857Y01 |                     | 8.4522  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1888-12-04 |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHIMAN N°<br>1    |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 423 08013157X01 |                     | 3.9928  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/8/1947  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHIMAN N°<br>2    |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 424 08013158X01 |                     | 3.9929  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/8/1947  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHIMAN N°<br>3    |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 425 08013159X01 |                     | 3.9928  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/8/1947  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHMAN N°<br>4     |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 426 08013219X01 |                     | 13.9734 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/24/1948  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHMAN N°<br>5     |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 427 08013220X01 |                     | 5.9890  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/24/1948  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHMAN N°<br>6     |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 428 08013221X01 |                     | 13.9735 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/24/1948  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TASHMAN N°<br>7     |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 429 08013222X01 |                     | 5.9887  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/24/1948  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TERESITA            |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 430 08011018X01 |                     | 7.9858  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 8/12/1937  |  | D.M.<br>Titulado<br>D.L. 109 |
|                 | TESORUCCIO          |         |      |    |                               |            |  | D.M.<br>Titulado<br>D.L. 109 |
| 431 08005751X01 |                     | 5.3822  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 10/26/1912 |  | D.L. 109                     |

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|     |                   |         |      |    |                               |            |          |                  |
|-----|-------------------|---------|------|----|-------------------------------|------------|----------|------------------|
|     | TICLIO S.R.-II    |         |      |    |                               |            |          | D.M.<br>Titulado |
| 432 | 11025083X01       | 2.1911  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/17/1985 | D.L. 109 | D.M.<br>Titulado |
|     | TICLIO<br>SEGUNDO |         |      |    |                               |            |          | D.M.<br>Titulado |
| 433 | 11025666X01       | 0.2429  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/10/1988  | D.L. 109 | D.M.<br>Titulado |
|     | TICLIO-S.R.-III   |         |      |    |                               |            |          | D.M.<br>Titulado |
| 434 | 11025084X01       | 3.6327  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/17/1985 | D.L. 109 | D.M.<br>Titulado |
|     | TICLIO-SR-I       |         |      |    |                               |            |          | D.M.<br>Titulado |
| 435 | 11025082X01       | 34.5004 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/17/1985 | D.L. 109 | D.M.<br>Titulado |
|     | TOLDO 2           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 436 | 0804354BY01       | 8.0487  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.L. 109 | D.M.<br>Titulado |
|     | TOLDO 3           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 437 | 0804354CY01       | 0.0596  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 2/11/1992  | D.L. 109 | D.M.<br>Titulado |
|     | TOLDO 4           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 438 | 0804355AY01       | 7.9089  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/14/1973  | D.L. 109 | D.M.<br>Titulado |
|     | TOLDO 5           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 439 | 0804355BY01       | 0.6917  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/14/1973  | D.L. 109 | D.M.<br>Titulado |
|     | TOLDO 6           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 440 | 0804355CY01       | 13.8370 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/14/1973  | D.L. 109 | D.M.<br>Titulado |
|     | TOLDO 7           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 441 | 0804355DY01       | 1.1284  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 6/14/1973  | D.L. 109 | D.M.<br>Titulado |
|     | TORNILLO          |         |      |    |                               |            |          | D.M.<br>Titulado |
| 442 | 08002305Y01       | 0.2561  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | D.L. 109 | D.M.<br>Titulado |
|     | TRINIDAD          |         |      |    |                               |            |          | D.M.<br>Titulado |
| 443 | 08001035Y01       | 4.2265  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1885-01-03 | D.L. 109 | D.M.<br>Titulado |
|     | TRIPLE<br>ALIANZA |         |      |    |                               |            |          | D.M.<br>Titulado |
| 444 | 08001313Y01       | 2.8172  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1896-01-04 | D.L. 109 | D.M.<br>Titulado |
|     | TRISTAN           |         |      |    |                               |            |          | D.M.<br>Titulado |
| 445 | 08001572Y01       | 1.8584  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 3/17/1903  | D.L. 109 | D.M.<br>Titulado |
|     | TRITON            |         |      |    |                               |            |          | D.M.<br>Titulado |
| 446 | 08001705Y01       | 1.6789  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 1/25/1903  | D.L. 109 | D.M.<br>Titulado |
|     | TUYURAGUA         |         |      |    |                               |            |          | D.M.<br>Titulado |
| 447 | 08003149Y01       | 1.3671  | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 5/13/1927  | D.L. 109 | D.M.<br>Titulado |
|     | UNION             |         |      |    |                               |            |          | D.M.<br>Titulado |
| 448 | 08001559Y01       | 11.9785 | 24-K | 18 | COMPAÑIA MINERA ARGENTUM S.A. | 11/2/1901  | D.L. 109 | D.M.<br>Titulado |

VENUS

D.M.  
Titulado  
D.L. 109

449 08003468Y01

19.9641

24-K

18

COMPAÑIA MINERA ARGENTUM S.A.

7/21/1926

-27-43-101(PanAm)

Morococha Mine

27

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| N°  | CODE        | CONCESION      | HECTARES | LETTER | ZONE | TITLE                         | AQCUIRY    |                      |
|-----|-------------|----------------|----------|--------|------|-------------------------------|------------|----------------------|
|     |             |                |          |        |      |                               | DATE       | STATE                |
|     |             | VESTA          |          |        |      |                               |            | D.M.                 |
| 450 | 08001676Y01 |                | 3.0032   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 2/4/1903   | Titulado<br>D.L. 109 |
|     |             | VIEJA<br>VERDE |          |        |      |                               |            | D.M.<br>Titulado     |
| 451 | 08001810Y01 |                | 0.8445   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 4/27/1904  | Titulado<br>D.L. 109 |
|     |             | VIOLETA        |          |        |      |                               |            | D.M.<br>Titulado     |
| 452 | 08012819X01 |                | 1.6334   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/19/1907  | Titulado<br>D.L. 109 |
|     |             | VISCAS-S.R.    |          |        |      |                               |            | D.M.<br>Titulado     |
| 453 | 08022482X01 |                | 736.9769 | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 7/12/1984  | Titulado<br>D.L. 109 |
|     |             | WELEVICH       |          |        |      |                               |            | D.M.<br>Titulado     |
| 454 | 08001112Y01 |                | 1.4083   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 1893-05-04 | Titulado<br>D.L. 109 |
|     |             | YAGO           |          |        |      |                               |            | D.M.<br>Titulado     |
| 455 | 08001674X01 |                | 3.5116   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 9/26/1904  | Titulado<br>D.L. 109 |
|     |             | ZENAIDA 89     |          |        |      |                               |            | D.M.<br>Titulado     |
| 456 | 08023077X01 |                | 99.8174  | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/19/1989 | Titulado<br>D.L. 109 |
|     |             | ZOILA          |          |        |      |                               |            | D.M.<br>Titulado     |
| 457 | 08003196X01 |                | 2.4637   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A. | 12/4/1906  | Titulado<br>D.L. 109 |

**BENEFICIATION**

| N°  | CODE     | CONCESION | HECTARES | LETTER | ZONE | BENEFICIATION TITLE | STATE       |
|-----|----------|-----------|----------|--------|------|---------------------|-------------|
|     |          | AMISTAD   |          |        |      | EMPRESA MINERA      | PLANTA DE   |
| 458 | P0800383 |           | 117.8957 | 24-K   | 18   | NATIVIDAD S.A.      | - BENEFICIO |

**Table 6-2: List of Morococha Concessions transferred from Silver Lead Mining Company S.A.**

| N° | CODE        | CONCESION | HECTARES | LETTER | ZONE | TITLE                            | AQCUIRY   |                      |
|----|-------------|-----------|----------|--------|------|----------------------------------|-----------|----------------------|
|    |             |           |          |        |      |                                  | DATE      | STATE                |
|    |             | ANGELICA  |          |        |      | SILVER LEAD<br>MINING<br>COMPANY |           | D.M.<br>Titulado     |
| 1  | 08009179X01 |           | 19.9620  | 24-K   | 18   | LIMITED S.A.                     | 12/2/1925 | Titulado<br>D.L. 109 |
|    |             | DANTE     |          |        |      | SILVER LEAD<br>MINING<br>COMPANY |           | D.M.<br>Titulado     |
| 2  | 08001537Y01 |           | 3.9920   | 24-K   | 18   | LIMITED S.A.                     | 11/8/1900 | Titulado<br>D.L. 109 |
|    |             | EUNISE    |          |        |      | SILVER LEAD<br>MINING<br>COMPANY |           | D.M.<br>Titulado     |
| 3  | 08008898X01 |           | 7.9849   | 24-K   | 18   | LIMITED S.A.                     | 9/27/1924 | Titulado<br>D.L. 109 |
| 4  | 08003083Y01 | FABIOLA   | 3.9920   | 24-K   | 18   |                                  | 5/1/1924  |                      |

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|    |             |         |      |    |  |            |                              |
|----|-------------|---------|------|----|--|------------|------------------------------|
|    |             |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
|    | ILA         |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 5  | 08009178X01 | 5.9883  | 24-K | 18 | LIMITED S.A.                                     | 12/2/1925  | D.L. 109                     |
|    | LEAD        |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 6  | 08009176X01 | 1.9964  | 24-K | 18 | LIMITED S.A.                                     | 12/2/1925  | D.L. 109                     |
|    | LIGIA       |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 7  | 08008828X01 | 5.9883  | 24-K | 18 | LIMITED S.A.                                     | 5/1/1924   | D.L. 109                     |
|    | NIDIA       |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 8  | 08009088X01 | 19.9609 | 24-K | 18 | LIMITED S.A.                                     | 8/14/1925  | D.L. 109                     |
|    | PEZ         |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 9  | 08009087X01 | 1.9960  | 24-K | 18 | LIMITED S.A.                                     | 8/14/1925  | D.L. 109                     |
|    | SARA        |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 10 | 08001538Y01 | 5.6346  | 24-K | 18 | LIMITED S.A.                                     | 1899-10-11 | D.L. 109                     |
|    | SILVER      |         |      |    | SILVER LEAD<br>MINING<br>COMPANY<br>LIMITED S.A. |            | D.M.<br>Titulado<br>D.L. 109 |
| 11 | 08009177X01 | 15.9701 | 24-K | 18 | LIMITED S.A.                                     | 12/2/1925  | D.L. 109                     |

-28-43-101(PanAm)

Morococha Mine

28

**Table 6-3: List of Morococha Concessions transferred from Sociedad Minera Corona**

| ° | CODE        | CONCESION                   | HECTARES | LETTER | ZONE | TITLE                       | AQCUIRY DATE | STATU                      |
|---|-------------|-----------------------------|----------|--------|------|-----------------------------|--------------|----------------------------|
| 1 | 010283303   | CORONA<br>VIEJA             | 100.0000 | 24-K   | 18   | SOCIEDAD MINERA CORONA S.A. | 8/27/2003    | D.M.<br>Titulad<br>D.L. 70 |
| 2 | 010144503   | CORONA2<br>2003             | 300.0000 | 24-K   | 18   | SOCIEDAD MINERA CORONA S.A. | 4/22/2003    | D.M.<br>Titulad<br>D.L. 70 |
| 3 | 010144403   | CORONA3<br>2003<br>PACHITEA | 300.0000 | 24-K   | 18   | SOCIEDAD MINERA CORONA S.A. | 4/22/2003    | D.M.<br>Titulad<br>D.L. 70 |
| 4 | 08001328Y01 | PACHITEA<br>3RA             | 2.0792   | 24-K   | 18   | SOCIEDAD MINERA CORONA S.A. | 1899-12-18   | D.M.<br>Titulad<br>D.L. 10 |
| 5 | 08002347Y01 |                             | 0.5474   | 24-K   | 18   | SOCIEDAD MINERA CORONA S.A. | 5/25/1907    | D.L. 10                    |

**Table 6-4: List of Morococha Concessions Held with Different Third Party Mining Companies**

| CONCESION               | HECTARES | LETTER | ZONE | TITLE                                   | AQCUIRY DATE |
|-------------------------|----------|--------|------|---|--------------|
| PAMINA CHICO            | 2.8169   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A.           | 1899-12-18   |
| PROLETARIO              | 14.0003  | 24-K   | 18   | S.M.R.L. EL PROLETARIO DE HUANCAYO      | 6/22/1907    |
| SALCHICHA               | 1.9967   | 24-K   | 18   | S.M.R.L. SALCHICHA                      | 1/22/1907    |
| ELSON                   | 1.4086   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A.           | 4/22/2003    |
| DAYCHAGUA NUMERO CUATRO | 9.9763   | 24-K   | 18   | VOLCAN COMPAÑIA MINERA S.A.A.           | 2/22/1907    |
| DAYCHAGUA NUMERO DOS    | 9.9764   | 24-K   | 18   | VOLCAN COMPAÑIA MINERA S.A.A.           | 1/22/1907    |
| DAYCHAGUA NUMERO TRES   | 9.9764   | 24-K   | 18   | VOLCAN COMPAÑIA MINERA S.A.A.           | 2/22/1907    |
| DAYCHAGUA NUMERO UNO    | 9.9764   | 24-K   | 18   | VOLCAN COMPAÑIA MINERA S.A.A.           | 2/22/1907    |
| NEDA                    | 9.9822   | 24-K   | 18   | EMPRESA MINERA DEL CENTRO DEL PERU S.A. | 4/22/2003    |
| AVIÑA                   | 3.9928   | 24-K   | 18   | COMPAÑIA MINERA ARGENTUM S.A.           | 4/22/2003    |

|           |        |      |    |   |     |
|-----------|--------|------|----|---|-----|
| N NICOLAS |        |      |    |   |     |
| BEGONIA   | 1.4089 | 24-K | 18 | EMPRESA MINERA DEL CENTRO DEL PERU S.A. | 18/ |
| CATON     | 0.9754 | 24-K | 18 | S.M.R.L. BEGONIA DE HUANCAYO            | 6/  |
| HUACA 25  | 3.9923 | 24-K | 18 | S.M.R.L. CATON DE HUANCAYO              | 5/  |
| NERON 1   | 2.0908 | 24-K | 18 | S.M.R.L. LA HUACA 25 DE HUANCAYO        | 5/  |
| NERON 2   | 0.9978 | 24-K | 18 | S.M.R.L. NERON 1 DE HUANCAYO            | 7/  |
| O 1934    | 0.9026 | 24-K | 18 | S.M.R.L. NERON 1 DE HUANCAYO            | 7/  |
| CILA      | 1.9953 | 24-K | 18 | PEDRO DE OSMA GILDEMEISTER              | 1/  |
| PERLA-87  | 1.9963 | 24-K | 18 | S.M.R.L. GENOVA A DE HUANCAYO           | 9/  |
| O         | 1.7792 | 24-K | 18 | S.M.R.L. LA PERLA 87 DE HUANCAYO        | 5/  |
| MIGUELITO | 9.9979 | 24-K | 18 | S.M.R.L. LEO DE HUANCAYO                | 5/  |
|           | 5.9886 | 24-K | 18 | S.M.R.L. MIGUELITO                      | 5/  |

**Table 6-5: List of concessions in negotiation with Minera Saracancha S.A.C.**

| CONCESION   | HECTARES | LETTER | ZONE | TITLE                                 | AQCUI<br>DATE |
|-------------|----------|--------|------|---------------------------------------|---------------|
| ADELA       |          |        |      |                                       |               |
| Y01         | 0.5198   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 9/13/19       |
| ANITA       |          |        |      |                                       |               |
| X01         | 0.0272   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 7/16/19       |
| AYHUACHI    |          |        |      |                                       |               |
| Y01         | 0.7622   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 1/12/19       |
| CANTA       |          |        |      |                                       |               |
| Y01         | 2.5863   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 6/17/19       |
| CARLOTITA   |          |        |      |                                       |               |
| X01         | 1.4280   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 10/12/19      |
| CONSUELO 2A |          |        |      |                                       |               |
| Y01         | 0.2948   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 10/26/19      |
| DON DANIEL  |          |        |      |                                       |               |
| Y01         | 0.5607   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 12/19/19      |
| DON GUIDO   |          |        |      |                                       |               |
| X01         | 0.0687   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 10/11/19      |
| DON JULIO   |          |        |      |                                       |               |
| Y01         | 0.7526   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 1/31/19       |
| EL TARUGO   |          |        |      |                                       |               |
| Y01         | 3.9925   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 6/25/19       |
| EL TRIUNFO  |          |        |      |                                       |               |
| X01         | 11.9770  | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 8/29/19       |
| EMILIA      |          |        |      |                                       |               |
| X01         | 2.1211   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 5/13/19       |
| ENRIQUE     |          |        |      |                                       |               |
| Y01         | 0.0717   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 10/30/19      |
| FINITA      |          |        |      |                                       |               |
| X01         | 0.4874   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 8/29/19       |
| GORDITA     |          |        |      |                                       |               |
| Y01         | 3.9925   | 24-K   | 18   | CORPORACION MINERA SACRACANCHA S.A.C. | 6/16/19       |

## JULIO

|                   |        |      |    |                                       |         |
|-------------------|--------|------|----|---------------------------------------|---------|
| X01               | 1.9962 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 7/12/19 |
| KUPFERBERG        |        |      |    |                                       |         |
| X01               | 1.9964 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 6/17/19 |
| LA INVESTIGADA    |        |      |    |                                       |         |
| Y01               | 2.4777 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 7/19/19 |
| LA MAR            |        |      |    |                                       |         |
| Y01               | 1.6767 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1899-12 |
| LA TUERCA         |        |      |    |                                       |         |
| Y01               | 1.9962 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 6/25/19 |
| LUISITO           |        |      |    |                                       |         |
| X01               | 0.6135 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 8/29/19 |
| MANSITA           |        |      |    |                                       |         |
| Y01               | 2.8167 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1899-07 |
| MANUELITO         |        |      |    |                                       |         |
| X01               | 5.9885 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 7/1/19  |
| MERCEDES          |        |      |    |                                       |         |
| Y01               | 4.1796 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1898-06 |
| MILAGRO           |        |      |    |                                       |         |
| Y01               | 1.4085 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1884-01 |
| MILAGRO           |        |      |    |                                       |         |
| Y01               | 2.8172 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1890-02 |
| MIRAFLORES        |        |      |    |                                       |         |
| Y01               | 1.4085 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1899-06 |
| MONJITA           |        |      |    |                                       |         |
| X01               | 0.1092 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1/1/19  |
| PELOTARIS         |        |      |    |                                       |         |
| Y01               | 1.9961 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 11/3/19 |
| REVANCHA          |        |      |    |                                       |         |
| Y01               | 1.0899 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 10/3/19 |
| ROLANDO           |        |      |    |                                       |         |
| X01               | 3.9922 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 11/1/19 |
| SACRACANCHA CHICO |        |      |    |                                       |         |
| Y01               | 1.4085 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1896-04 |

SAN FRANCISCO

|                       |        |      |    |                                       |          |
|-----------------------|--------|------|----|---------------------------------------|----------|
| Y01                   | 1.4084 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 1887-05  |
| SAN FRANCISCO SEGUNDO |        |      |    |                                       |          |
| Y01                   | 1.4084 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 12/13/19 |
| SAN MIGUEL            |        |      |    |                                       |          |
| Y01                   | 2.8171 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 10/3/19  |
| TERESITA              |        |      |    |                                       |          |
| X01                   | 1.9947 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 10/16/19 |
| TRIUNFO 2             |        |      |    |                                       |          |
| Y01                   | 3.9925 | 24-K | 18 | CORPORACION MINERA SACRACANCHA S.A.C. | 6/17/19  |

-30-43-101(PanAm)

Morococha Mine

30

**Table 6-6: List of Concessions Reviewed by Rodrigo, Elias and Medrano Abogados**

| N. | Concession    | Code        | Hectares | Registered Holder  | Debts regarding validity fees | Penalties       |
|----|---------------|-------------|----------|--|-------------------------------|-----------------|
| 1  | AURORA        | 08001212Y01 | 4.2249   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 2  | AURORA        | 08002289Y01 | 5.9907   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 3  | AURORA        | 08010041X01 | 0.2429   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 4  | BAJAZET       | 08001551X01 | 1.0019   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 5  | CARMEN        | 08001026Y01 | 1.4087   | Compañía Minera Argentum S.A. (50%)                                      | All paid up to 2007           | No Pending Debt |
| 6  | CATALINA      | 08003467Y01 | 2.6448   | Minera Peru Copper Syndicate S.A. (50%)<br>Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 7  | CATINCA       | 08002109Y01 | 1.5429   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 8  | CODICIADA 1RA | 08001690Y01 | 1.4521   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 9  | CODICIADA 2DA | 08001608Y01 | 1.9969   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 10 | CONDENADO 1   | 0804352AY01 | 42.3281  | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 11 | CONDENADO 9   | 0804355EY01 | 0.1927   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 12 | CONFLAGRACION | 08020929X01 | 5.0352   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 13 | DANTON        | 08001428X01 | 0.5593   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 14 | DECIMA        | 08001976Y01 | 0.4824   | Compañía Minera Argentum S.A.  | All paid up to 2007           | No Pending Debt |
| 15 | DESDEMONA     | 08001312Y01 | 1.4084   |  |                               |                 |



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|    |                 |             |        |  |                     |                 |
|----|-----------------|-------------|--------|--|---------------------|-----------------|
|    |                 |             |        | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 16 | DIANA 1980      | 08021622X01 | 5.9897 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 17 | DINA            | 08000861Y01 | 5.6347 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 18 | DIOS DA         | 08002961X01 | 0.897  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 19 | EDELMIRA AM     | 10191799    | 2.6206 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 20 | EL LOQUITO      | 08002402Y01 | 0.1745 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 21 | ELECTRA NRO. 11 | 08020855X01 | 2.2805 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 22 | ELECTRA NRO. 10 | 08020740X01 | 1.9961 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 23 | ELECTRA NRO. 8  | 08020719X01 | 4.1918 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 24 | ENREDO          | 08021983X01 | 4.8586 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 25 | FELIPINA        | 08001111Y01 | 2.8172 | Compañía Minera Argentum S.A. (80%)  | All paid up to 2007 | No Pending Debt |
| 26 | GORIZIA         | 08002733Y01 | 2.6192 | Centromin Peru S.A. (20%)<br>Compañía Minera Argentum S.A.                         | All paid up to 2007 | No Pending Debt |
| 27 | GRAVIÑA         | 08001331Y01 | 3.9928 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 28 | HERNANI         | 08001549Y01 | 1.9965 | Empresa Mineral Navitidad S.A. (42.84%)<br>Others<br>Compañía Minera Argentum S.A. | All paid up to 2007 | No Pending Debt |
| 29 | ISABEL          | 08001620Y01 | 0.8361 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 30 | ITALIA          | 08001391Y01 | 2.1589 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |

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|    |                   |             |         |  |                     |                       |
|----|-------------------|-------------|---------|--|---------------------|-----------------------|
|    | JEANNE            | 08013479X01 | 19.9642 | Compañía Minera Argentum S.A.  | All paid up to 2007 | Debt<br>No<br>Pending |
| 31 | JOSEFINA          | 08001471Y01 | 1.0547  | Compañía Minera Argentum S.A.  | All paid up to 2007 | Debt<br>No<br>Pending |
| 32 | JOSEFINA          | 08002947Y01 | 3.4959  | Compañía Minera Argentum S.A.  | All paid up to 2007 | Debt<br>No<br>Pending |
| 33 | JUANA ROSA        | 08000864Y01 | 11.2687 | Compañía Minera Argentum S.A.  | All paid up to 2007 | Debt<br>No<br>Pending |
| 34 | JUANA ROSA - S.R. | 08021953X01 | 5.7415  | Compañía Minera Argentum S.A.  | All paid up to 2007 | Debt<br>No<br>Pending |
| 35 | JULIA             | 08001569Y01 | 2.3173  | Compañía Minera Argentum S.A.  | All paid up to 2007 | Debt<br>No<br>Pending |
| 36 | LA CAPITANA       | 08001268Y01 | 3.993   | Compañía Minera Argentum S.A.  |                     | Debt                  |
| 37 | LA CODICIADA      | 08000859Y01 | 8.4521  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt |
| 38 | LA REPUBLICA      | 08001629Y01 | 1.4636  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt |
| 39 | LA YAULINA        | 08000860Y01 | 3.1722  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt |
| 40 | LA YAULINA        | 08001041Y01 | 1.41    | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt |
| 41 | LAURA             | 08001139Y01 | 1.1067  | Compañía Minera Argentum S.A. (50%)  | All paid up to 2007 | No<br>Pending<br>Debt |
| 42 |                   |             |         | Minera Peru Copper<br>Syndicate S.A. (25%)<br>Maria Ella Fore Baca,<br>Yolanda Ignacia Espeanza<br>Gore Baca, Autberto Gore<br>Baca, and Jose<br>Teofilo Aranda Gore (25%) |                     |                       |
|    | LAURA             | 08001571Y01 | 0.9016  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt |
| 43 | LEALTAD           | 08001289Y01 | 1.996   | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt |
| 44 | LILA              | 08001683Y01 | 2.8923  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending         |
| 45 |                   |             |         |  |                     |                       |

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|    |                |             |        |  |                     |                               |
|----|----------------|-------------|--------|--|---------------------|-------------------------------|
| 46 | LLAPITA        | 08001503Y01 | 3.0584 | Compañía Minera Argentum S.A. (50%)<br><br>Minera Peru Copper Syndicate S.A. (25%)<br>Maria Ella Fore Baca, Yolanda Ignacia Espeanza Gore Baca, Autberto Gore Baca, and Jose Teofilo Aranda Gore (25%) | All paid up to 2007 | Debt<br>No<br>Pending<br>Debt |
| 47 | MANUELITA      | 08001109Y01 | 1.4084 | Compañía Minera Argentum S.A. (80%)<br><br>Centromin Peru S.A. (20%)   | All paid up to 2007 | No<br>Pending<br>Debt         |
| 48 | MARGARITA      | 08000862Y01 | 1.5089 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt         |
| 49 | MARIA CRISTINA | 08001210Y01 | 7.9845 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt         |
| 50 | MARIA LUISA    | 08001052Y01 | 1.3948 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No<br>Pending<br>Debt         |

-31-43-101(PanAm)

Morococha Mine

31

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| N. | Concession     | Code        | Hectares | Registered Holder             | Debts regarding validity fees | Penalties       |
|----|----------------|-------------|----------|-------------------------------|-------------------------------|-----------------|
| 51 | MARIA LUISA    | 08001348Y01 | 1.9961   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 52 | MARTHA S.R.    | 08021620X01 | 3.9927   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 53 | MERCEDES       | 08003195X01 | 0.0767   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 54 | MOROCOCHA 2    | 08004353Y01 | 378.0057 | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 55 | MOROCOCHA 3    | 08004354Y01 | 270.7826 | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 56 | MOROCOCHA 3-E  | 0804354NY01 | 163.3735 | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 57 | MUCHCAPATA 1   | 0804356AY01 | 1.9978   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 58 | MUCHCAPATA 6   | 0804355GY01 | 116.136  | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 59 | MUCHCAPATA 7   | 0804355HY01 | 18.2943  | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 60 | NEW YORK       | 08001993Y01 | 1.9961   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 61 | NUDO GORDIANO  | 08001782Y01 | 1.0166   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 62 | NUEVO TARTUFFO | 08001885Y01 | 2.2927   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 63 | OLGA MERCEDES  | 08012312X01 | 3.9931   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 64 | OSMIN          | 08001550X01 | 0.4719   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 65 | PACHI          | 08021621X01 | 8.9836   | Compañía Minera Argentum S.A. | All paid up to 2007           | No Pending Debt |
| 66 | PITINA         | 08020928X01 | 1.9999   |                               |                               |                 |

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|    |                   |             |        |   |                     |                 |
|----|-------------------|-------------|--------|---|---------------------|-----------------|
|    |                   |             |        | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 67 | PLINIO            | 08001552X01 | 0.4236 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 68 | RAUL              | 08001311Y01 | 2.8168 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 69 | REYNA             | 08001445X01 | 1.9962 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 70 | ROMA              | 08005923X01 | 1.9965 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 71 | ROSALVINA         | 08001477X01 | 3.992  | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 72 | RUPERTO           | 08001688Y01 | 2.0303 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 73 | SAN ENRIQUE S.R.  | 08021967X01 | 1.5562 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 74 | SAN ESTEBAN       | 08001113Y01 | 2.8176 | Compañía Minera Argentum S.A. (80%)   | All paid up to 2007 | No Pending Debt |
| 75 | SAN FRANCISCO     | 08001700Y01 | 1.9962 | Centromin Peru S.A. (20%)<br>Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 76 | SAN LUIS          | 08000819Y01 | 1.5848 | Compañía Minera Argentum S.A. (50%)   | All paid up to 2007 | No Pending Debt |
| 77 | SAN MIGUEL        | 08001623Y01 | 1.9962 | Minera Peru Copper Syndicate S.A. (25%)<br>Maria Ella Fore Baca, Yolanda Ignacia Espeanza<br>Gore Baca, Autberto Gore Baca, and Jose Teofilo Aranda Gore (25%)<br>Compañía Minera Argentum S.A. | All paid up to 2007 | No Pending Debt |
| 78 | SANTA CATALINA    | 08001092Y01 | 5.6344 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 79 | SANTA CATALINA 2A | 08001286Y01 | 3.9883 | Compañía Minera Argentum S.A.   | All paid up to 2007 | No Pending Debt |
| 80 |                   | 08000145X01 | 1.1523 |   |                     |                 |

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|    |                   |             |         |  |                     |                 |
|----|-------------------|-------------|---------|--|---------------------|-----------------|
|    | SANTA CATALINA 3A |             |         | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 81 | SANTA MARIA       | 08001114Y01 | 1.5845  | Compañía Minera Argentum S.A. (80%)                                  | All paid up to 2007 | No Pending Debt |
| 82 | SATURNO           | 08001541X01 | 2.9356  | Centromin Peru S.A. (20%)<br>Compañía Minera Argentum S.A. (50%)     | All paid up to 2007 | No Pending Debt |
| 83 | SCOTLAND          | 08002698Y01 | 2.5953  | Sociedad Minera Huillca (50%)<br>Compañía Minera Argentum S.A. (50%) | All paid up to 2007 | No Pending Debt |
| 84 | SEGURIDAD         | 08003148Y01 | 0.8658  | Centromin Peru S.A. (50%)<br>Compañía Minera Argentum S.A.           | All paid up to 2007 | No Pending Debt |
| 85 | TOLDO DOS         | 0804354BY01 | 8.0487  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 86 | TOLDO TRES        | 0804354CY01 | 0.0596  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 87 | TOLDO 4           | 0804355AY01 | 7.9089  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 88 | TOLDO 6           | 0804355CY01 | 13.837  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 89 | TOLDO 7           | 0804355DY01 | 1.1284  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 90 | TRIPLE ALIANZA    | 08001313Y01 | 2.8172  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 91 | TUYURAGUA         | 08003149Y01 | 1.3671  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 92 | UNION             | 08001559Y01 | 11.9785 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 93 | VENUS             | 08003468Y01 | 19.9641 | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 94 | VIEJA VERDE       | 08001810Y01 | 0.8445  | Compañía Minera Argentum S.A.  | All paid up to 2007 | No Pending Debt |
| 95 | WELEVICH          | 08001112Y01 | 1.4083  | Compañía Minera Argentum S.A. (80%)                                  | All paid up to 2007 | No Pending Debt |

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|     |                 |             |        |  |  |   |
|-----|-----------------|-------------|--------|--|--|---|
| 96  | YAGO            | 08001674X01 | 3.5116 | Centromin Peru S.A. (20%)<br>Compañía Minera Argentum<br>S.A.  | All paid up to<br>2007                             | No<br>Pending<br>Debt                                 |
| 97  | SAN NICOLAS     | 08001108Y01 | 1.4089 | Centromin Perú S.A.  | We have not<br>been<br>able to confirm             | We have<br>not been<br>able to<br>confirm<br>payment. |
| 98  | BEGONIA         | 08001344Y01 | 0.9754 | Alfredo Peri Pesquiera y<br>Romilda Peri Pesquiera<br>Peri Pesquiera<br>S.M.R.L. Begonia de Huancayo | payment.<br>We have not<br>been<br>able to confirm | We have<br>not been<br>able to<br>confirm<br>payment. |
| 99  | CORONA<br>VIEJA | 10283303    | 100    | Pending confirmation.  | payment.<br>All paid up to<br>2007                 | No<br>Pending<br>Debt                                 |
| 100 | PACHITEA        | 08001328Y01 | 2.0792 | Mr. Máximo Cisneros'<br>successors.  | All paid up to<br>2007                             | No<br>Pending<br>Debt                                 |
| 101 | PACHITEA<br>3RA | 08002347Y01 | 0.5474 | Mr. Máximo Cisneros'<br>successors.  | All paid up to<br>2007                             | No<br>Pending<br>Debt                                 |

-32-43-101(PanAm)

Morococha Mine

32

## **6.2 Permits and Agreements**

### **6.2.1 Agreements**

#### *6.2.1.1. General Mining Office*

All of the requirements of Articles 8 to 16 and 38 to 43 related to establishing and maintaining mining concessions in Peru of the Single Revised Text of the General Mining Law have been complied with, including the payment of duties and carrying out annual work commitments.

#### *6.2.1.2. Ministry of Labour-ESSALUD (National Health Service)*

All requirements established by the Ministry of Labour, regarding Risk Work Insurance and Social Security, among others, have been complied with by Morococho.

#### *6.2.1.3. Real Estate*

Except with respect to a formal agreement with Centromin pursuant to which Morococho has the right to use certain limited surface lands, Morococho does not own any surface lands in the area covered by its mining concessions. Although these surface rights belong to Centromin, the specific use by Morococho of these lands has been exercised for decades with Centromin's acknowledgement. Thus, no actions by Centromin to claim the use of these lands are anticipated.

#### *6.2.1.5. SUNAT (National Superintendence of Taxation Administration)*

All filings with respect to income and sales taxes have been made on time and as prescribed by law.

### **6.2.2 Permits and Licenses**

#### *6.2.2.1 UEA Anticona*

##### **Sacracanacha Plant Operation Authorization**

Directorial Resolution N° 209-2003-MEM-DGM/PDM issued on October 28, 2003, granting the operation of the Sacracanacha Plant to an extended capacity of 1,170 MT/d. This plant is not currently under operation. The temporary shut down has been communicated to the Directorate for Mining Promotion and Development of the Ministry of Energy and Mines by way of Resource N° 1479623 dated 15/07/2004 and which has been verified by an independent auditing firm SEGECO. The final closure of the plant has been proposed in the closure plans presented to the Ministry of Energy and Mines in 2006.

##### **Hydrocarbons-Registry as Fuel Direct Consumer**

Anticona does not have any fixed storage or handling facilities and thus no permits are required or in existence.



**Powder Magazine License**

The license has been granted by way of the Directive Resolution N° 01878-2006-IN-1703-2 on 05/07/2006. The license was granted in 2006 and is valid for 5 years. The license is granted to the Peruvian parent group, Compañía Minera Argentum.

**Controlled Chemical Substances**

PASP has been recognized as a Certified User by way of IQPF N° 20507845500-DICIQ. The period of validity is from 10/04/2007 to 0/04/2009. The licence is granted to the Peruvian parent group, Compañía Minera Argentum.

**Explosives**

Directorial Resolution N° 1857-2007-IN-1703-2 is valid until 31/12/2007 and is currently in the process of renewal. Renewals are required on a semi-annual basis.

**Sanitary Discharge Authorization**

Directorial Resolution N° 926-2003 issued on August 20, 2003 by the General Directorate for Environmental Health of the Ministry of Health. The renewal is under process

**Environmental Adjustment and Management Program (PAMA)**

This program has been completed, audited and all observations resolved. A final resolution granting official recognition of its acceptance is pending from the Ministry of Energy and Mines in coordination with the Supervising Organization for Investment in Energy and Mining of the Ministry of the Presidency.

**Quarterly Reports of Discharge and Emission Samples of Mining**

These reports are presented on a quarterly basis to the Ministry of Energy and Mines in accordance with the applicable regulations.

**Water Use License**

| <b>Water Fountain</b> | <b>Water Volume (l/s)</b> | <b>Use</b> | <b>License s Resolution</b>  | <b>Date of Issuance</b> |
|-----------------------|---------------------------|------------|------------------------------|-------------------------|
| Huascacocha Lake      | 50                        | Mining     | RA-250-2004-INRENA-IRH-ATDRM | 2004                    |

**6.2.2.2 UEA Manuelita**

**Hydrocarbons-Registry as Fuel Direct Consumer**

Registry N° 0003-CDFG-12-2003 for direct consumption with dedicated fixed installations of 18,000 gallon maximum capacity.

-34-43-101(PanAm)

Morococha Mine

34

**Powder Magazine License**

Licence granted by way of Directive Resolution N° 01878-2006-IN-1703-2 dated 05/07/2006 and valid for a period of 5 years.

**Controlled Chemical Substances**

Permit granted to Argentum as a Certified User by way of IGPF N° 20507845500-DICIQ, valid from 10/04/2007 until 10/04/2009

**Explosives**

Granted permit by way of Directive Resolution N° 1883-2007-IN-1703-2 which is valid until 31/12/2007 and currently in process of being renewed.

**Environmental Adjustment and Management Program (PAMA)**

This program has been completed, audited and all observations resolved. A final resolution granting official recognition of its acceptance is pending from the Ministry of Energy and Mines in coordination with the Supervising Organization for Investment in Energy and Mining of the Ministry of the Presidency

**Quarterly Reports of Discharge and Emission Samples of Mining**

These reports are presented on a quarterly basis to the Ministry of Energy and Mines in accordance with the applicable regulations.

**6.2.2.3. UEA Morococha**

**Powder Magazine License**

Permit granted to Argentum as a Certified User by way of IGPF N° 20507845500-DICIQ, valid from 10/04/2007 until 10/04/2009.

**Controlled Chemical Substances**

Permit granted with Certificate of User by way of IGPF N° 20507845500-DICIQ valid from 10/04/2007 to 10/04/2009

**Hydrocarbons- Registry as Fuel Direct Consumer**

Permit is granted by way of Registry N° 0001-CDFG-12-2003 as a Direct Consumer with fixed installations of 96,762 gallons

**Explosives**

Permit granted by way of Directive Resolution N° 1900-2007-IN-1703-2 valid until 31/12/2007 and currently under renewal.

-35-43-101(PanAm)

Morococha Mine

35

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**Environmental Adjustment and Management Program (PAMA)**

All PAMA related liabilities are, under the terms of the purchase contract, attributable to the state organization Activos Mineros, formerly CENTROMIN.

**6.2.2.3.6. Sanitary Discharge Authorization**

Permit granted by way of Directive Resolution RD-O26-2007-DIGESA-SA, valid until 2009.

**Water Use License**

| <b>Water Fountain</b> | <b>Water Volume (l/s)</b> | <b>Use</b> | <b>License s Resolution</b>      | <b>Date of Issuance</b> |
|-----------------------|---------------------------|------------|----------------------------------|-------------------------|
| Buenaventura          | 10                        | Mining     | RA-255-2006-INRENA-I<br>RH-ATDRM | 2006                    |
| Lagoon                |                           |            |                                  |                         |
| Huacracocha           | 110                       | Industrial | RA-041-2007-GRJ-DRAJ<br>-        | 2007                    |
| Lagoon                |                           |            | ATDRM                            |                         |
| Socavón Cobriza       | 40                        | Mining     | RA-256-2006-INRENA-I<br>RH-ATDRM | 2006                    |
| Vulcano               |                           |            |                                  |                         |

**Quarterly Reports of Discharge and Emission Samples of Mining Activities**

The Morococha operation has fulfilled this legal requirement.

**6.3 Environmental Issues**

Environmental issues are discussed in section 19.5.

**7.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

The Morococha operations are accessible via the paved Carretera Central (Central Highway), approximately 137km east of the capital city of Lima, then 1.7 km south 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.

The topography of the mine operating area is characterized by steep, rugged ridges and peaks ranging in elevation from 4,400m to over 5,100m above sea level. Vegetation is sparse, and wildlife is limited to mostly birds and small mammals, amphibians, and reptiles.

The climate of the operations area is typical of the Andean Cordillera in Peru, with two distinct seasons. The average annual precipitation is estimated to be around 800 mm, with most occurring as rain in the wetter summer months (November through March). Rainfall ranges from gentle drizzle to torrential downpours, with occasional snow. The winter months (April through October) are dry and colder, and seasonal transitions are typically abrupt. Winter nighttime temperatures often dip below 0°C, but rarely low enough to affect surface operations (milling, ore and concentrate hauling). Average annual temperatures are around 7°C. Because all mining currently takes place underground, climate has minimal effect on ore production.

Mining has taken place at Morococha and nearby areas (Casapalca, Cerro de Pasco) for more than 100 years, resulting in a well developed regional transportation and power infrastructure and a large local labor pool. Water for processing is plentiful, and tailings disposal areas are adequate. Several mine development waste disposal sites exist on the property and these are sufficient to meet the needs of the mining operation. The existing processing plant sites are sufficient for all proposed operations.

## **8.0 HISTORY**

Mining began in the region around the Morococha property before the 1500 s, and production has been continuous in the district since the late 1800s.

By the early 1900 s, two mining companies (Backus and Johnston del Perú and Morococha Mining Company) had been established. In 1911, the Morococha Mining Company retained Harold Kingsmill to oversee the development of the Carlos Reynaldo adit and tunnel to connect the 400 level of the mine with the San Francisco shaft. This tunnel is still in use.

Between 1915 and 1918, much of the district was reorganized and incorporated into the Cerro de Pasco Mining Company ( 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 Kingsmill Tunnel, 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 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 SMC. Cerro de Pasco continued to operate in 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, PAS entered into an agreement with 14 arm s-length individuals, estates and companies, all of whom 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, PAS 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, PASP is currently making a bid to acquire the labour shares in Argentum, and as at November 30, 2007 the company holds 68.72% of such labour shares. The labour shares were created as a means through which workers would be able to take part in the company's success (but do not afford the holders of such shares influence over the decision-making of the company, 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. In April 2005, Argentum amalgamated with Natividad, a company in which Pan American previously held a 100% interest. The PAS is the indirect owner of 92.01% of the voting shares of Argentum and 68.72% of the non-voting investment shares for a total ownership interest of 89.35%.

## **9.0 GEOLOGIC SETTING**

A 2,000 metre thick Paleozoic-Mesozoic sequence of schists, volcanic rocks and predominantly carbonate sediments cut by a series of Upper Tertiary intrusions provide the host rocks for the mineralization in the Morococha district. The structures that account for the majority of the vein mineralization in the Morococha district trend predominantly northeast to east-northeast. Mineralization includes epi-mesothermal silver-lead-copper-zinc veins and stratiform silver-base metal replacements or mantos (which together account for the majority of the past and present economic mineralization at the Morococha property), intrusive-sediment contact (skarns), and the quartz porphyry-hosted Toromocho disseminated copper system. The size and geometry of individual ore shoots in the veins can range up to 400 metres in length and more than 800 metres down plunge. Undiluted district vein width averages are on the order of 1.2 metres. Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favorable lithologies are intersected by mineralized veins or are proximal to pre-mineral intrusives. Mantos can have a significant strike extent where the veins are closely spaced, and can range from less than one metre in width up to 20 metres. Intrusive contact related skarn bodies, while common locally, are generally small and irregular, with disseminated rather than massive sulfide mineralization.

The structural setting of the Morococha area is dominated by shallowly NW-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. Limb dips range from 20-30° on the east to 30-40° on the west. The Mitu volcanics outcrop in the core of the dome, with Pucará limestones on the east and the full sequence of Jurassic-Cretaceous sediments exposed on the west limb. Continued compression apparently gave rise to early NW trending shears, and the uplifting effect of the intrusion of the quartz monzonite stocks produced an arching of the Yauli Dome and an associated phase of tensional faulting more or less perpendicular to the anticlinal axis (NE-SW). This latter set is the most heavily mineralized set of fractures and accounts for the majority of fault-vein mineralization in the Morococha District.

Ore and gangue mineralogy is similar in veins and mantos but it varies considerably across the property. Sphalerite, galena, and chalcopryrite are the most important primary minerals for zinc, lead and copper and silver is generally present as freibergite (Ag-tetrahedrite) or argentiferous galena. Gangue generally consists of quartz, calcite, barite and rhodochrosite, the latter having a strong correlation with higher silver grades.

As with most of the large Peruvian polymetallic deposits, Morococha exhibits a distinct lateral and vertical metal zonation. A central copper zone centered on the Toromocho copper deposit grades outward through a lead-zinc-minor silver zone and then into an outermost zone that is richer in silver but still containing significant lead-zinc contents. There is also a distinct trend for higher silver grades at higher elevations on the west side of the Morococha property. Individual silver assays of greater than 2,200 grams per tonne ( g/mt ) are not uncommon above 4,800 metres in certain areas, and greater than 300 g/mt silver ore grades also are common in the outer silver-lead-zinc zone above the 4,400 metre elevation in certain areas. In veins that have been mined over significant vertical extents (such as those in Manuelita), silver grades tend to decrease as zinc grades increase with depth. However, several of the major veins currently being mined on the 4,020 metre Kingsmill Tunnel level still contain silver grades in the 200 g/mt to 250 g/mt range. The hydrothermal alteration present at Morococha is typical for central Peruvian zoned polymetallic deposits.

#### **10.0 DEPOSIT TYPES**

The geologic setting of the Morococha District provides for a wide range of documented deposit types. There are four principal types of economic mineralization in the Morococha district: epi-mesothermal silver-lead-copper-zinc veins, bedded silver-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 economic mineralization on the Argentum properties and are the primary types that have been and will be mined under the current operating plan.

#### **11.0 MINERALIZATION**

Vein mineralization formed along the dominant system of NE-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. The size and geometry of individual ore shoots in the veins are lithology and structure dependent. For example, the plunge of ore shoots in the Buenaventura vein plunge parallel to the dip of the Cretaceous limestone hosts, but shoots in the Mitu volcanics are steeper and may be more dependent on structural controls. Shoots range up to 400 metres in length with some traced up to 800 metres down plunge. Economic widths in the veins range from 0.5 metres to more than six metres, as demonstrated in a cymoid loop in the Cuña vein. Undiluted district vein width averages are on the order of 1.2 metres.

Replacement manto mineralization is generally restricted to receptive stratigraphic horizons where favorable lithologies are intersected by mineralized veins or are proximal to pre-mineral intrusives. Five favorable stratigraphic horizons are known in the Pucará section and at least two more in the Jumasha Formation, below the Anticona diorite contact. Some of the mantos are less stratabound in character, occurring as structurally controlled irregular chimneys within generally favorable stratigraphic horizons. Mantos can have a significant strike extent in areas such as Codiciada, where the veins are closely spaced. Mineable mantos range from less than one metre in width to the largest, Manto Italia, which averages seven metres wide.

Intrusive contact related skarn bodies are common in the favorable portions of the Pucará, generally in areas of pre-mineral, contact-related silicification and/or calc-silicate alteration. For the most part, these skarns are generally small and irregular, with disseminated rather than massive sulfide mineralization. A notable exception is one large occurrence in the northeast portion of the main Toromocho block, where a body of massive pyrite-chalcopyrite skarn that measures 70m by 400m is developed in limestones adjacent to a quartz monzonite stock.

Disseminated copper mineralization is present in the central part of the district in the Toromocho deposit. This porphyry/breccia pipe deposit is hosted by quartz monzonite and Pucará limestones. The upper levels of the deposit contain enargite-chalcocite that transitions into a mid-level zone dominated by sulfides and a second, deeper zone of chalcocite. Its ultimate size is unknown.

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. Silver is generally present as freibergite (Ag-tetrahedrite) or argentiferous galena. Gangue generally consists of quartz, calcite, barite and rhodochrosite, the latter having a strong correlation with higher silver grades.

As with most of the large Peruvian polymetallic deposits, Morococha exhibits a distinct lateral and vertical metal zonation. A central copper zone centered on the Toromocho deposit grades outward through a lead-zinc-minor silver zone and then into an outermost zone that is richer in silver but still retaining significant lead-zinc contents. There is also a distinct trend for higher silver grades at higher elevations on the west side of the Corona properties. Individual silver assays of +2,200 g/mt are not uncommon above 4800 metres in the San Florencio and Huacracocha areas, and +300 g/mt silver ore grades also are common in the outer silver-lead-zinc zone above the 4400 metre elevation in the Buenaventura vein at Yacumina and to the east in Alpamina. In veins that have been mined over significant vertical extents (such as those in Manuelita), silver grades tend to decrease as lead-zinc grades increase with depth. However, several of the major veins currently being mined on the 4,020m Kingsmill Tunnel level still contain silver grades in the 200 g/mt to 250 g/mt range. Although historically very few samples have been analyzed for gold, there appears to be a significant increase in gold content to the east in the Alpamina area.

The hydrothermal alteration present at Morococha is typical for central Peruvian zoned polymetallic deposits. Where veins are hosted by intrusive rocks, wallrock alteration consists of moderate silicification and sericite-kaolinite alteration for up to several metres outward from the vein. Carbonate sediments show a pre-mineral silicification and/or weak calc-silicate alteration near intrusive bodies and veins are generally better developed in these areas. Where veins cut unaltered carbonates, the wall rocks generally have a bleached appearance and weak to moderate silicification. Toromocho exhibits normal porphyry copper zonation, with an inner zone of potassic alteration grading outward through phyllic and propylitic assemblages. Figures 5 and 6 show the regional and district geology respectively, within the Morococha Mine area.

The depth of oxidation in and adjacent to the veins and mantos is variable, but it tends to extend deeper where veins are hosted by carbonates. At Codiciada-San Antonio-Alapampa, veins are generally at least partially oxidized down to 100m below surface, and one manto (Ombla) had partial oxidation to a depth of 300m. Ore mined from these areas has historically experienced poorer metallurgical recoveries due to the increased amount of oxidized material.

## **12.0 EXPLORATION**

### **12.1 Exploration Prior to PAS Acquisition of Morococha**

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. Drilling typically was not part of the exploration effort. Prior to PAS's acquisition of Morococha, only proven and probable mineral reserves were estimated on an annual basis there were no estimates of measured, indicated, or inferred mineral resources, and little effort was given to exploration/evaluation of areas that were not immediately adjacent to existing mine workings.

### **12.2 PAS Exploration (2004-2005)**

PAS employs its own exploration drilling crews that operate two larger diamond drill rigs for exploration drilling and two small rigs for mineral resource/mineral reserve definition drilling. In addition, PAS currently retains two Peruvian drill contractors, Redrilsa S.A and Rock Drill S.A. which operate from 7 to 9 rigs for underground and surface drilling. All PAS exploration drilling was (and continues to be) directed and supervised by the Morococha operations Geology department, with all work periodically reviewed by Dr. Michael Steinmann, P. Geo. Senior Vice President of Exploration and Geology for PAS, a Qualified Person as the term is defined by NI 43-101.

The PAS exploration program began in 2004, immediately after the closing of the acquisitions of Argentum and Navtividad (see Section 8.0 History). Exploration work started with underground mapping and sampling and the compilation of all historical information from more than 4,000 hand drawn maps that included sampling results summarized in hand-drafted tables. Significant efforts (which continued through 2005) were made to digitize and partially re-survey this information in order to include it in the PAS electronic database. PAS has standardized sampling procedures throughout the Morococha operations and ensures through its internal and independent QPs that these practices meet or exceed industry standards. All sampling (channel sampling and drill core sampling) is done by PAS personnel under the direct supervision of the Morococha operations Geology department. These procedures and results were reviewed and approved by the authors of this Technical Report.

Underground and surface diamond drilling commenced in late 2004. Altogether, 11 underground and 24 surface diamond drill holes were completed for a total of 6,776 metres. This drilling focused mainly on the Manuelita and the Codiciada zones (including Manto Italia). Due to positive results in 2004, the exploration efforts increased in 2005 with the drilling of 184 underground and 42 surface holes for a total of 38,258 metres. As in 2004, the main targets were the Manuelita, Sulfurosa and Codiciada areas. Drilling of the Manuelita and Sulfurosa targets successfully extended the strike length of several veins and increased the mineral resources in this area. The most important results were obtained in the Codiciada area from the drilling of the Manto Italia (see results in Table 13-2, Section 13.0 Drilling) on a 50m by 50m pattern, which increased the proven and probable mineral reserves in this manto deposit to 1,562,281 tonnes. Additional exploration could extend these mineral reserves to the north.



**12.3 PAS Exploration (2006-September 2007)**

Positive 2005 drilling results in the Yacumina, Codiciada and Sierra Nevada areas were followed by intensive exploration programs in 2006 and 2007 (through September) designed to increase mineral reserves and mineral resources. This effort resulted in the completion of 548 underground and 44 surface diamond drill holes (totaling 101,368 metres). As of the date of this Technical Report, drilling continues in these areas.

PAS began an aggressive surface exploration program in 2006 that included two surface mapping programs. The first was a detailed local geological mapping (1:2000 scale) and surface sampling effort that was designed to target mineral resources in areas neighboring or adjacent to the areas of underground production. This work included the surface mapping of 480 hectares to the northeast and southeast of the Manuelita mine in the Muchcapata area, which helped to identify the major Eneida, Muchcapata and No.11 veins, several minor veins (Flor, Rosa and No.3 veins), and to confirm the continuation of these veins from the Mitu Formation into the Pucara limestones. Work also focused on the Tashiman-Codiciada-San Antonio sector, located north of the Morococha mine in the vicinity of the Codiciada and Alapampa areas, which together contain nearly 60% of the current proven and probable mineral reserves at Morococha. The geology of this sector consists of Pucaca limestones that host veins, mantos and replacement mineralization. In total, 390 hectares were geologically mapped, and this work identified several unexplored veins, of which the most important are the San Antonio, Union, San Martin, Teresa, San Carlos, Morro del Solar, T-2 and T-3 veins.

In the Toldo Jirca area, surface trenching in 2006 confirmed the presence of a gold anomaly covering over 4,300m<sup>2</sup> and containing average grades of 2.6 g/t Au and 29 g/t Ag. Subsequently, six short diamond core holes totaling 711 m were drilled into this target, two of which intersected a near-surface, horizontal mineralized zone with intercepts of 8.4 m @ 2.6 g/t Au and 8.8 m @ 3.1 g/t Au. Although these holes confirmed the existence of a small zone of gold enrichment in oxides close to the surface, because preliminary estimates based on this initial drilling and trenching suggested a potential of less than 10,000 oz of contained gold, no further drilling or other exploration work is planned for this target.

In January 2007, a diamond drilling program commenced in the Toldo-Muchcapata and the Tashiman-Alapampa sectors. As of September 30, 2007, a total of 2964.10 metres were drilled in 15 holes, comprised of 10 holes totaling 1,751.95 m in the Toldo area and five totaling 1,212.15 m in the Tashiman-Alapampa area. Representative results (mineralized intercepts, true widths of the intercepts, and average grades), are shown in Table 13-3 in the following Section 13 (Drilling).

The second surface exploration program that commenced in 2006 was a district-wide effort with the goal to assess peripheral or remote areas on the mining concessions by surface geological mapping and sampling. Several of these areas did not have any former exploration information or data. These areas include the Ticlio sector, the Sacracancha sector, and the El Porvenir sector. Descriptions of these sectors and brief summaries of the exploration work completed as of the date of this Technical Report are as follows:

*Ticlio Sector* Ticlio is a very prospective area to the northwest of the Morococha mine. The sector displays three stages of intrusive activity, the oldest (and largest) of which is the Anticona diorite. This body was later intruded by a quartz monzonite stock, and both bodies were subsequently cut by dacitic dikes. Veins containing polymetallic mineralization crosscut the entire sector, and the most important of these is the Santa Catalina vein, which is currently exploited by Compania Minera Volcan S.A. in its Ticlio Mine. This major vein extends onto PAS-controlled mining concessions, where detailed mapping of over 600 hectares identified the Lolita vein (a structure with a known strike length of over 800 metres), as well as the Perusa, Borrachitos and Mariela veins. All of these veins are the focus of a current sampling program.

*Sacracancha Sector* Located south of Alpamina on the 37 mining concessions leased from Corporacion Minera Sacracancha S.A., this sector contains several prospective veins and mantos. In total, 210 hectares were geologically mapped, followed by surface and underground sampling of old adits in the sector. Significant results of this work include the discovery of the San Miguel vein (with a strike extension of over 1,000 metres, an average true width of 0.88m, and average grades of 3.06 g/t Au, 191 g/t Ag, 1.34% Pb and 0.45% Zn) and outcrops of the Girondina manto, which extends over 1.2 km along strike with an average true thickness of 1.04 m and average grades of 3.96 g/t Au, 345 g/t Ag, 1.84% Pb and 0.27% Zn.

*El Porvenir Sector* The El Porvenir sector is located to the south of the Toromocho porphyry copper project owned by Peru Copper Inc. This relatively small area of about 40 hectares contains Pucara limestones that have been intruded by a quartz monzonite stock. The associated skarn mineralization found in this area contains substantial occurrences of sulphides (silver-rich galena and sphalerite), but additional exploration work is required.

#### **12.4 Exploration Summary (2004-September 2007)**

The overall exploration efforts by PAS since its acquisition of Morococha in 2004 has resulted in a substantial increase in proven and probable mineral reserves from 1,526,596 tonnes (as of December 31, 2003) to 6,377,564 tonnes (as of December 31, 2006) and measured and indicated mineral resources from 826,000 tonnes (as of December 31, 2003) to 2,863,136 Tonnes (as of December 31, 2006 see Section 19 Mineral Resource and Mineral Reserve Estimates). The major areas of mineral reserve and mineral resource expansions from exploration drilling completed to date include the Manuelita, Codiciada, and Sulfurosa sectors, particularly the Manto Italia deposit. Promising district-wide targets for continuing work include the Toldo-Muchcapata, Tashiman-Codiciada-San Antonio, Ticlio, Sacracancha, and El Porvenir sectors. Over 30,000m of diamond drilling in district-wide targets is planned for 2008.

**13.0 DRILLING**

Prior to PAS acquisition of Morococha, SMC utilized surface and underground diamond drilling only to test for potential ore-grade mineralization in the various veins, replacement mantos, and skarn bodies. Once the results of drilling determined the presence of ore grade mineralization, the vein or manto was accessed by underground crosscutting and drifting for further exploration and delineation of ore reserves. Thus, assay data generated by SMC's drilling was seldom used in block grade estimations for mineral reserves. Since September 2004, exploration at the Morococha property has been conducted using a combination of diamond drilling and underground drifting. Currently, eight to eleven diamond drills are in continuous operation at the property, drilling AQ, BQ, NQ and HQ sized holes ranging from 50 and 350 metres in length. This is generally followed by underground development. During 2006, 59,290 metres of drilling were completed (4,533 metres from surface and 54,757 metres from underground) As of September 30, 2007, 38,972 metres of underground drilling were completed.

Details on the amount of surface and underground drilling from 2004 to 2007 are shown in Table 13-1. Since Pan American Silver Corp. purchased the Morococha mine in 2004 a total of 853 diamond drill holes (surface and underground) for a combined length of 146,402 metres have been drilled. Drill core recoveries were generally high, averaging 85% for both the surface and for the underground drilling.

**Table 13-1: Summary of PAS Diamond Drilling**

| Year         | Underground Drilling |                | Surface Drilling |                |
|--------------|----------------------|----------------|------------------|----------------|
|              | # of holes           | metres drilled | # of holes       | metres drilled |
| 2004         | 11                   | 3,282          | 24               | 3,494          |
| 2005         | 184                  | 29,043         | 42               | 9,215          |
| 2006         | 321                  | 54,757         | 27               | 4,533          |
| 2007         | 227                  | 38,972         | 17               | 3,106          |
| <b>TOTAL</b> | <b>743</b>           | <b>126,055</b> | <b>110</b>       | <b>20,347</b>  |

Surveys of the drill-hole collars were completed and verified by the Engineering department using total station survey instruments. The inclinations of the holes were determined by the geologist in the field using a compass to verify the angle of the drill rods as drilling took place. The holes were not surveyed down-hole, as the holes were generally short, and considering the good rock mass quality (with RQD >70), it is assumed that any deviations are very minor.

Drill hole orientations were planned in order to intersect the targeted vein at an angle as close to 90° as possible. The strike and dip angles of most target veins are known and the true width of a drill intersect can be easily calculated for day to day reporting purposes using trigonometric functions. Hole collar information as well as hole lengths, rock types, sampling results and RQD information were entered into the PAS digital electronic database using DHLlogger®, a commercial software package.

Cores from the holes completed to date were placed in wooden core boxes and transported to the core logging facility on site. The boxes were properly marked and numbered by the drill crews and tags were inserted to indicate the drill depths. After receiving the core, logging was

initiated by the Geology department. In the first step, the responsible geologist measured the recovered core length between two tags and calculated the core recovery by dividing the recovered core length by the length of the drilled interval determined from the hole depths noted on the tags. After determining core recoveries, fracture density was recorded in order to determine the rock quality ( RQD ). In the third step, lithologies, structures and alterations were logged, followed by determination and flagging by the geologist of sample intervals on the core.

Cores were split in half using a diamond saw. One half of the core was sent for analysis to the on site laboratory and the other half was returned to the same wooden core boxes for storage in a safe, on-site location.

Logged information was entered into the PAS electronic database via DHLogger® software where it was then automatically combined using the Fusion® software with the sampling results from the lab. Log sheets were printed out for each hole and stored on-site. The electronic database with all the logging information is periodically backed up by the Morococha IT department.

As of September 30, 2007, the electronic database contained 853 recorded drill holes for a total drilled length of 146,402 metres. Due to this large amount of drill holes, it is not practical to show the entire database as a table in this Technical Report. However, since Codiciada is the most important area for current production (containing approximately 60% of the current proven and probable mineral reserves), and specifically the Manto Italia (current proven and probable mineral reserves of 1,562,281 tonnes within an area of about 170,000 m<sup>2</sup>) Table 13-2 summarizes all drill holes completed to date in Manto Italia.

-45-43-101(PanAm)

Morococha Mine

45

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**Table 13-2: Summary of Manto Italia Diamon Drill Holes**

| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-003-U-07   | 60           | 0.00                | 1.65              | 1.43                          | 72.22       | 0.10        | 0.76        | 3.48        |
| DDH-003-U-07   | 60           | 5.60                | 8.00              | 2.08                          | 58.75       | 0.12        | 0.44        | 6.05        |
| DDH-003-U-07   | 60           | 22.90               | 25.00             | 1.82                          | 128.50      | 0.42        | 4.37        | 5.33        |
| DDH-003-U-07   | 52           | 63.90               | 70.00             | 4.81                          | 66.14       | 0.11        | 7.08        | 6.68        |
| DDH-003-U-07   | 52           | 71.10               | 72.35             | 0.99                          | 146.16      | 0.15        | 8.49        | 4.70        |
| DDH-003-U-07   | 52           | 79.30               | 80.70             | 1.10                          | 111.78      | 0.06        | 14.77       | 3.65        |
| DDH-003-U-07   | 52           | 90.00               | 91.00             | 0.79                          | 37.48       | 0.18        | 0.26        | 8.56        |
| DDH-005-U-07   | 25           | 47.10               | 53.20             | 2.58                          | 29.89       | 0.01        | 0.03        | 0.04        |
| DDH-005-U-07   | 25           | 66.90               | 68.55             | 0.70                          | 16.71       | 0.01        | 0.00        | 0.01        |
| DDH-006-S-05   | 85           | 160.70              | 161.80            | 1.10                          | 36.00       | 0.02        | 1.37        | 1.91        |
| DDH-006-S-05   | 85           | 183.20              | 184.95            | 1.74                          | 65.46       | 0.06        | 1.52        | 4.49        |
| DDH-006-S-05   | 85           | 338.50              | 340.35            | 1.84                          | 6.00        | 0.11        | 0.04        | 5.89        |
| DDH-006-S-05   | 85           | 344.65              | 346.25            | 1.59                          | 22.00       | 0.13        | 0.14        | 8.81        |
| DDH-006-S-05   | 85           | 355.70              | 366.00            | 10.26                         | 5.31        | 0.12        | 0.01        | 3.39        |
| DDH-006-S-05   | 85           | 399.50              | 419.40            | 3.89                          | 236.42      | 0.48        | 1.00        | 0.98        |
| DDH-006-S-05   | 85           | 436.50              | 437.60            | 1.79                          | 177.45      | 0.20        | 3.96        | 6.35        |
| DDH-006-S-05   | 85           | 464.30              | 464.50            | 0.20                          | 1305.00     | 0.35        | 2.92        | 3.50        |
| DDH-009-U-06   | 85           | 8.80                | 11.50             | 2.69                          | 200.59      | 0.60        | 0.67        | 1.14        |
| DDH-009-U-06   | 85           | 51.00               | 52.30             | 1.30                          | 29.51       | 1.59        | 0.03        | 4.06        |
| DDH-009-U-06   | 85           | 78.60               | 81.80             | 3.19                          | 20.05       | 1.54        | 0.02        | 3.34        |
| DDH-009-U-06   | 85           | 84.50               | 87.20             | 2.69                          | 30.74       | 1.19        | 0.03        | 4.32        |
| DDH-009-U-07   | 84           | 0.00                | 5.80              | 5.77                          | 62.81       | 0.14        | 0.16        | 7.99        |
| DDH-014-U-07   | 81           | 0.00                | 6.22              | 6.14                          | 24.65       | 0.12        | 0.06        | 5.87        |
| DDH-014-U-07   | 81           | 19.80               | 24.09             | 4.24                          | 69.88       | 0.08        | 2.74        | 2.91        |
| DDH-014-U-07   | 81           | 34.00               | 35.90             | 1.88                          | 53.52       | 0.04        | 1.12        | 3.34        |
| DDH-014-U-07   | 81           | 37.66               | 38.40             | 0.73                          | 1560.64     | 0.84        | 1.59        | 7.21        |
| DDH-014-U-07   | 81           | 51.15               | 53.25             | 2.07                          | 114.68      | 0.05        | 1.19        | 6.47        |
| DDH-015-U-07   | 25           | 118.80              | 121.20            | 1.01                          | 122.89      | 0.22        | 0.50        | 9.20        |
| DDH-017-U-05   | 82           | 16.90               | 17.70             | 0.79                          | 49.76       | 0.07        | 1.00        | 1.16        |
| DDH-017-U-05   | 82           | 19.50               | 27.00             | 7.43                          | 116.71      | 0.13        | 5.29        | 6.96        |
| DDH-017-U-05   | 82           | 29.35               | 33.50             | 4.11                          | 140.00      | 0.12        | 5.19        | 7.83        |
| DDH-017-U-05   | 82           | 42.55               | 45.55             | 2.97                          | 88.68       | 0.07        | 1.78        | 10.06       |
| DDH-017-U-05   | 82           | 48.15               | 58.35             | 10.10                         | 65.44       | 0.05        | 2.16        | 4.85        |
| DDH-017-U-05   | 82           | 65.65               | 66.30             | 0.64                          | 59.06       | 0.07        | 2.89        | 6.30        |
| DDH-017-U-07   | 50           | 0.00                | 2.30              | 1.76                          | 38.92       | 0.50        | 0.15        | 7.99        |
| DDH-017-U-07   | 50           | 3.30                | 10.00             | 5.13                          | 93.27       | 0.26        | 1.20        | 8.44        |
| DDH-017-U-07   | 50           | 18.80               | 22.30             | 2.68                          | 138.02      | 0.54        | 0.52        | 4.72        |
| DDH-017-U-07   | 50           | 73.60               | 77.00             | 2.60                          | 117.28      | 0.15        | 8.02        | 24.57       |
| DDH-022-U-05   | 85           | 17.60               | 18.50             | 0.90                          | 64.08       | 0.11        | 0.96        | 5.13        |
| DDH-022-U-05   | 85           | 21.90               | 55.65             | 33.62                         | 107.56      | 0.15        | 3.62        | 7.17        |
| DDH-026-U-07   | 84           | 0.00                | 3.45              | 3.43                          | 29.04       | 0.19        | 0.16        | 0.25        |
| DDH-026-U-07   | 84           | 4.60                | 6.50              | 1.89                          | 54.19       | 0.14        | 0.14        | 3.89        |
| DDH-026-U-07   | 84           | 22.90               | 23.55             | 0.65                          | 162.56      | 0.03        | 3.34        | 4.80        |
| DDH-026-U-07   | 84           | 27.00               | 28.10             | 1.09                          | 113.67      | 0.16        | 1.45        | 4.88        |

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|              |    |        |        |      |        |      |      |      |
|--------------|----|--------|--------|------|--------|------|------|------|
| DDH-026-U-07 | 84 | 33.60  | 34.30  | 0.70 | 165.12 | 0.03 | 2.91 | 4.01 |
| DDH-026-U-07 | 84 | 43.15  | 43.85  | 0.70 | 72.59  | 0.44 | 0.85 | 4.60 |
| DDH-026-U-07 | 84 | 57.40  | 60.70  | 3.28 | 109.07 | 0.04 | 3.10 | 3.04 |
| DDH-027-U-05 | 75 | 18.45  | 19.30  | 0.82 | 51.47  | 0.06 | 2.07 | 4.78 |
| DDH-027-U-05 | 75 | 23.80  | 28.00  | 4.06 | 33.77  | 0.04 | 1.31 | 2.36 |
| DDH-027-U-06 | 70 | 103.50 | 104.10 | 0.56 | 29.07  | 0.25 | 0.01 | 4.39 |
| DDH-027-U-06 | 70 | 106.05 | 111.60 | 5.22 | 25.41  | 0.52 | 0.04 | 6.99 |
| DDH-029-U-05 | 81 | 0.00   | 3.90   | 3.85 | 48.14  | 0.07 | 0.88 | 3.45 |
| DDH-029-U-05 | 81 | 26.60  | 28.90  | 2.27 | 10.85  | 0.04 | 0.21 | 0.61 |
| DDH-031-U-05 | 82 | 11.20  | 12.00  | 0.79 | 68.74  | 9.00 | 1.21 | 2.09 |
| DDH-031-U-05 | 82 | 17.35  | 18.45  | 1.09 | 45.93  | 0.17 | 0.41 | 4.16 |
| DDH-031-U-05 | 82 | 22.30  | 28.50  | 6.14 | 51.19  | 0.09 | 1.82 | 8.54 |
| DDH-031-U-05 | 82 | 31.40  | 32.60  | 1.19 | 64.59  | 0.06 | 2.57 | 6.15 |
| DDH-031-U-05 | 82 | 40.10  | 47.20  | 7.03 | 153.36 | 0.14 | 6.16 | 8.54 |

-46-43-101 (PanAm)

Morococha Mine

46

| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-031-U-05   | 82           | 51.00               | 54.05             | 3.02                          | 101.38      | 0.12        | 3.49        | 6.43        |
| DDH-031-U-07   | 55           | 6.60                | 9.80              | 2.62                          | 41.10       | 0.06        | 0.33        | 3.40        |
| DDH-031-U-07   | 55           | 18.58               | 24.95             | 5.22                          | 84.94       | 0.35        | 1.37        | 5.31        |
| DDH-031-U-07   | 55           | 38.40               | 41.90             | 2.87                          | 80.47       | 0.14        | 12.21       | 13.05       |
| DDH-031-U-07   | 55           | 65.25               | 71.35             | 5.00                          | 68.71       | 0.04        | 4.19        | 3.85        |
| DDH-031-U-07   | 55           | 92.30               | 94.20             | 1.56                          | 77.71       | 0.10        | 1.49        | 3.53        |
| DDH-034-U-05   | 74           | 19.30               | 21.60             | 2.21                          | 81.48       | 0.08        | 0.90        | 2.11        |
| DDH-034-U-05   | 74           | 31.55               | 34.25             | 2.60                          | 69.64       | 0.08        | 3.08        | 10.38       |
| DDH-034-U-05   | 74           | 45.40               | 46.95             | 1.49                          | 49.75       | 0.08        | 1.11        | 6.81        |
| DDH-034-U-05   | 74           | 58.55               | 60.65             | 2.02                          | 241.96      | 0.15        | 6.66        | 8.78        |
| DDH-038-U-05   | 75           | 11.20               | 18.00             | 6.57                          | 113.89      | 0.22        | 2.52        | 3.77        |
| DDH-038-U-05   | 75           | 38.40               | 40.60             | 2.13                          | 95.40       | 0.14        | 1.79        | 4.05        |
| DDH-038-U-05   | 75           | 43.70               | 49.50             | 5.60                          | 83.98       | 0.15        | 3.26        | 2.95        |
| DDH-038-U-05   | 75           | 52.35               | 53.60             | 1.21                          | 98.32       | 0.11        | 3.72        | 5.83        |
| DDH-038-U-05   | 75           | 58.10               | 59.40             | 1.26                          | 120.47      | 0.21        | 1.38        | 3.44        |
| DDH-038-U-05   | 75           | 61.70               | 63.45             | 1.69                          | 113.66      | 0.11        | 1.87        | 5.53        |
| DDH-038-U-05   | 75           | 65.30               | 75.50             | 9.85                          | 119.69      | 0.19        | 2.39        | 6.49        |
| DDH-039-U-05   | 40           | 18.15               | 21.80             | 2.35                          | 71.23       | 0.17        | 1.07        | 2.14        |
| DDH-039-U-05   | 40           | 63.15               | 65.30             | 1.38                          | 187.83      | 0.31        | 4.65        | 5.19        |
| DDH-039-U-05   | 40           | 70.60               | 72.95             | 1.51                          | 118.16      | 0.06        | 4.04        | 7.39        |
| DDH-040-U-06   | 42           | 60.60               | 64.80             | 2.81                          | 42.18       | 0.38        | 4.66        | 4.79        |
| DDH-042-U-05   | 18           | 32.80               | 33.75             | 0.29                          | 121.64      | 0.11        | 2.89        | 5.52        |
| DDH-042-U-05   | 18           | 37.15               | 38.25             | 0.34                          | 27.75       | 0.04        | 0.74        | 1.93        |
| DDH-042-U-05   | 18           | 82.75               | 92.50             | 3.01                          | 28.91       | 0.06        | 1.40        | 1.76        |
| DDH-042-U-05   | 18           | 97.00               | 99.60             | 0.80                          | 71.28       | 0.20        | 0.40        | 0.59        |
| DDH-042-U-05   | 18           | 101.65              | 105.95            | 1.33                          | 69.62       | 0.15        | 0.66        | 1.64        |
| DDH-042-U-05   | 18           | 111.85              | 113.35            | 0.46                          | 74.44       | 0.24        | 0.41        | 5.10        |
| DDH-042-U-05   | 18           | 115.00              | 115.65            | 0.20                          | 43.72       | 0.13        | 1.39        | 2.48        |
| DDH-047-U-06   | 52           | 60.65               | 62.90             | 1.77                          | 22.19       | 0.30        | 0.03        | 1.73        |
| DDH-047-U-06   | 52           | 75.60               | 78.45             | 2.25                          | 121.79      | 0.28        | 0.10        | 0.75        |
| DDH-047-U-06   | 52           | 87.60               | 90.30             | 2.13                          | 29.50       | 0.54        | 0.21        | 5.97        |
| DDH-047-U-07   | 87           | 1.20                | 6.00              | 4.79                          | 27.30       | 0.17        | 0.01        | 3.42        |
| DDH-047-U-07   | 87           | 25.35               | 30.10             | 4.74                          | 140.91      | 0.14        | 3.54        | 3.99        |
| DDH-055-U-06   | 80           | 9.90                | 12.30             | 2.36                          | 38.85       | 0.35        | 0.26        | 2.11        |
| DDH-055-U-06   | 80           | 29.70               | 30.50             | 0.79                          | 164.60      | 0.10        | 0.30        | 0.96        |
| DDH-055-U-06   | 80           | 38.00               | 39.40             | 1.38                          | 147.50      | 0.29        | 1.64        | 8.76        |
| DDH-055-U-06   | 80           | 76.10               | 78.60             | 2.46                          | 51.88       | 0.08        | 0.97        | 4.89        |
| DDH-055-U-06   | 80           | 101.70              | 102.25            | 0.54                          | 55.65       | 0.15        | 0.43        | 1.40        |
| DDH-055-U-07   | 55           | 0.00                | 3.25              | 2.66                          | 27.82       | 0.17        | 0.06        | 7.92        |
| DDH-055-U-07   | 55           | 24.70               | 28.40             | 3.03                          | 37.26       | 0.15        | 3.93        | 4.26        |
| DDH-055-U-07   | 55           | 30.25               | 31.10             | 0.70                          | 145.56      | 0.46        | 10.90       | 10.55       |
| DDH-055-U-07   | 55           | 33.75               | 36.00             | 1.84                          | 76.82       | 0.12        | 3.09        | 5.04        |
| DDH-060-U-07   | 88           | 0.00                | 7.00              | 7.00                          | 58.66       | 0.20        | 0.20        | 5.26        |
| DDH-060-U-07   | 88           | 19.10               | 26.60             | 7.50                          | 141.23      | 0.47        | 2.62        | 6.02        |
| DDH-060-U-07   | 88           | 29.80               | 35.00             | 5.20                          | 57.11       | 0.23        | 2.87        | 5.21        |

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|              |    |        |        |      |        |      |      |       |
|--------------|----|--------|--------|------|--------|------|------|-------|
| DDH-061-U-05 | 62 | 75.60  | 86.70  | 9.80 | 76.31  | 0.08 | 1.82 | 6.43  |
| DDH-065-U-05 | 83 | 14.20  | 19.60  | 5.36 | 53.19  | 0.03 | 3.02 | 4.39  |
| DDH-065-U-05 | 83 | 24.60  | 27.20  | 2.58 | 111.04 | 0.05 | 2.22 | 12.77 |
| DDH-065-U-05 | 83 | 43.30  | 45.60  | 2.28 | 41.00  | 0.08 | 1.10 | 5.10  |
| DDH-069-U-05 | 63 | 84.50  | 87.60  | 2.76 | 71.59  | 0.13 | 1.29 | 8.71  |
| DDH-069-U-05 | 63 | 90.10  | 93.00  | 2.58 | 42.89  | 0.24 | 0.30 | 11.01 |
| DDH-069-U-05 | 63 | 118.00 | 121.00 | 2.67 | 52.85  | 0.14 | 0.74 | 2.98  |
| DDH-069-U-07 | 25 | 41.20  | 44.90  | 1.56 | 4.83   | 0.15 | 0.03 | 0.32  |
| DDH-070-U-07 | 50 | 8.65   | 9.95   | 1.00 | 27.62  | 0.26 | 0.08 | 4.47  |
| DDH-070-U-07 | 50 | 12.55  | 15.65  | 2.37 | 28.30  | 0.18 | 0.09 | 6.19  |
| DDH-070-U-07 | 50 | 18.35  | 21.15  | 2.14 | 70.15  | 0.21 | 0.26 | 5.26  |
| DDH-072-U-05 | 81 | 66.50  | 68.60  | 2.07 | 94.17  | 0.24 | 0.42 | 3.57  |
| DDH-076-U-07 | 87 | 3.15   | 6.20   | 3.05 | 78.34  | 0.23 | 0.67 | 4.53  |
| DDH-076-U-07 | 87 | 7.80   | 11.00  | 3.20 | 55.37  | 0.28 | 0.55 | 5.29  |
| DDH-076-U-07 | 87 | 13.00  | 14.45  | 1.45 | 54.36  | 0.10 | 2.18 | 7.83  |
| DDH-076-U-07 | 87 | 16.35  | 17.90  | 1.55 | 147.98 | 0.25 | 3.36 | 8.07  |

-47-43-101 (PanAm)

Morococha Mine

47



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| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-076-U-07   | 87           | 45.70               | 49.10             | 3.40                          | 93.18       | 0.14        | 4.13        | 7.73        |
| DDH-082-U-07   | 64           | 6.15                | 13.60             | 6.70                          | 64.58       | 0.24        | 0.86        | 5.47        |
| DDH-084-U-05   | 87           | 12.30               | 21.30             | 8.99                          | 73.72       | 0.90        | 2.26        | 5.09        |
| DDH-089-U-06   | 70           | 64.35               | 64.75             | 0.38                          | 265.57      | 1.10        | 0.71        | 0.20        |
| DDH-089-U-07   | 90           | 0.00                | 9.80              | 9.80                          | 52.84       | 0.27        | 0.43        | 6.04        |
| DDH-089-U-07   | 90           | 14.90               | 16.65             | 1.75                          | 127.93      | 0.41        | 1.15        | 9.12        |
| DDH-089-U-07   | 90           | 68.20               | 70.55             | 2.35                          | 62.04       | 0.03        | 3.21        | 2.92        |
| DDH-090-U-05   | 60           | 10.75               | 13.65             | 2.51                          | 53.83       | 0.10        | 0.76        | 6.93        |
| DDH-093-U-07   | 38           | 1.00                | 13.60             | 7.76                          | 38.64       | 0.26        | 0.39        | 5.30        |
| DDH-097-U-07   | 90           | 0.00                | 8.95              | 8.95                          | 37.56       | 0.37        | 0.33        | 3.24        |
| DDH-097-U-07   | 90           | 14.60               | 21.77             | 7.17                          | 61.33       | 0.39        | 2.50        | 5.06        |
| DDH-097-U-07   | 90           | 60.27               | 70.00             | 9.73                          | 107.36      | 0.09        | 0.56        | 2.71        |
| DDH-098-U-05   | 72           | 50.90               | 51.70             | 0.76                          | 25.81       | 0.03        | 0.99        | 1.57        |
| DDH-098-U-05   | 72           | 55.40               | 59.40             | 3.80                          | 32.05       | 0.02        | 2.29        | 2.13        |
| DDH-098-U-05   | 72           | 83.90               | 90.10             | 5.90                          | 86.12       | 0.13        | 4.37        | 2.60        |
| DDH-098-U-05   | 72           | 92.00               | 93.75             | 1.66                          | 150.78      | 0.29        | 2.85        | 6.18        |
| DDH-098-U-05   | 72           | 103.45              | 105.05            | 1.52                          | 103.99      | 0.09        | 2.90        | 4.59        |
| DDH-098-U-05   | 72           | 111.80              | 116.00            | 3.99                          | 94.69       | 0.25        | 2.82        | 5.63        |
| DDH-098-U-05   | 72           | 118.35              | 125.35            | 6.66                          | 173.48      | 0.25        | 1.74        | 6.72        |
| DDH-098-U-06   | 60           | 31.80               | 33.45             | 1.43                          | 34.31       | 0.03        | 0.06        | 2.71        |
| DDH-098-U-06   | 60           | 34.60               | 36.50             | 1.65                          | 79.16       | 0.07        | 0.28        | 1.97        |
| DDH-098-U-06   | 60           | 58.95               | 59.90             | 0.82                          | 61.70       | 0.02        | 1.22        | 3.09        |
| DDH-098-U-06   | 60           | 83.30               | 85.00             | 1.47                          | 80.98       | 0.19        | 0.14        | 3.09        |
| DDH-098-U-06   | 60           | 85.00               | 89.30             | 3.72                          | 326.76      | 0.13        | 0.80        | 1.24        |
| DDH-100-U-07   | 50           | 0.00                | 10.25             | 7.85                          | 42.56       | 0.21        | 0.37        | 5.15        |
| DDH-100-U-07   | 50           | 13.90               | 17.60             | 2.83                          | 139.54      | 0.49        | 0.51        | 1.67        |
| DDH-100-U-07   | 50           | 73.42               | 78.90             | 4.20                          | 82.40       | 0.20        | 4.60        | 7.73        |
| DDH-104-U-07   | 85           | 0.00                | 18.50             | 34.67                         | 139.04      | 0.13        | 3.02        | 5.71        |
| DDH-104-U-07   | 85           | 21.85               | 23.80             | 3.89                          | 62.93       | 0.10        | 2.67        | 3.95        |
| DDH-104-U-07   | 85           | 35.58               | 43.20             | 15.18                         | 60.52       | 0.10        | 3.01        | 3.86        |
| DDH-106-U-06   | 74           | 10.65               | 14.00             | 3.22                          | 30.87       | 0.16        | 0.07        | 5.35        |
| DDH-106-U-06   | 74           | 23.85               | 25.20             | 1.30                          | 239.98      | 0.21        | 0.59        | 2.08        |
| DDH-106-U-06   | 74           | 32.55               | 38.15             | 5.38                          | 46.03       | 0.07        | 0.20        | 2.55        |
| DDH-106-U-07   | 85           | 0.00                | 7.70              | 7.67                          | 185.63      | 0.11        | 7.87        | 4.51        |
| DDH-106-U-07   | 85           | 14.20               | 16.00             | 1.79                          | 48.03       | 0.04        | 2.16        | 2.68        |
| DDH-106-U-07   | 85           | 30.85               | 34.45             | 3.59                          | 133.20      | 0.15        | 1.22        | 8.03        |
| DDH-106-U-07   | 85           | 55.40               | 56.00             | 0.60                          | 295.57      | 0.29        | 10.00       | 6.13        |
| DDH-109-U-07   | 62           | 4.00                | 6.95              | 2.60                          | 60.21       | 0.12        | 4.77        | 5.31        |
| DDH-109-U-07   | 62           | 12.08               | 13.20             | 0.99                          | 52.21       | 0.11        | 4.54        | 4.40        |
| DDH-109-U-07   | 62           | 22.75               | 25.26             | 2.22                          | 47.56       | 0.09        | 1.30        | 4.34        |
| DDH-109-U-07   | 62           | 41.53               | 43.15             | 1.43                          | 61.32       | 0.19        | 1.23        | 7.91        |
| DDH-111-U-05   | 71           | 55.00               | 56.10             | 1.04                          | 32.82       | 0.09        | 1.88        | 2.51        |
| DDH-111-U-05   | 71           | 67.55               | 68.50             | 0.90                          | 52.08       | 0.06        | 2.22        | 3.42        |
| DDH-111-U-05   | 71           | 82.05               | 82.90             | 0.80                          | 36.78       | 0.02        | 3.93        | 4.29        |
| DDH-111-U-05   | 71           | 100.65              | 101.45            | 0.76                          | 60.28       | 0.05        | 3.66        | 5.34        |

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|              |    |       |       |       |        |      |      |      |
|--------------|----|-------|-------|-------|--------|------|------|------|
| DDH-114-U-07 | 49 | 1.85  | 4.60  | 2.08  | 95.00  | 0.09 | 3.74 | 3.18 |
| DDH-115-U-06 | 40 | 0.00  | 1.90  | 1.22  | 24.72  | 0.03 | 0.24 | 3.72 |
| DDH-115-U-06 | 40 | 29.00 | 35.80 | 4.37  | 35.12  | 0.10 | 0.44 | 2.85 |
| DDH-115-U-06 | 40 | 44.20 | 46.65 | 1.57  | 75.69  | 0.11 | 0.51 | 4.57 |
| DDH-115-U-06 | 40 | 50.55 | 66.50 | 10.80 | 44.09  | 0.09 | 1.23 | 3.41 |
| DDH-116-U-07 | 80 | 0.00  | 4.20  | 4.14  | 77.15  | 0.09 | 2.27 | 2.19 |
| DDH-116-U-07 | 80 | 13.50 | 16.20 | 2.66  | 19.81  | 0.03 | 0.89 | 1.70 |
| DDH-116-U-07 | 80 | 28.60 | 30.40 | 1.77  | 57.80  | 0.06 | 1.42 | 3.73 |
| DDH-116-U-07 | 80 | 31.70 | 34.45 | 2.71  | 71.44  | 0.03 | 3.23 | 4.21 |
| DDH-122-U-07 | 25 | 0.00  | 1.20  | 0.51  | 111.46 | 0.22 | 9.58 | 8.25 |
| DDH-122-U-07 | 25 | 13.10 | 14.60 | 0.63  | 44.93  | 0.14 | 5.37 | 5.47 |
| DDH-122-U-07 | 25 | 51.13 | 51.67 | 0.23  | 56.23  | 0.13 | 6.81 | 5.75 |
| DDH-122-U-07 | 25 | 52.75 | 54.60 | 1.06  | 52.29  | 0.06 | 3.39 | 2.99 |
| DDH-122-U-07 | 25 | 67.04 | 71.20 | 1.76  | 53.14  | 0.09 | 0.84 | 4.40 |
| DDH-123-U-06 | 65 | 32.10 | 35.30 | 2.90  | 28.03  | 0.11 | 0.14 | 6.05 |
| DDH-123-U-06 | 65 | 38.50 | 45.50 | 6.34  | 13.79  | 0.14 | 0.04 | 4.99 |

-48-43-101 (PanAm)

Morococha Mine

48

| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-123-U-06   | 65           | 47.80               | 55.40             | 7.07                          | 16.91       | 0.08        | 0.14        | 2.88        |
| DDH-123-U-06   | 65           | 56.90               | 62.45             | 5.03                          | 52.31       | 0.06        | 0.51        | 3.40        |
| DDH-123-U-06   | 65           | 87.30               | 89.70             | 2.18                          | 36.88       | 0.08        | 0.27        | 4.31        |
| DDH-124-U-07   | 55           | 12.20               | 12.47             | 0.22                          | 348.90      | 0.19        | 5.82        | 3.27        |
| DDH-124-U-07   | 55           | 26.00               | 27.07             | 0.88                          | 59.03       | 0.08        | 2.99        | 4.27        |
| DDH-126-U-05   | 65           | 12.30               | 13.50             | 1.09                          | 103.90      | 0.22        | 1.75        | 5.92        |
| DDH-130-U-07   | 50           | 0.00                | 4.00              | 3.06                          | 80.16       | 0.08        | 2.06        | 4.09        |
| DDH-131-U-05   | 80           | 2.70                | 4.85              | 2.12                          | 54.53       | 0.09        | 1.31        | 7.84        |
| DDH-133-U-05   | 80           | 5.00                | 9.30              | 4.23                          | 114.70      | 0.12        | 2.74        | 6.92        |
| DDH-134-U-06   | 85           | 32.70               | 34.80             | 2.09                          | 14.57       | 0.07        | 0.04        | 4.43        |
| DDH-134-U-06   | 85           | 37.10               | 39.60             | 2.49                          | 6.43        | 0.05        | 0.03        | 2.97        |
| DDH-139-U-07   | 67           | 0.00                | 2.30              | 2.12                          | 48.75       | 0.07        | 1.66        | 3.91        |
| DDH-139-U-07   | 67           | 4.60                | 7.20              | 2.39                          | 74.66       | 0.09        | 2.40        | 2.10        |
| DDH-139-U-07   | 67           | 32.05               | 33.05             | 0.92                          | 115.79      | 0.03        | 5.41        | 2.51        |
| DDH-143-U-05   | 80           | 0.00                | 5.90              | 5.81                          | 72.98       | 0.07        | 1.48        | 6.26        |
| DDH-143-U-05   | 80           | 9.20                | 11.85             | 2.61                          | 203.55      | 0.18        | 2.61        | 8.26        |
| DDH-143-U-05   | 80           | 17.30               | 18.40             | 1.08                          | 39.85       | 0.11        | 0.53        | 4.04        |
| DDH-143-U-05   | 80           | 19.45               | 21.00             | 1.53                          | 91.47       | 0.10        | 0.94        | 7.41        |
| DDH-143-U-07   | 30           | 3.05                | 3.85              | 0.40                          | 113.08      | 0.29        | 2.16        | 9.37        |
| DDH-143-U-07   | 30           | 20.10               | 20.60             | 0.25                          | 56.87       | 0.11        | 1.54        | 2.27        |
| DDH-143-U-07   | 30           | 32.15               | 35.45             | 1.00                          | 155.81      | 0.11        | 7.38        | 2.99        |
| DDH-143-U-07   | 30           | 72.40               | 73.50             | 0.55                          | 57.46       | 0.15        | 2.56        | 4.75        |
| DDH-146-U-06   | 25           | 16.30               | 17.40             | 0.46                          | 41.38       | 0.04        | 1.97        | 2.65        |
| DDH-146-U-06   | 25           | 60.00               | 62.30             | 0.97                          | 58.36       | 0.06        | 1.51        | 4.10        |
| DDH-146-U-06   | 25           | 64.10               | 65.25             | 0.49                          | 59.25       | 0.07        | 3.13        | 6.25        |
| DDH-146-U-06   | 25           | 143.00              | 156.10            | 5.54                          | 27.03       | 0.04        | 0.50        | 3.78        |
| DDH-146-U-06   | 25           | 180.00              | 182.00            | 0.85                          | 27.52       | 0.05        | 1.19        | 4.94        |
| DDH-146-U-06   | 25           | 184.30              | 194.55            | 4.33                          | 58.23       | 0.09        | 1.63        | 6.53        |
| DDH-146-U-06   | 25           | 200.90              | 208.85            | 3.53                          | 128.52      | 0.13        | 5.25        | 7.13        |
| DDH-148-U-06   | 75           | 4.95                | 5.90              | 0.92                          | 266.69      | 0.15        | 0.72        | 4.33        |
| DDH-148-U-06   | 75           | 22.60               | 27.75             | 4.97                          | 10.10       | 0.08        | 0.04        | 4.39        |
| DDH-148-U-06   | 75           | 29.60               | 35.00             | 6.13                          | 15.84       | 0.17        | 0.07        | 3.04        |
| DDH-150-U-07   | 85           | 2.80                | 5.45              | 3.44                          | 75.85       | 0.03        | 0.52        | 6.96        |
| DDH-153-U-07   | 35           | 6.30                | 6.85              | 0.32                          | 69.96       | 0.02        | 0.47        | 3.54        |
| DDH-153-U-07   | 35           | 21.10               | 26.47             | 3.08                          | 49.60       | 0.05        | 1.01        | 3.82        |
| DDH-153-U-07   | 35           | 30.82               | 37.50             | 3.83                          | 62.52       | 0.09        | 1.00        | 5.42        |
| DDH-153-U-07   | 35           | 64.80               | 65.75             | 0.54                          | 57.90       | 0.06        | 2.49        | 4.44        |
| DDH-153-U-07   | 35           | 70.45               | 70.67             | 0.13                          | 57.92       | 0.20        | 1.65        | 3.53        |
| DDH-153-U-07   | 35           | 87.55               | 88.55             | 0.57                          | 119.23      | 0.07        | 5.53        | 4.37        |
| DDH-153-U-07   | 35           | 94.55               | 95.55             | 0.57                          | 44.27       | 0.06        | 2.11        | 3.96        |
| DDH-154-U-06   | 70           | 79.20               | 81.45             | 2.11                          | 294.88      | 0.31        | 2.40        | 9.92        |
| DDH-154-U-06   | 70           | 197.85              | 201.40            | 3.34                          | 159.00      | 0.08        | 6.15        | 3.55        |
| DDH-157-U-05   | 45           | 17.00               | 23.65             | 4.70                          | 32.93       | 0.15        | 0.06        | 1.97        |
| DDH-157-U-05   | 45           | 24.30               | 26.60             | 1.63                          | 17.26       | 0.16        | 0.05        | 2.27        |
| DDH-163-U-06   | 80           | 21.80               | 23.85             | 2.02                          | 3.62        | 0.06        | 0.04        | 2.25        |

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|              |    |       |       |       |        |      |      |       |
|--------------|----|-------|-------|-------|--------|------|------|-------|
| DDH-165-U-05 | 80 | 0.00  | 7.35  | 7.24  | 114.76 | 0.19 | 0.18 | 4.75  |
| DDH-165-U-05 | 80 | 15.85 | 25.30 | 9.31  | 75.87  | 0.13 | 1.38 | 13.38 |
| DDH-165-U-05 | 80 | 52.15 | 52.60 | 0.44  | 138.89 | 0.06 | 4.02 | 4.25  |
| DDH-169-U-06 | 50 | 0.00  | 10.20 | 15.63 | 36.49  | 0.48 | 0.15 | 6.62  |
| DDH-169-U-06 | 50 | 18.80 | 22.80 | 3.52  | 59.73  | 0.25 | 0.16 | 0.17  |
| DDH-169-U-06 | 50 | 30.30 | 33.35 | 2.34  | 32.42  | 0.31 | 0.08 | 9.09  |
| DDH-169-U-06 | 50 | 35.80 | 37.90 | 1.61  | 68.81  | 0.24 | 5.44 | 9.08  |
| DDH-169-U-06 | 50 | 43.00 | 44.70 | 1.30  | 62.34  | 0.52 | 3.15 | 10.57 |
| DDH-175-U-06 | 75 | 0.00  | 6.00  | 10.63 | 34.42  | 0.48 | 0.04 | 6.61  |
| DDH-177-U-07 | 90 | 5.55  | 7.40  | 1.85  | 57.02  | 0.04 | 0.61 | 4.41  |
| DDH-177-U-07 | 90 | 12.82 | 14.10 | 1.28  | 64.21  | 0.04 | 2.12 | 5.49  |
| DDH-179-U-07 | 65 | 16.63 | 18.40 | 1.60  | 43.77  | 0.05 | 2.15 | 4.39  |
| DDH-179-U-07 | 65 | 5.18  | 6.38  | 1.09  | 54.42  | 0.05 | 0.54 | 4.94  |
| DDH-181-U-05 | 62 | 0.00  | 9.30  | 8.21  | 119.89 | 0.16 | 3.61 | 7.66  |
| DDH-181-U-05 | 62 | 30.30 | 34.90 | 4.06  | 78.25  | 0.09 | 3.89 | 4.38  |
| DDH-181-U-05 | 62 | 69.00 | 70.65 | 1.46  | 21.18  | 0.04 | 0.42 | 8.05  |

-49-43-101 (PanAm)

Morococha Mine

49

| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-181-U-05   | 62           | 80.15               | 81.30             | 1.02                          | 103.00      | 0.05        | 0.07        | 6.45        |
| DDH-181-U-05   | 62           | 93.30               | 94.35             | 0.93                          | 90.00       | 0.21        | 1.98        | 4.44        |
| DDH-181-U-05   | 62           | 96.80               | 99.40             | 2.30                          | 62.54       | 0.27        | 1.88        | 7.28        |
| DDH-182-U-07   | 45           | 2.55                | 4.40              | 1.31                          | 154.55      | 0.06        | 0.69        | 12.52       |
| DDH-184-U-06   | 25           | 93.60               | 104.05            | 4.42                          | 6.05        | 0.04        | 0.02        | 4.41        |
| DDH-184-U-06   | 25           | 109.45              | 125.15            | 6.64                          | 13.62       | 0.07        | 0.02        | 5.39        |
| DDH-185-U-06   | 68           | 2.30                | 8.30              | 5.56                          | 26.56       | 0.15        | 0.14        | 8.02        |
| DDH-185-U-06   | 68           | 9.65                | 12.70             | 2.83                          | 134.54      | 0.13        | 5.55        | 9.52        |
| DDH-185-U-06   | 68           | 15.50               | 16.50             | 0.93                          | 233.10      | 0.08        | 12.73       | 8.89        |
| DDH-185-U-06   | 68           | 23.15               | 26.30             | 2.92                          | 74.45       | 0.11        | 1.08        | 12.99       |
| DDH-185-U-06   | 68           | 26.70               | 29.85             | 3.57                          | 155.78      | 0.07        | 1.99        | 7.23        |
| DDH-187-U-07   | 25           | 0.00                | 5.05              | 2.13                          | 44.05       | 0.06        | 2.19        | 2.32        |
| DDH-187-U-07   | 25           | 14.50               | 20.00             | 2.32                          | 55.42       | 0.08        | 2.48        | 5.79        |
| DDH-187-U-07   | 25           | 21.20               | 23.40             | 0.93                          | 44.30       | 0.09        | 0.74        | 5.97        |
| DDH-194-U-05   | 79           | 0.00                | 6.20              | 6.09                          | 94.77       | 0.25        | 1.10        | 10.75       |
| DDH-195-U-06   | 57           | 0.00                | 5.80              | 4.86                          | 153.31      | 0.11        | 3.81        | 4.62        |
| DDH-195-U-06   | 57           | 16.40               | 20.00             | 3.02                          | 227.03      | 0.32        | 3.40        | 16.93       |
| DDH-195-U-06   | 57           | 42.50               | 43.50             | 0.84                          | 186.58      | 0.06        | 1.39        | 3.94        |
| DDH-195-U-07   | 63           | 2.95                | 3.65              | 0.62                          | 84.75       | 0.07        | 1.48        | 6.02        |
| DDH-195-U-07   | 63           | 7.40                | 10.90             | 3.12                          | 29.11       | 0.11        | 0.29        | 4.72        |
| DDH-195-U-07   | 63           | 10.90               | 18.52             | 6.52                          | 24.32       | 0.07        | 0.97        | 2.95        |
| DDH-195-U-07   | 63           | 25.78               | 27.67             | 1.68                          | 42.96       | 0.13        | 1.36        | 1.78        |
| DDH-195-U-07   | 63           | 30.65               | 35.00             | 3.88                          | 35.60       | 0.19        | 0.29        | 2.65        |
| DDH-195-U-07   | 63           | 42.28               | 45.13             | 2.54                          | 51.59       | 0.08        | 0.72        | 2.78        |
| DDH-196-U-05   | 88           | 73.50               | 74.00             | 0.50                          | 64.00       | 0.14        | 1.53        | 6.02        |
| DDH-196-U-05   | 88           | 78.50               | 79.65             | 1.15                          | 70.00       | 0.06        | 0.96        | 8.50        |
| DDH-196-U-05   | 88           | 84.30               | 88.10             | 3.80                          | 340.79      | 0.38        | 0.39        | 7.40        |
| DDH-196-U-05   | 88           | 89.90               | 90.50             | 0.60                          | 144.00      | 0.09        | 2.90        | 8.02        |
| DDH-196-U-05   | 88           | 94.60               | 95.10             | 0.50                          | 118.00      | 0.40        | 5.80        | 8.20        |
| DDH-197-U-06   | 78           | 109.85              | 112.80            | 2.89                          | 14.22       | 0.08        | 0.06        | 3.88        |
| DDH-197-U-06   | 78           | 114.35              | 121.60            | 9.19                          | 13.22       | 0.05        | 0.07        | 3.14        |
| DDH-197-U-06   | 78           | 137.85              | 141.35            | 3.42                          | 16.31       | 0.07        | 0.06        | 6.33        |
| DDH-197-U-06   | 78           | 147.45              | 152.40            | 4.84                          | 179.06      | 0.06        | 1.12        | 2.84        |
| DDH-197-U-06   | 78           | 162.15              | 165.90            | 3.67                          | 7.20        | 0.07        | 0.02        | 2.68        |
| DDH-200-U-07   | 83           | 4.85                | 10.22             | 5.33                          | 51.99       | 0.07        | 1.23        | 5.27        |
| DDH-200-U-07   | 83           | 22.80               | 25.00             | 2.18                          | 77.55       | 0.09        | 2.06        | 8.27        |
| DDH-200-U-07   | 83           | 26.85               | 31.65             | 4.76                          | 30.91       | 0.04        | 1.33        | 3.43        |
| DDH-200-U-07   | 83           | 73.30               | 74.62             | 1.31                          | 79.88       | 0.05        | 0.58        | 6.91        |
| DDH-203-U-05   | 87           | 0.60                | 2.00              | 0.60                          | 40.00       | 0.15        | 0.16        | 3.67        |
| DDH-203-U-05   | 87           | 4.60                | 7.40              | 2.80                          | 31.25       | 0.16        | 0.17        | 2.39        |
| DDH-203-U-05   | 87           | 13.20               | 15.10             | 1.90                          | 56.32       | 0.32        | 0.25        | 2.02        |
| DDH-209-U-07   | 68           | 0.00                | 1.56              | 1.45                          | 62.29       | 0.07        | 2.11        | 4.80        |
| DDH-209-U-07   | 68           | 3.30                | 6.40              | 2.87                          | 69.03       | 0.11        | 1.64        | 5.42        |
| DDH-210-U-05   | 70           | 0.00                | 9.80              | 9.21                          | 93.99       | 0.08        | 0.80        | 4.65        |
| DDH-210-U-05   | 70           | 30.60               | 32.30             | 1.60                          | 41.40       | 0.04        | 0.52        | 3.49        |

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|              |    |       |       |      |        |      |      |      |
|--------------|----|-------|-------|------|--------|------|------|------|
| DDH-211-U-07 | 25 | 0.00  | 3.16  | 1.78 | 119.98 | 0.07 | 1.59 | 3.87 |
| DDH-211-U-07 | 25 | 4.15  | 4.92  | 0.33 | 110.61 | 0.22 | 4.78 | 6.64 |
| DDH-211-U-07 | 25 | 11.45 | 14.25 | 1.18 | 63.18  | 0.06 | 2.25 | 4.96 |
| DDH-211-U-07 | 25 | 19.45 | 27.60 | 3.44 | 55.87  | 0.06 | 1.48 | 2.61 |
| DDH-211-U-07 | 25 | 28.10 | 33.65 | 2.77 | 43.75  | 0.05 | 3.96 | 3.70 |
| DDH-211-U-07 | 25 | 41.90 | 42.90 | 0.42 | 44.40  | 0.04 | 3.10 | 4.11 |
| DDH-211-U-07 | 25 | 67.10 | 70.00 | 1.23 | 210.21 | 0.21 | 4.01 | 2.33 |
| DDH-214-U-05 | 80 | 0.00  | 7.50  | 7.39 | 33.27  | 0.19 | 0.11 | 9.59 |
| DDH-214-U-05 | 80 | 20.00 | 24.60 | 4.53 | 62.21  | 0.14 | 1.21 | 2.24 |
| DDH-214-U-05 | 80 | 28.10 | 31.75 | 4.58 | 55.49  | 0.34 | 2.55 | 2.67 |
| DDH-216-U-07 | 43 | 15.65 | 19.10 | 2.35 | 77.73  | 0.15 | 0.93 | 4.83 |
| DDH-216-U-07 | 43 | 27.53 | 31.10 | 2.43 | 106.48 | 0.20 | 2.97 | 8.36 |
| DDH-218-U-05 | 80 | 0.00  | 1.50  | 1.48 | 68.00  | 0.07 | 0.45 | 5.86 |
| DDH-218-U-05 | 80 | 40.00 | 40.70 | 0.69 | 94.50  | 0.04 | 1.00 | 3.42 |
| DDH-218-U-05 | 80 | 51.10 | 54.40 | 3.25 | 39.85  | 0.11 | 0.35 | 6.95 |
| DDH-218-U-05 | 80 | 68.05 | 69.20 | 1.13 | 102.00 | 0.07 | 0.68 | 7.35 |

-50-43-101 (PanAm)

Morococha Mine

50

| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-218-U-05   | 80           | 73.60               | 74.60             | 0.98                          | 75.60       | 0.07        | 1.84        | 6.14        |
| DDH-219-U-06   | 28           | 101.55              | 110.75            | 4.32                          | 5.84        | 0.05        | 0.01        | 3.48        |
| DDH-220-U-05   | 64           | 0.00                | 6.60              | 5.93                          | 66.32       | 0.09        | 0.37        | 6.85        |
| DDH-221-U-06   | 70           | 0.00                | 13.70             | 12.87                         | 69.23       | 0.18        | 1.70        | 8.21        |
| DDH-222-U-05   | 90           | 0.00                | 6.00              | 6.00                          | 87.91       | 0.12        | 2.81        | 5.32        |
| DDH-222-U-05   | 90           | 18.45               | 20.00             | 1.55                          | 111.40      | 0.07        | 1.11        | 3.21        |
| DDH-222-U-07   | 18           | 14.48               | 19.62             | 1.59                          | 107.18      | 0.22        | 1.18        | 5.87        |
| DDH-222-U-07   | 18           | 27.05               | 30.40             | 1.04                          | 92.09       | 0.06        | 3.89        | 3.63        |
| DDH-222-U-07   | 18           | 33.05               | 36.35             | 1.02                          | 45.64       | 0.07        | 2.13        | 4.42        |
| DDH-222-U-07   | 18           | 69.10               | 73.80             | 1.45                          | 91.79       | 0.34        | 0.25        | 1.15        |
| DDH-226-U-05   | 85           | 0.00                | 3.50              | 3.49                          | 25.94       | 0.04        | 0.18        | 2.60        |
| DDH-226-U-05   | 85           | 35.80               | 36.90             | 1.10                          | 17.96       | 0.02        | 0.19        | 0.47        |
| DDH-226-U-05   | 85           | 48.20               | 53.20             | 4.98                          | 27.69       | 0.08        | 0.42        | 5.72        |
| DDH-226-U-05   | 85           | 20.00               | 20.90             | 0.90                          | 13.90       | 0.01        | 0.12        | 0.75        |
| DDH-230-U-05   | 70           | 1.50                | 4.56              | 2.88                          | 96.42       | 0.02        | 1.14        | 2.76        |
| DDH-230-U-05   | 70           | 20.60               | 21.10             | 0.47                          | 43.00       | 0.10        | 0.49        | 7.85        |
| DDH-230-U-05   | 70           | 22.80               | 23.65             | 0.80                          | 163.79      | 0.02        | 1.00        | 3.00        |
| DDH-230-U-05   | 70           | 27.35               | 28.50             | 1.08                          | 64.00       | 0.04        | 0.59        | 7.95        |
| DDH-230-U-05   | 70           | 31.00               | 32.55             | 1.46                          | 236.35      | 0.12        | 2.57        | 8.47        |
| DDH-230-U-05   | 70           | 94.25               | 95.75             | 1.41                          | 215.80      | 0.24        | 0.11        | 0.27        |
| DDH-230-U-05   | 70           | 100.30              | 103.35            | 2.87                          | 158.90      | 0.07        | 0.23        | 0.85        |
| DDH-230-U-06   | 65           | 4.55                | 9.50              | 4.49                          | 35.31       | 0.05        | 0.29        | 3.09        |
| DDH-230-U-06   | 65           | 21.75               | 25.50             | 3.40                          | 31.87       | 0.09        | 0.18        | 5.07        |
| DDH-230-U-06   | 65           | 26.45               | 36.40             | 9.02                          | 17.40       | 0.04        | 0.25        | 2.31        |
| DDH-230-U-06   | 65           | 52.60               | 53.50             | 0.82                          | 22.17       | 0.05        | 0.46        | 3.10        |
| DDH-232-U-05   | 70           | 0.00                | 5.45              | 5.12                          | 15.65       | 0.04        | 0.23        | 7.03        |
| DDH-232-U-05   | 70           | 33.55               | 35.50             | 1.83                          | 65.99       | 0.03        | 1.64        | 3.83        |
| DDH-232-U-05   | 70           | 58.30               | 59.10             | 0.75                          | 94.50       | 0.04        | 2.32        | 3.55        |
| DDH-233-U-05   | 70           | 0.00                | 2.50              | 2.35                          | 20.30       | 0.05        | 0.24        | 9.61        |
| DDH-233-U-05   | 70           | 31.90               | 38.50             | 6.20                          | 88.15       | 0.05        | 2.85        | 6.53        |
| DDH-233-U-05   | 70           | 42.20               | 43.80             | 1.50                          | 80.20       | 0.04        | 4.21        | 5.26        |
| DDH-233-U-05   | 70           | 46.20               | 46.90             | 0.66                          | 77.40       | 0.05        | 4.64        | 6.75        |
| DDH-240-U-05   | 60           | 0.00                | 4.50              | 3.90                          | 59.94       | 0.09        | 1.82        | 4.09        |
| DDH-240-U-05   | 60           | 13.10               | 15.15             | 1.78                          | 38.97       | 0.02        | 0.50        | 5.27        |
| DDH-240-U-05   | 60           | 24.65               | 25.95             | 1.13                          | 128.30      | 0.07        | 7.74        | 6.27        |
| DDH-242-U-05   | 65           | 0.00                | 5.70              | 5.17                          | 59.58       | 0.13        | 1.20        | 3.09        |
| DDH-246-U-05   | 90           | 4.90                | 18.60             | 13.70                         | 15.42       | 0.04        | 0.42        | 5.27        |
| DDH-246-U-05   | 90           | 20.70               | 21.20             | 0.50                          | 6.80        | 0.04        | 0.08        | 4.86        |
| DDH-246-U-05   | 90           | 28.80               | 29.40             | 0.60                          | 86.00       | 0.13        | 3.69        | 9.68        |
| DDH-246-U-05   | 90           | 35.70               | 35.90             | 0.20                          | 156.00      | 0.03        | 4.64        | 4.38        |
| DDH-246-U-05   | 90           | 41.90               | 42.70             | 0.80                          | 274.50      | 0.06        | 15.98       | 9.33        |
| DDH-246-U-05   | 90           | 47.70               | 50.00             | 2.30                          | 120.50      | 0.07        | 2.51        | 7.18        |
| DDH-247-U-06   | 43           | 14.00               | 18.80             | 3.27                          | 10.02       | 0.06        | 0.01        | 1.36        |
| DDH-247-U-06   | 43           | 22.20               | 28.50             | 4.30                          | 14.37       | 0.06        | 0.11        | 3.21        |
| DDH-247-U-06   | 43           | 38.30               | 41.10             | 1.91                          | 50.56       | 0.10        | 0.45        | 7.36        |

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|              |    |       |        |       |        |      |      |      |
|--------------|----|-------|--------|-------|--------|------|------|------|
| DDH-248-U-05 | 70 | 8.60  | 13.10  | 4.23  | 27.40  | 0.04 | 1.14 | 1.42 |
| DDH-248-U-05 | 70 | 14.65 | 20.50  | 5.50  | 30.29  | 0.05 | 1.11 | 1.82 |
| DDH-248-U-05 | 70 | 22.00 | 23.45  | 1.36  | 53.20  | 0.10 | 0.47 | 4.09 |
| DDH-250-U-05 | 40 | 21.20 | 24.75  | 2.28  | 24.63  | 0.01 | 0.47 | 2.00 |
| DDH-250-U-05 | 40 | 30.80 | 34.55  | 2.41  | 26.47  | 0.01 | 0.80 | 1.45 |
| DDH-250-U-05 | 40 | 36.00 | 36.70  | 0.45  | 21.20  | 0.02 | 0.45 | 0.72 |
| DDH-250-U-05 | 40 | 40.00 | 40.90  | 0.58  | 48.00  | 0.04 | 2.12 | 2.30 |
| DDH-252-U-05 | 70 | 18.70 | 23.90  | 4.89  | 25.15  | 0.05 | 0.73 | 2.70 |
| DDH-252-U-05 | 70 | 28.20 | 28.70  | 0.47  | 148.00 | 0.06 | 2.87 | 4.64 |
| DDH-252-U-05 | 70 | 44.10 | 44.95  | 0.80  | 177.41 | 0.25 | 9.14 | 8.55 |
| DDH-252-U-05 | 70 | 46.40 | 47.20  | 0.75  | 100.81 | 0.09 | 1.07 | 7.58 |
| DDH-254-U-05 | 73 | 86.50 | 95.00  | 8.13  | 2.98   | 0.01 | 0.02 | 0.12 |
| DDH-254-U-05 | 73 | 96.20 | 106.80 | 10.14 | 3.35   | 0.02 | 0.02 | 0.12 |
| DDH-256-U-06 | 50 | 3.00  | 12.00  | 6.89  | 8.85   | 0.09 | 0.01 | 5.05 |
| DDH-256-U-06 | 50 | 14.35 | 16.35  | 1.53  | 14.82  | 0.06 | 0.02 | 3.38 |
| DDH-256-U-06 | 50 | 27.20 | 28.80  | 1.23  | 17.97  | 0.12 | 0.06 | 0.80 |

-51-43-101 (PanAm)

Morococha Mine

51



| <b>HOLE ID</b> | <b>ANGLE</b> | <b>FROM<br/>(m)</b> | <b>TO<br/>(m)</b> | <b>TRUE<br/>WIDTH<br/>(m)</b> | <b>g Ag</b> | <b>% Cu</b> | <b>% Pb</b> | <b>% Zn</b> |
|----------------|--------------|---------------------|-------------------|-------------------------------|-------------|-------------|-------------|-------------|
| DDH-256-U-06   | 50           | 35.40               | 40.30             | 3.75                          | 31.73       | 0.22        | 0.10        | 0.69        |
| DDH-256-U-06   | 50           | 41.00               | 45.20             | 3.22                          | 55.68       | 0.10        | 0.67        | 4.40        |
| DDH-256-U-06   | 50           | 54.20               | 56.50             | 1.76                          | 55.09       | 0.11        | 1.17        | 2.45        |
| DDH-259-U-05   | 59           | 51.20               | 52.20             | 0.86                          | 49.40       | 0.04        | 1.80        | 5.91        |
| DDH-259-U-05   | 59           | 55.90               | 61.20             | 4.54                          | 95.39       | 0.08        | 2.28        | 6.40        |
| DDH-261-U-06   | 50           | 0.00                | 9.00              | 9.19                          | 70.31       | 0.14        | 0.90        | 11.48       |
| DDH-262-U-05   | 73           | 1.70                | 2.70              | 0.96                          | 41.10       | 0.05        | 3.02        | 4.48        |
| DDH-262-U-05   | 73           | 49.80               | 50.90             | 1.05                          | 32.42       | 0.02        | 0.37        | 3.58        |
| DDH-262-U-05   | 73           | 52.25               | 54.35             | 2.01                          | 105.43      | 0.01        | 0.82        | 3.36        |
| DDH-262-U-05   | 73           | 65.40               | 66.30             | 0.86                          | 130.20      | 0.04        | 0.68        | 7.50        |
| DDH-263-U-05   | 55           | 1.10                | 3.30              | 1.80                          | 59.79       | 0.02        | 0.63        | 2.33        |
| DDH-263-U-05   | 55           | 7.95                | 8.15              | 0.16                          | 168.70      | 0.04        | 0.15        | 0.21        |
| DDH-263-U-05   | 55           | 13.80               | 17.40             | 2.95                          | 69.59       | 0.15        | 1.72        | 4.83        |
| DDH-263-U-06   | 55           | 19.20               | 26.10             | 5.65                          | 17.85       | 0.06        | 0.07        | 3.02        |
| DDH-263-U-06   | 55           | 32.50               | 36.00             | 2.87                          | 19.80       | 0.09        | 0.38        | 7.30        |
| DDH-263-U-06   | 55           | 39.10               | 40.30             | 0.98                          | 179.44      | 0.08        | 0.22        | 7.38        |
| DDH-263-U-06   | 55           | 44.70               | 47.20             | 2.05                          | 38.86       | 0.06        | 0.13        | 3.27        |
| DDH-269-U-05   | 70           | 7.00                | 11.10             | 4.79                          | 5.95        | 0.04        | 0.28        | 1.18        |
| DDH-269-U-05   | 70           | 14.70               | 16.20             | 1.41                          | 18.03       | 0.04        | 2.18        | 2.31        |
| DDH-269-U-05   | 70           | 23.80               | 24.50             | 0.66                          | 5.00        | 0.04        | 0.24        | 1.54        |
| DDH-276-U-05   | 90           | 33.20               | 36.90             | 6.05                          | 83.41       | 2.15        | 0.29        | 3.83        |
| DDH-276-U-05   | 90           | 51.80               | 53.15             | 1.35                          | 44.94       | 0.86        | 0.06        | 3.66        |
| DDH-276-U-05   | 90           | 54.10               | 62.20             | 8.10                          | 40.17       | 0.61        | 1.04        | 5.53        |
| DDH-276-U-05   | 90           | 98.90               | 101.30            | 4.80                          | 33.08       | 2.41        | 0.12        | 6.11        |
| DDH-279-U-06   | 48           | 32.50               | 37.10             | 6.84                          | 144.36      | 0.18        | 0.90        | 6.93        |
| DDH-284-U-05   | 90           | 40.40               | 44.80             | 4.40                          | 44.92       | 0.15        | 0.09        | 1.99        |
| DDH-291-U-05   | 80           | 22.75               | 27.20             | 4.38                          | 88.53       | 0.98        | 0.73        | 3.86        |
| DDH-291-U-05   | 80           | 32.60               | 39.30             | 6.60                          | 58.05       | 0.66        | 0.67        | 4.97        |
| DDH-294-U-06   | 58           | 53.15               | 54.70             | 1.31                          | 13.53       | 0.05        | 0.05        | 4.62        |
| DDH-294-U-06   | 58           | 82.00               | 83.50             | 1.27                          | 23.86       | 0.03        | 0.56        | 1.01        |
| DDH-294-U-06   | 58           | 99.80               | 100.80            | 0.85                          | 52.24       | 0.03        | 1.10        | 2.33        |
| DDH-294-U-06   | 58           | 103.10              | 103.80            | 0.59                          | 84.38       | 0.04        | 0.92        | 1.46        |
| DDH-294-U-06   | 58           | 107.95              | 115.40            | 10.43                         | 790.23      | 1.26        | 2.04        | 0.69        |
| DDH-294-U-06   | 58           | 125.85              | 126.05            | 0.17                          | 77.41       | 0.21        | 5.80        | 6.65        |
| DDH-294-U-06   | 58           | 134.45              | 136.70            | 1.91                          | 24.37       | 0.03        | 0.51        | 1.35        |
| DDH-294-U-06   | 58           | 140.60              | 142.20            | 1.36                          | 1100.90     | 0.82        | 3.55        | 7.41        |
| DDH-294-U-06   | 58           | 154.65              | 157.00            | 1.99                          | 99.53       | 0.21        | 2.05        | 2.92        |
| DDH-294-U-06   | 58           | 160.35              | 160.90            | 0.47                          | 489.20      | 0.18        | 0.81        | 6.03        |
| DDH-296-U-06   | 55           | 80.20               | 83.90             | 3.03                          | 85.13       | 0.05        | 0.68        | 13.04       |
| DDH-296-U-06   | 55           | 91.80               | 94.20             | 1.97                          | 40.02       | 0.07        | 0.21        | 11.70       |
| DDH-296-U-06   | 55           | 99.00               | 100.80            | 2.29                          | 44.37       | 0.03        | 0.51        | 1.96        |
| DDH-324-U-06   | 57           | 0.00                | 3.05              | 2.56                          | 189.81      | 0.20        | 8.87        | 7.13        |
| DDH-372-U-06   | 80           | 0.00                | 6.26              | 6.16                          | 76.57       | 0.12        | 0.34        | 3.79        |
| DDH-387-U-06   | 55           | 14.10               | 18.70             | 3.77                          | 85.26       | 0.10        | 6.15        | 6.88        |
| DDH-387-U-06   | 55           | 21.90               | 22.95             | 0.86                          | 25.99       | 0.05        | 1.21        | 1.34        |

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|              |    |       |       |      |        |      |      |      |
|--------------|----|-------|-------|------|--------|------|------|------|
| DDH-387-U-06 | 55 | 26.40 | 27.30 | 0.74 | 72.70  | 0.09 | 5.01 | 7.01 |
| DDH-387-U-06 | 55 | 29.50 | 30.40 | 0.74 | 11.39  | 0.03 | 0.55 | 0.59 |
| DDH-387-U-06 | 55 | 33.35 | 34.50 | 0.94 | 350.02 | 2.16 | 4.85 | 9.29 |
| DDH-387-U-06 | 55 | 43.90 | 45.70 | 1.47 | 73.22  | 0.12 | 5.08 | 3.21 |
| DDH-387-U-06 | 55 | 63.80 | 64.60 | 0.66 | 71.17  | 0.07 | 1.33 | 5.79 |
| DDH-391-U-06 | 60 | 0.00  | 4.00  | 3.46 | 46.20  | 0.17 | 0.22 | 4.57 |
| DDH-391-U-06 | 60 | 8.30  | 11.10 | 2.42 | 25.21  | 0.10 | 0.15 | 2.34 |
| DDH-391-U-06 | 60 | 25.40 | 28.00 | 2.25 | 124.37 | 0.19 | 5.41 | 4.96 |
| DDH-391-U-06 | 60 | 35.70 | 37.05 | 1.17 | 36.56  | 0.11 | 0.92 | 1.72 |
| DDH-396-U-06 | 55 | 0.00  | 4.25  | 3.48 | 121.88 | 0.19 | 1.61 | 8.79 |
| DDH-396-U-06 | 55 | 82.20 | 85.30 | 3.15 | 33.94  | 0.04 | 0.72 | 4.37 |

-52-43-101 (PanAm)

Morococha Mine

52

In January 2007, a diamond drilling program started in the Toldo-Muchcapata and the Tashiman-Alapampa sectors based on the 2006 surface mapping results (see Section 12.2). As of September 30, 2007, 2964.10 metres were drilled in 15 holes, comprised of 10 holes totaling 1,751.95 m in the Toldo area and five totaling 1,212.15 m in the Tashiman-Alapampa area. The main vein intercepts from this drilling program are summarized in Table 13-3:

**Table 13-3**  
**Main Vein Intersects Toldo-Muchcapata & Tashiman-Alapampa Sectors**

| DDH       | From   | To     | Width | True  |       | Ag<br>gr/t | Cu<br>% | Pb % | Zn %  | Vein                  |
|-----------|--------|--------|-------|-------|-------|------------|---------|------|-------|-----------------------|
|           |        |        |       | Width | Width |            |         |      |       |                       |
| Mor-07-02 | 65.05  | 65.55  | 0.50  | 0.48  |       | 632        | 0.44    | 0.00 | 30.00 | Rosa                  |
| Mor-07-04 | 58.75  | 59.25  | 0.50  | 0.45  |       | 283        | 0.08    | 1.97 | 0.21  | Rosa                  |
| Mor-07-04 | 106.75 | 107.70 | 0.95  | 0.90  |       | 2020       | 3.70    | 2.58 | 4.74  | Flor                  |
| Mor-07-04 | 163.40 | 163.80 | 0.40  | 0.35  |       | 151        | 0.05    | 0.27 | 3.68  | Vein 3                |
| Mor-07-05 | 104.00 | 104.65 | 0.65  | 0.58  |       | 296        | 0.01    | 0.37 | 0.55  | Rosa hw               |
| Mor-07-08 | 156.90 | 158.70 | 1.80  | 1.47  |       | 133        | 0.03    | 0.06 | 0.03  | Manto 3               |
| Mor-07-08 | 184.45 | 185.85 | 1.40  | 1.15  |       | 129        | 0.04    | 0.31 | 0.09  | Manto 2 <sup>a</sup>  |
| Mor-07-08 | 227.30 | 230.35 | 3.05  | 2.50  |       | 374        | 0.01    | 0.18 | 0.28  | Manto 2               |
| Mor-07-11 | 146.70 | 147.30 | 0.60  | 0.46  |       | 2799       | 0.51    | 0.52 | 1.13  | Vein T-2              |
| Mor-07-12 | 223.40 | 223.80 | 0.40  | 0.24  |       | 276        | 0.15    | 0.10 | 0.13  | Vein T-3              |
| Mor-07-13 | 108.25 | 110.20 | 1.95  | 1.10  |       | 1103       | 0.42    | 3.79 | 6.04  | M Tashiman            |
| Mor-07-14 | 164.15 | 164.40 | 0.25  | 0.15  |       | 2870       | 0.70    | 8.87 | 13.00 | Vein T-2 <sup>a</sup> |
| Mor-07-14 | 195.75 | 196.80 | 1.05  | 0.60  |       | 80         | 0.04    | 0.64 | 2-04  | Vein T-4              |
| Mor-07-15 | 52.30  | 52.70  | 0.40  | 0.35  |       | 124        | 0.21    | 0.35 | 8.42  | Alcantara?            |
| Mor-07-15 | 211.60 | 212.15 | 0.55  | 0.50  |       | 62         | 0.04    | 1.63 | 1.85  | San Carlos            |
| Mor-07-15 | 229.30 | 230.60 | 1.30  | 0.65  |       | 92         | 0.21    | 0.37 | 30.00 | M Tashiman A          |
| Mor-07-15 | 257.65 | 258.15 | 0.50  | 0.50  |       | 65         | 0.06    | 0.41 | 2.50  | Morro Solar           |

-53-43-101 (PanAm)

Morococha Mine

53

## **14.0 SAMPLING METHOD AND APPROACH**

### **14.1 General Sampling Procedures**

PAS has standardized sampling procedures throughout the Morococha operations and ensures through its QPs that these practices meet or exceed industry standards. All sampling that provided data for estimation of the December 31, 2006 mineral reserves and mineral resources was done by Argentum (PAS) personnel under the direct supervision of the Geology department. The data used for the estimation of mineral reserves and mineral resources at the Morococha operations were generated from underground chip-channel samples from the backs of drifts, the ribs of crosscuts, the backs of stopes, the ribs of raises and from samples of diamond drill cores (where available). Each sample was registered on a sampling card containing the following information: sample number, name of the sampler, date, place of sampling (mine working), sample type, and the x, y, and z coordinates of the sample location.

All chip-channel and core samples are sent to the Lab in Morococha. Within 24 hours of receiving the samples, the lab emails assay results for the samples (referenced by sample number, type, and location) to the Chief Geologist and certain staff members in the PAS head office for review. The assay data are then imported into the Geology department electronic database using a Century<sup>®</sup> Laboratory Information Management System (LIMS), and a hard copy of the laboratory report is filed by the Geology department. These procedures and results were reviewed and approved by the authors of this report. In the opinion of the authors of this Technical Report, the samples collected in accordance with these methods and approaches are of acceptable quality and are representative of the mineralization that comprises the Morococha deposit.

As of July 31, 2007, the Morococha database contained records from 57,563 samples 26,538 samples from diamond drilling and 31,025 samples from underground chip-channeling. Due to the large amount of samples it is not practical to show the entire database as a table in this Technical Report. For example, the database for the Manto Italia alone contains 7,958 records.

### **14.2 Drill Core Samples**

Before a new drill hole is collared, it is assigned a unique hole number. Immediately after drill cores are removed from core barrels, the cores are cleaned of mud and grease by the drill helper and placed in core boxes that are appropriate for the diameter of core drilled. Each core box is numbered consecutively and labeled with the correct drill-hole ID. The boxes of core are then transported to the surface logging shack and the cores are logged by an experienced geologist. As soon as possible after completion of a hole, the survey team completes a survey of the hole collar to define the x, y and z coordinates as well as the dip and azimuth of the drill hole.

Diamond drill cores are sampled after the cores have been logged. Prior to sampling, a geologist visually determines the positions of the vein contacts. This is a simple procedure, as the veins mostly contain massive sulphides in clear and sharp contact with the unmineralized wall rock. The geologist then marks the sample intervals across the entire vein width and at least 3m into the hangingwall and footwall waste beyond the vein contacts. Sample intervals within the veins vary in length between 0.10 and 1.5 m, depending on the total vein width and the complexity of the mineralization. Barren portions in between mineralized vein strands are sampled as a single interval if less than 6m in length. The geologist indicates the breaks between samples with paint on the core box dividers and notes the exact down-hole positions of the sample breaks on the core log sheets.

The core samples are then split using a circular saw equipped with a diamond blade. The core is sawn longitudinally to produce two equal, unbiased halves. One half of the sample is put into new, clean transparent plastic bags and the other half is returned to the core box for storage on metal or wooden racks for easy handling and future access. Two tags labeled with the sample number are inserted inside each sample bag, which is then closed and secured with a metal strip. A separate tag with the sample number and a corresponding bar code is attached to the outside of each bag.

In general, the condition of the drill cores is good the rock mass is typically of good quality, with RQD s around 65 to 70, except for the Yacumina vein, in which RQD s average around 50. In the opinion of the QP s there are no issues regarding contamination during sample splitting. During 2006, recovery of drill core averaged 85% from surface and underground diamond drilling. There are no core or sample recovery problems which could have materially impacted the accuracy and reliability of the assay results.

### **14.3 Chip-Channel Samples**

Chip-channel samples are taken to determine the metal grades of vein structures or other relatively evenly distributed mineralization such as replacement mantos. These samples are always taken perpendicular to structures to avoid introducing sampling bias. Where cross-cutting vein systems or other mineralization are present, care is taken to avoid sampling along the strike of a mineralized structure. The surface to be sampled is first cleaned of dust, mud or any other contaminating agent by washing with a water hose and scrubbing with a brush. The exact location of the chip channel is marked by two parallel spray-painted lines separated by 20 cm. The sample locations in development drifts and raises are determined by measuring from the nearest survey station or plug containing a survey spad. In working stopes, the centerline of the ore chute or manway is used as a reference point for sample locations. All underground chip-channel sampling is carried out by a trained sample collector and one assistant using a hammer and chisel. All samples collected are placed in bags that are clean and in good condition. The average sample sent to the laboratory weighs 1.0 to 1.5 kg.

In the veins and mantos of the Morococha deposit, at each sample location in development drifts, raises, and producing stopes a minimum of three samples are taken at least one from across the vein, and one each of the hangingwall and footwall waste, extending perpendicular from the vein contacts to the ribs of the drift or stope. If the vein contains different types of mineralization, separate samples are taken for each type. Mantos are similarly chip-channel sampled across their entire width, perpendicular to the mineralization. In development drifts and raises, chip-channel samples are taken every one metre across the veins or mantos. Stopes are sampled during production at least once a month on 2.0m centers along strike.

## **15.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY**

It is PAS standard practice to have a primary lab on-site at operations that performs all sample preparation and primary analyses. At Morococha, the primary laboratory is the on-site laboratory at the Amistad mill. In 2005, PAS retained Minlab SRL from Lima to run the laboratory at the Amistad mill as a third party contractor. Minlab SRL's Lima laboratory is ISO 17025 accredited and applies the same quality standards in the Amistad laboratory that are in place at its main Lima facility. Currently Minlab SRL Lima is in process of obtaining an ISO 9001 certification for the Amistad laboratory. Currently, all sample preparation and primary analyses are performed by Minlab SRL employees. It is also PAS standard practice to have a third-party secondary lab run check analyses on at least 2% of the total samples analyzed by the primary laboratory for quality assurance and quality control (QA/QC). The QA/QC program in place for the Morococha operation is described in Section 15.4.

### **15.1 Sample Preparation**

The Geology staff delivers the underground chip-channel samples to the sample preparation area of the Amistad laboratory. Each sample is contained in a plastic bag with a sample tag and bar code attached to the outside of the bag. The sample numbers and bar codes affixed to each sample bag are registered in the laboratory logbook. The average weight of the samples range from 3.0kg to 6.0kg including approximately 7% moisture. The sample preparation procedure used is as follows:

Samples and tags are transferred from the bags to aluminum trays, weighed, and dried in an oven for approximately two hours at a temperature of about 105 °C. After drying, the trays are removed from the oven and allowed to cool;

Each sample is passed through a jaw crusher followed by a roll crusher to reduce sample particle size to 85% -10 mesh;

After crushing, the samples are passed through a Jones riffle splitter to obtain a 100g sample split for pulverizing;

The 100 gram split is placed in a ring-and-puck pulverizer for approximately 45 seconds which produces a sample pulp reduced to 95% -150 mesh particle size. The pulp is then transferred to a bar-coded envelope for analysis.

### **15.2 Sample Analysis**

The sample analysis procedures used by the Amistad laboratory at the Morococha operations are as follows:

A pre-determined amount of each sample pulp is weighed and then digested in acids on a laboratory hot plate. After digestion, the samples are allowed to cool and then are homogenized;

The digested samples are then assembled into batches and analyzed by atomic absorption spectroscopy (AA) for Ag, Zn, Pb, Cu and Fe. For samples with AA analysis results for Zn or Pb that are greater than 10%, the analysis is repeated by titration. Where results of AA analysis of Ag are greater than 500 g/t Ag, the samples are re-analyzed using fire assay (FA) procedures.

The results for each metal analyzed are entered directly into the electronic database using LIMS (see Section 14.1). The Geology department obtains the sample results directly from the database and imports the information into Autocad® or Datamine software packages, as needed;

**15.3 Sample Security (Chain of Custody)**

PAS maintains complete chain of custody for all chip-channel samples between the time the samples are collected and prepared for primary analysis by the Amistad laboratory at the Morococha operations site. All persons collecting and transporting the samples to the Amistad laboratory are PAS employees. PAS senior management personnel and/or members of the PAS Board of Directors do not participate in collection or transportation of the samples. The personnel that operate the Amistad laboratory are employees of Minlab SRL, which operates the laboratory under contract to PAS. Sample pulps sent to the secondary laboratory (ALS Chemex in Lima, Peru) are generally transported to the laboratory in Lima by PAS employees.

**15.4 Quality Assurance/Quality Control (QA/QC)**

The purpose of the QA/QC programs currently in place at Morococha is to monitor, control and constantly improve the quality of the laboratory performing the primary assays of chip-channel samples and diamond core samples. At the beginning of 2006, PAS implemented new QA/QC procedures that involve the submission of certified standard samples (pulps) as well as sterile samples (blanks). Standards were collected from Morococha mill feed over a two week period and were prepared and certified by ALS Chemex in Lima, which maintains ISO 9001:2000 certification. The LIMS system (Laboratory Information Management System) installed at the mine automates data entry and secures safe data storage in the electronic database.

The Amistad laboratory conducts its own routine internal QA/QC program and posts the results on the LIMS database. This program consists of:

One internal standard sample and one blank sample with each assay batch;

A sieve analysis of a randomly selected pulp from each sample batch to ensure that the particle size distribution in the pulp is at least 95% -150 mesh;

A second QA/QC program independent of the Amistad laboratory is supervised by the Geology department. This program includes:

Routine submission of standard samples and blanks The responsible geologist adds one certified standard and one blank sample daily with the chip-channel and diamond core samples submitted for assay;

Periodic submission of duplicate diamond core samples taken as splits ( $1/4$  core) of the remaining half core stored in the core boxes and duplicate chip-channel samples consisting of a second sample of equal weight taken at the same sample location;

Submission of duplicate sample pulps to an independent secondary laboratory.

PAS currently contracts the ALS Chemex laboratory in Lima to act as the external secondary laboratory for analysis of check samples by atomic absorption, titration or fire assay for Ag, Zn, Pb and Cu. The ISO 9001:2000 certified ALS Chemex laboratory reports assay results to PAS by e-mail and by certified paper copy. In the opinion of the author of this section of the Technical Report, the sample preparation and analytical procedures are adequate, and the author believes that PAS maintains proper and adequate chain of custody (security) of all samples through the sample preparation and analytical process.

#### **16.0 DATA VERIFICATION**

Since the date of the initial Morococha Operations NI 43-101 Technical Report (February 2004), PAS has established a comprehensive QA/QC program for verification of assay data, where one did not previously exist. This program, which meets generally accepted North American industry practices, is summarized as follows:

Mill samples and underground chip-channel samples are currently run through the Amistad operations laboratory, which serves as the primary assay laboratory for all samples except those from the exploration diamond drilling program. Diamond drill samples are sent to the certified ALS-Chemex laboratory in Lima for primary analysis. Production samples (underground channel samples, mill samples) are sent to a laboratory in Morococha that is operated by MINLAB SRL for check analysis of Ag, Zn, Pb, and Cu, with some samples also sent to ALS-Chemex in Lima for check analysis.

Over the period from November 2006 through August 2007, the results of the submission of standard samples, blanks, and duplicate check sample analyses have been acceptable, as shown by Graphs 16-1 through 16-9. Graph 16-1 shows the performance of the Morococha Amistad laboratory with respect to sample blanks for silver:

#### **Graph 16-1: Blank Results Silver**

-58-43-101 (PanAm)

Morococha Mine

58



The blank sample results were generally acceptable for the period covered by the data. There were 17 blanks that failed, assaying more than 2.0 g/t Ag. All but four of these occurred between January and March. Only six blank samples for lead were outside of the limit (0.02% Pb), as shown in Graph 16-2, but only two of these took place during January through March when the majority of the failed silver blanks occurred.

**Graph 16-2: Blank Results Lead**

Blank sample results for zinc indicated 10 failures as shown in Graph 16-3, with seven of these occurring in the same early 2007 timeframe as the majority of the silver blank failures. These data together indicate that the Minlab facility at Morococha had sample preparation issues (possibly due to poor cleaning of crushers/pulverizers in the sample preparation section) between January and April 2007.

**Graph 16-3: Blank Results Zinc**

The Minlab Morococha laboratory performed well in the analysis of standard samples. Graph 16-4 illustrates the results of the analyses of the Standard #1 (198 g/t Ag) that was submitted with drill hole samples for November 2006 through September 2007. Although the standard analyses showed a slight high bias within acceptable limits, there were only two standards that fell outside of acceptable limits, both of which occurred in March 2007.

**Graph 16-4: Standard No. 1 Results Silver**

The results for Standard No. 1 (1.38%) for lead were also acceptable. During the same period in which the two silver standards exceeded acceptable limits, there were eight standard samples that had lead analyses which exceeded acceptable limits (out of a total of 14), as shown in Graph 16-5:

**Graph 16-5: Standard No. 1 Results Lead**

The results of Standard No.1 for zinc (3.97%) were acceptable, with the analyses showing a slight negative bias, but within allowable limits. A total of seven standard assays fell outside of acceptable limits, as shown in Graph 16.6:

-60-43-101 (PanAm)

Morococha Mine

60

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**Graph 16-6: Standard No. 1 Results Zinc**

The results of check samples submitted to a third party laboratory (duplicate sample pulps analyzed at ALS Chemex) generally fell within acceptable limits. Silver analyses done by the primary laboratory (Minlab Morococha) showed a slight negative bias above approximately 375 g/t Ag, as shown in Graph 16-7:

**Graph 16-7: Check Sample Results Silver**

Check sample results for lead also fell within acceptable limits while displaying no overall biases, as shown in Graph 16-8:

-60-43-101 (PanAm)

Morococha Mine

61

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**Graph 16-8: Check Sample Results Lead**

The results for zinc indicate a slight positive bias for the analyses performed by ALS Chemex for grades above 6,000ppm (0.60% Zn), as shown in Graph 16-9:

**Graph 16-9: Check Sample Results Zinc**

In the opinion of Mr. Donald Earnest, P. Geo., President of REI, one of the best verifications of the data that serve as the foundation for the estimation of Mineral Resources and Mineral Reserves is the acceptable reconciliation between the tonnes and grade predicted by the mine plan and production schedule (which are based on the Mineral Reserves) and the actual mill production. For the Morococha operations, the reconciliations have been acceptable, as indicated by the summary for years 2005 through August 2007 shown in Table 16-1.

-62-43-101 (PanAm)

Morococha Mine

62

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**Table 16-1: Summary of Budget vs. Ore Processed**

| <b>2007 (YTD August)</b>        |                | <b>Tonnes</b> | <b>Ag (g/t)</b> | <b>Pb (%)</b> | <b>Zn (%)</b> | <b>Cu (%)</b> |
|---------------------------------|----------------|---------------|-----------------|---------------|---------------|---------------|
| <b>Budget Forecast</b>          | <b>Milling</b> | 426,047       | 172             | 3.94          | 1.94          | 0.38          |
| <b>Actual Mill Production</b>   |                | 445,564       | 169             | 3.51          | 1.32          | 0.50          |
| <b>Variance (% of Forecast)</b> |                | 104.6%        | 98.4%           | 89.1%         | 68.0%         | 131.6%        |
| <b>2006</b>                     |                | <b>Tonnes</b> | <b>Ag (g/t)</b> | <b>Pb (%)</b> | <b>Zn (%)</b> | <b>Cu (%)</b> |
| <b>Budget Forecast</b>          | <b>Milling</b> | 605,798       | 201             | 3.97          | 1.31          | 0.37          |
| <b>Actual Mill Production</b>   |                | 652,571       | 186             | 3.73          | 1.33          | 0.41          |
| <b>Variance (% of Forecast)</b> |                | 107.7%        | 92.6%           | 94.0%         | 101.5%        | 110.8%        |
| <b>2005</b>                     |                | <b>Tonnes</b> | <b>Ag (g/t)</b> | <b>Pb (%)</b> | <b>Zn (%)</b> | <b>Cu (%)</b> |
| <b>Budget Forecast</b>          | <b>Milling</b> | 521,887       | 219             | 3.92          | 1.62          | 0.40          |
| <b>Actual Mill Production</b>   |                | 536,214       | 215             | 4.27          | 1.59          | 0.36          |
| <b>Variance (% of Forecast)</b> |                | 102.7%        | 98.2%           | 108.9%        | 98.1%         | 90.0%         |

For the years since the date of the initial Morococha Operations NI 43-101 Technical Report (February 2004), the mill has consistently produced from 3% to 8% more tonnes than forecast, at silver grades that fall between 93% and 98% of forecast. Lead grades for the same period range from 89% to 109% of forecast. Zinc production was steady at 98% to 102% of forecast grades through 2006, although year-to-date (through August) zinc grades have fallen to approximately 68% of forecast. Copper grades produced have on average ranged from 90% of forecast in 2005 to 132% of forecast for year-to-date 2007. A breakdown of these reconciliations is shown in Table 19-6 in Item 19.

In the opinion of Mr. Donald Earnest, P. Geo., President of REI, the acceptable performance of the mine operations against budget forecasts for the past 2.5 years provides significant support to the verification and validity of the data that are the basis for the mineral resource and mineral reserve estimates.

## **17.0 ADJACENT PROPERTIES**

The Toromocha disseminated copper system overlies certain of Argentum's underground mining operations within the boundaries of Argentum's mining concessions. Peru Copper Inc., a copper mining company carrying on business in Peru, has recently been granted by Centromin the option to acquire mining concessions and surface rights in respect of the Toromocha property. In June 2007 Chinalco acquired all of the outstanding shares in Peru Copper Inc. PAS had discussions with Chinalco with respect to negotiating a resolution of surface rights issues that may arise between them in connection with their respective operations. See section 24.1.6 for a discussion of the potential impacts of the Toromocha Pit development on PAS' Morococha underground operations.

## **18.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

### **18.1 Metallurgical Testing and Assumptions**

Forecasts for metal recovery are based on historical performance of plant operations. The Morococha operation has many years of production history, and as a result the metallurgical behavior of the ores from the deposit is very well established, and it is the opinion of the authors of this section of the Technical Report that there is sufficient experience and knowledge to predict the metallurgical recoveries used in the life of mine (LOM) plan to a reasonable degree of accuracy. Additional metallurgical testing is undertaken from time to time to explore ideas for improvement or the application of new technology as it becomes available. This type of testing can only lead to improvements over the life of mine economic case as it is presented in Section 25 of this Technical Report.

Martin Wafforn, P.Eng., has reviewed the metallurgical assumptions used in the economic analysis and compared them to the historic performance of the Amistad mill. In addition, the metallurgical assumptions in the LOM plan have been reviewed by the Pan American Silver Peru S.A.C., corporate metallurgist, Edgar Canta, who, while not a Qualified Person according to NI 43-101 requirements, is an expert by virtue of experience on flotation metallurgy. Mr. Canta has presented papers on flotation metallurgy internationally and has written a detailed report on the Morococha plant entitled *Memoria Descriptiva del Proceso Metalurgico de Planta Concentradora* dated September, 2007 that contains the basis for the processing and metallurgical information presented in this Section 18 and in Section 25.2 of this Technical Report.

Because the Morococha Mine is an operating mine with an operating mineral processing plant (mill), metallurgical testing is ongoing in the plant. A description of the existing Amistad mill is presented in section 25.2. The samples on which the metal recovery forecasts are based are on the hundreds of thousands of tonnes of ore that have been processed in the plant since PAS's acquisition of the operation in 2004, and are considered by the co-authors to be representative.

The vein and manto ore bodies at the Morococha Mine are spread over a wide area and have variable mineralogy and metal grades. All of the material that comprises the mineral reserves is sulphide and responds well to flotation. The projected recoveries used for the life of mine (LOM) plan take into account the projected mill head grades for the individual metals (silver, lead, zinc, and copper) that are incorporated into the mine plan from the mineral reserves. The criteria used for the forecast blending of ore from the different veins and mantos are similar to current actual plant conditions and are considered by the co-authors to provide a reasonable basis for the assumptions of metallurgical recovery for the different metals to concentrates.

It is standard practice to perform metallurgical testwork in the Amistad laboratory on samples from new mineralized structures once these veins or mantos are first intersected. In addition, special projects are currently underway to further improve the level of understanding of the deposit metallurgy, and these are discussed later in this section.

The metallurgical assumptions used in the LOM plan are shown in Table 18-1 (Life of Mine Head Grade Projections), Table 18-2 (Life of Mine Metallurgical Recovery Projections), and Table 18-3 (Life of Mine Concentrate Production Projections). Tables 18-1 and 18-2 show entries of 0 for gold because there are no data for gold grades in the mineral reserves and mineral resources. The mine typically receives payment for a small amount of gold that is recovered from the various concentrates that are produced, and for the period in 2007 where actual production figures are known, the actual amount of gold produced was included in the cash flow projections shown in section 24.8 of this Technical Report. The co-authors of this report have no reason to believe that the gold revenues from the concentrates will change during the life of the mine, however for the purposes of future cash flow projections, gold revenues have been set to zero.

Since June of 2007, the mine has been utilizing excess capacity in the plant by processing relatively small quantities of high grade ore from third parties in return for a processing fee. Between June and October 2007, the plant processed a total of 16,159 tonnes grading 686 g/t silver, 6.45% zinc, 5.35% lead and 0.96% copper. Because this small amount of material is not part of the normal Morococha ore stream, it is not included in Table 18-3 or in the Morococha LOM plan as either revenue or a cost. The forecast production for 2007 is 680,000 tonnes of ore.

-65-43-101 (PanAm)

Morococha Mine

65

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**Table 18-1: Life of Mine Head Grade Projections**

| Head Grade          | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    | 2015    | 2016    | 2017    |
|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <i>Tonnes</i>       |         |         |         |         |         |         |         |         |         |         |         |
| <i>Milled</i>       | 679,820 | 660,900 | 688,900 | 684,600 | 699,100 | 699,200 | 703,900 | 705,000 | 705,000 | 705,000 | 243,990 |
| <i>Silver (g/t)</i> | 172     | 166     | 169     | 166     | 166     | 160     | 162     | 146     | 146     | 146     | 146     |
| <i>Zinc</i>         | 3.51    | 3.41    | 3.79    | 3.72    | 3.55    | 3.69    | 3.69    | 4.43    | 4.43    | 4.43    | 4.43    |
| <i>Lead</i>         | 1.45    | 1.41    | 1.47    | 1.43    | 1.33    | 1.45    | 1.27    | 1.99    | 1.99    | 1.99    | 1.99    |
| <i>Copper</i>       | 0.48    | 0.51    | 0.40    | 0.40    | 0.40    | 0.40    | 0.40    | 0.26    | 0.26    | 0.26    | 0.26    |
| <i>Gold</i>         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

**Table 18-2: Life of Mine Recovery Projections**

| % Recovery    | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------|------|------|------|------|------|------|------|------|------|------|------|
| <i>Silver</i> | 84.9 | 84.2 | 84.6 | 84.2 | 84.2 | 83.2 | 83.6 | 82.0 | 82.0 | 82.0 | 82.0 |
| <i>Zinc</i>   | 83.8 | 82.9 | 84.6 | 84.6 | 84.2 | 84.5 | 84.5 | 85.4 | 85.4 | 85.4 | 85.4 |
| <i>Lead</i>   | 74.1 | 73.6 | 74.2 | 73.6 | 72.3 | 73.9 | 71.6 | 76.0 | 76.0 | 76.0 | 76.0 |
| <i>Copper</i> | 69.3 | 72.9 | 63.9 | 62.4 | 62.4 | 62.4 | 62.4 | 51.7 | 51.7 | 51.7 | 51.7 |
| <i>Gold</i>   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |

**Table 18-3: Life of Mine Concentrate Projections**

|                | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   | 2013   | 2014   | 2015   | 2016   | 2017   |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Zinc</b>    |        |        |        |        |        |        |        |        |        |        |        |
| <b>Con.</b>    |        |        |        |        |        |        |        |        |        |        |        |
| <i>Tonnes</i>  |        |        |        |        |        |        |        |        |        |        |        |
| <i>(DMT)</i>   | 41,686 | 39,186 | 45,684 | 43,546 | 42,212 | 43,603 | 43,896 | 53,396 | 53,396 | 53,396 | 18,480 |
| <i>Ag</i>      |        |        |        |        |        |        |        |        |        |        |        |
| <i>(g/DMT)</i> | 247    | 246    | 193    | 197    | 208    | 192    | 195    | 142    | 142    | 142    | 142    |
| <i>Zn (%)</i>  | 48.0   | 47.8   | 48.4   | 49.5   | 49.5   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   |
| <b>Lead</b>    |        |        |        |        |        |        |        |        |        |        |        |
| <b>Con.</b>    |        |        |        |        |        |        |        |        |        |        |        |
| <i>Tonnes</i>  |        |        |        |        |        |        |        |        |        |        |        |
| <i>(DMT)</i>   | 14,602 | 13,755 | 15,057 | 14,331 | 13,332 | 14,695 | 12,544 | 20,897 | 20,897 | 20,897 | 7,232  |
| <i>Ag</i>      |        |        |        |        |        |        |        |        |        |        |        |
| <i>(g/DMT)</i> | 2,126  | 1,824  | 1,891  | 1,932  | 2,124  | 1,839  | 2,202  | 1,996  | 1,996  | 1,996  | 1,996  |
| <i>Pb (%)</i>  | 50.3   | 50.0   | 49.8   | 50.3   | 50.3   | 51.0   | 51.0   | 51.0   | 51.0   | 51.0   | 51.0   |
| <b>Copper</b>  |        |        |        |        |        |        |        |        |        |        |        |
| <b>Con.</b>    |        |        |        |        |        |        |        |        |        |        |        |
| <i>Tonnes</i>  |        |        |        |        |        |        |        |        |        |        |        |
| <i>(DMT)</i>   | 9,486  | 9,816  | 8,240  | 7,238  | 7,822  | 6,978  | 7,025  | 3,824  | 3,824  | 3,824  | 1,323  |
| <i>Ag</i>      |        |        |        |        |        |        |        |        |        |        |        |
| <i>(g/DMT)</i> | 6,145  | 5,873  | 7,389  | 8,178  | 7,741  | 8,281  | 8,404  | 9,200  | 9,200  | 9,200  | 9,200  |
| <i>Cu (%)</i>  | 24.1   | 25.0   | 22.5   | 23.6   | 22.3   | 25.0   | 25.0   | 25.0   | 25.0   | 25.0   | 25.0   |

-66-43-101 (PanAm)

Morococha Mine

66



Silver recovery is directly related to silver head grade as well as the copper and lead content of the ores. The relationship between the silver head grade and the metallurgical recovery of silver since 2004 is shown in Graph 18-1. Although the current head grades for silver are approximately 30% lower than in 2004, the silver recovery has only dropped by 2.4%. The reasons for the current lower silver head grade include:

Increasing production from the high zinc grade Codiciada area; and

Reducing the production from the high silver grade Buenaventura vein in the Yacumina portion of the mine. The proportion of production scheduled from the Codiciada zone will increase towards the later stages of the LOM plan since that area contains the majority of the current mineral reserves. As a result of focus in this zone, the silver head grade will decrease and the zinc grade increase. The silver recovery in the life of mine plan ranges from 82.0% to 85.0%.

**Graph 18-1: Silver Head Grade vs. Recovery**

Graph 18-2 for copper head grade versus recovery since 2004 shows improving copper recovery corresponding to an increasing copper head grade over the course of the last 2 years. Copper grades are forecast to fall in the LOM plan with a corresponding decrease in copper recovery and copper concentrate production.

43-101 (PanAm)

Morococha Mine

67

**Graph 18-2: Copper Head Grade vs. Recovery**

The same analysis for lead is as shown in Graph 18-3. Going forward, lead grades are forecast to remain the same for a number of years and then increase towards the end of the mine life with a corresponding reduction in the copper grade.

**Graph 18-3: Lead Head Grade vs. Recovery**

Graph 18-4 depicts zinc head grade versus zinc recovery since 2004 and reflects the improvements that have taken place in the mill over the course of the previous 2 years in particular. For the LOM plan, zinc recovery has been increased to 84% despite forecast declining head grades. Zinc is the most important economic metal at Morococha, with zinc sales comprising 50% of the total revenue in the LOM plan. Silver sales total 30% of the total revenue with lead and copper at 10% each. As a result of zinc's importance to revenues generated by the operation, the priority to date has been improving zinc recoveries. Zinc grades and recoveries are forecast to increase further in the LOM plan as production from the Codiciada zone is increased.

43-101 (PanAm)

Morococha Mine

68

### Graph 18-4: Zinc Head Grade vs. Recovery

#### 18.2 Plant Improvement Projects

A study has been completed of the Amistad plant aimed at identifying processing strengths and weaknesses and finding opportunities for improvement. Based on this study, research work and reconfiguration of the entire milling process has been prioritized, with the goal to create economic and environmental value. Since January 2006 to date, the following changes have been made in the Amistad process plant:

**Crushing Circuit** The design of the secondary crusher bowl liner has been changed to provide a finer crush. This change improved the final crushing discharge product from 65% -3/4 inch to 84% -3/4 inch.

**Grinding Circuit** An 8 x 10 ball mill was added to the circuit to achieve a finer grind and improve the liberation of the sulphide minerals. This change caused the particle size of the grinding circuit product to improve from 53% minus 200 mesh to 60% minus 200 mesh, and also increased the throughput of the plant to current levels.

**Flotation Circuit** The circuit was expanded to achieve the 2,000 tonnes per day that the plant is current capable of. The plant has also been streamlined to reduce circulating loads and to replace deficient flotation cells. Testwork was conducted to allow the elimination of the use of bi-cromate as a reagent as it is a carcinogen.

**Filtration Circuit** The old zinc concentrate filters were inefficient and could not achieve the desired moisture content partly because of the inherent inefficiency of operating vacuum pumps at high altitude. To improve this, a new pressure filtration plant is in the process of being installed.

43-101 (PanAm)

Morococha Mine

69

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## **19.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES**

### **19.1 Mineral Reserve Estimation Methodology**

#### **19.1.1 Block Volumes**

As described in the initial Morococha Operations NI 43-101 Technical Report (February 2004), mineral reserve block boundaries were drawn on vertical longitudinal sections, using assays from drift sampling as a guide to determine block boundaries along the strike of the vein. Block boundaries above and below each level are determined either by assays from raise sampling or by projection distance limits established for each vein. The vertical projection distance limits vary from 15 to 25 metres for proven blocks. Probable blocks extend from each proven block upwards or downwards for a distance of 25m to 35m to a 50m projection limit, so that the maximum total projection distance (proven and probable blocks combined) from level sample data does not exceed 50m. Figure 7 is an example that shows the blocks as constructed for the Veta Isabel.

Once the block boundaries are established, block areas in the plane of the vein are computed by measuring block lengths and widths on the vertical longitudinal sections and applying a factor to account for the average dip of the vein. Block volumes are then calculated by taking the block areas and multiplying by the weighted average mining width for each block (derived from drift and raise sampling). The mining widths used for computing block volumes include extending internal dilution out to minimum mining widths, and in certain cases, the application of additional external dilution (see Item 19.1.3).

In the opinion of Mr. Donald Earnest, P. Geo., President of REI, the methods used by the Morococha geology staff to construct reserve blocks and compute block volumes follow classic standard manual procedures for vein deposits, and are appropriate for mineral reserve and mineral resource estimation for the veins and mantos that comprise the Morococha deposit.

#### **19.1.2 Block Grades**

Block grades are estimated for silver, lead, copper, and zinc simply by obtaining weighted averages of the assays from the drift and raise sampling that falls within the boundaries of a block. The average grade for each block is then adjusted downwards by the application of external dilution, as described in the following Item 19.1.3. REI reviewed the equations used for calculating block grades and found them to be appropriate.

#### **19.1.3 Dilution**

Since the initial Morococha Operations NI 43-101 Technical Report (February 2004), the method used by the Morococha technical staff to estimate dilution for all veins and mantos (except the Manto Italia) has been changed to conform to the method derived by T.A. O Hara. This method takes into account the true width and dip of the vein or manto to which the dilution is applied, and also the mining method to be used. With this method, percent dilution is estimated as follows:

43-101 (PanAm)

Morococha Mine

70

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$$\% \text{ Dilution} = 25 / (\sqrt{\text{Width}}) \times \text{Sin (Dip)}$$

Where: 25 = the constant derived by O Hara for Cut and Fill Mining

Width = True Width of Vein/Manto

Dip = Dip of Vein/Manto (Measured from Horizontal)

Table 19-1 illustrates some examples of this calculation at varying vein/manto widths and dips:

**Table 19-1: Dilution Examples (T.A. O Hara Method)**

| Width | Dip | % Dilution |
|-------|-----|------------|
| 2     | 80  | 17.95      |
| 4     | 80  | 12.69      |
| 6     | 80  | 10.36      |
| 8     | 80  | 8.98       |
| 10    | 80  | 8.03       |
| 12    | 80  | 7.33       |
| 14    | 80  | 6.78       |
| 16    | 80  | 6.35       |
| 18    | 80  | 5.98       |
| 20    | 80  | 5.68       |

| Width | Dip | % Dilution |
|-------|-----|------------|
| 2     | 60  | 20.41      |
| 4     | 60  | 14.43      |
| 6     | 60  | 11.79      |
| 8     | 60  | 10.21      |
| 10    | 60  | 9.13       |
| 12    | 60  | 8.33       |
| 14    | 60  | 7.72       |
| 16    | 60  | 7.22       |
| 18    | 60  | 6.80       |
| 20    | 60  | 6.45       |

| Width | Dip | % Dilution |
|-------|-----|------------|
| 2     | 40  | 27.50      |
| 4     | 40  | 19.45      |
| 6     | 40  | 15.88      |
| 8     | 40  | 13.75      |
| 10    | 40  | 12.30      |
| 12    | 40  | 11.23      |
| 14    | 40  | 10.39      |
| 16    | 40  | 9.72       |
| 18    | 40  | 9.17       |
| 20    | 40  | 8.70       |

For the Manto Italia, the dilution applied to the December 31, 2006 Mineral Reserve blocks remained the same at an across the board 10%. As a check of this assumption, REI examined the Manto Italia workings in Stope 899 off of the 375 level during its visit to the Morococha operations on October 4, 2007. Based on those observations, REI believes that the 10% dilution factor used for Manto Italia may not be sufficient. Although the shallow-dipping mineralization was being mined fairly cleanly, dilution (based on REI's visual estimate) was approximately 15%.

Mr. Donald Earnest, P. Geo., President of REI has reviewed this O Hara dilution method and finds it to be reasonable. In the opinion of Mr. Donald Earnest, P. Geo., President of REI, the application of this method to the Morococha veins and mantos is a significant improvement over the methods previously used at Morococha, which are described in the initial Morococha Operations NI 43-101 Technical Report dated February 2004.

Zero grade was applied to all diluting material, which effectively reduced block grade averages on the order of 20% to 30% (depending on the vein) for blocks with vein widths up to 1.0m. In the opinion of Mr. Donald Earnest, P. Geo., President of REI, this approach (which is common in narrow vein deposits) results in block grade estimates at Morococha that may be conservative. During the examination of the stopes in Veta Buenaventura and the veins of the Manuelita area during his 2003 site visit, Mr. Donald Earnest, P. Geo., President of REI observed mineralized stringers in the wallrocks of the stopes that definitely are contributing grade to the ore flow to the mill, particularly in the stopes hosted by volcanics. REI recommends that a program be initiated to sample hangingwall and footwall waste to determine the amount of actual metal contributed by of this material.

43-101 (PanAm)

Morococha Mine

71

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**19.1.4 Block Tonnes**

Block tonnages were computed by applying specific gravity values to the computed block volumes. The specific gravity values used for the December 31, 2006 Mineral Reserves were revised from those used in previous years. The revised specific gravity factors were estimated based on the compilation of data obtained from 586 samples taken from various parts of the Morococha deposit. Each sample was first assayed for silver, copper, lead, and zinc. An average specific gravity for mineralized material ( ore ) and wallrock ( waste ) for each of the various zones of the deposit was then determined by regression analysis of the calculated specific gravities that were derived from the sulfide mineral concentrations calculated from the assayed metal grades for each of the 586 samples. Based on these analyses, the specific gravity factors for the various zones are as follows:

| <b>Zone</b>                                | <b>Ore</b> | <b>Waste</b> |
|--|------------|--------------|
| Manuelita, Alpamina, Sulfurosa             | 3.28       | 2.53         |
| Codiciada, Alapampa, San Antonio, Anticona | 3.30       | 2.70         |
| Yacumina, Tashiman, San Florencio          | 3.09       | 2.59         |
| Manto Italia, Manto Victoria               | 3.71       | 2.60         |

In the opinion of Mr. Donald Earnest, P. Geo., President of REI, the specific gravities used for estimation of the December 31, 2006 Morococha Mineral Reserves are reasonable, differing only slightly from the values discussed in the initial Morococha Operations NI 43-101 Technical Report dated February 2004.

**19.1.5 Adjustment Factors**

The Morococha geology staff continues to discount (cap) individual high grade outlier assays prior to estimating average block grades for each metal. The method currently used replaces the original erratic (outlier) assay with the average value of the two adjacent samples if the value of the outlier assay differs from the average of all samples in the block by more than two standard deviations.

In addition to the high grade capping adjustments, individual block tonnes are adjusted to account for mining recovery (extraction). The overhand ( ascending ) cut and fill method used for mining the Morococha veins results in an average ore extraction of 89% (based on a standard block height of 70m) of the total block tonnes in order to allow for ore pillars that must be left at the bottom of each block to provide support for ore loading facilities (chutes, etc.). The same extraction factor is applied to blocks planned for mining by shrink stoping, where the method is applicable. For the Manto Italia deposit (which is mined by mechanized room and pillar methods), an extraction factor of 80% is used. Mr. Donald Earnest, P. Geo., President of REI examined the Manto Italia workings on the 450 level and Stope 899 off of the 375 level during his visit to the Morococha operations on October 4, 2007. Based on those observations, Mr. Donald Earnest, P. Geo., President of REI believes that the 80% extraction factor used for Manto Italia is appropriate.

**19.2 Mineral Reserves and Mineral Resources**

Mineral reserves and mineral resources are reported separately for the Morococha operations. No mineral reserves are included in the tabulation of mineral resources.

**19.2.1 Mineral Reserves**

As of December 31, 2007, the proven and probable mineral reserves for the Morococha operations, as reported in the Pan American Silver Corporation Annual Information Form for the Year Ended December 31, 2007, are as follows:

|                  |                  |
|------------------|------------------|
| <b>Proven:</b>   | <b>4,073,423</b> |
|                  | <b>Tonnes @</b>  |
|                  | <b>155 g/mt</b>  |
|                  | <b>Ag, 0.36%</b> |
|                  | <b>Cu, 1.49%</b> |
|                  | <b>Pb, 3.84%</b> |
|                  | <b>Zn</b>        |
| <b>Probable:</b> | <b>2,304,141</b> |
|                  | <b>Tonnes @</b>  |
|                  | <b>157 g/mt</b>  |
|                  | <b>Ag, 0.41%</b> |
|                  | <b>Cu, 1.83%</b> |
|                  | <b>Pb, 4.16%</b> |
|                  | <b>Zn</b>        |
| <b>Total:</b>    | <b>6,377,564</b> |
|                  | <b>Tonnes @</b>  |
|                  | <b>156 g/mt</b>  |
|                  | <b>Ag, 0.38%</b> |
|                  | <b>Cu, 1.61%</b> |
|                  | <b>Pb, 3.96%</b> |
|                  | <b>Zn</b>        |

The above mineral reserve estimates were prepared under the supervision of, or were reviewed by Michael Steinmann, P.Geol., Senior Vice President, Geology and Exploration, Pan American Silver Corp., and Martin G. Wafforn, P.Eng., Vice President of Mine Engineering, as Qualified Persons as defined in NI 43-101. Mr. Donald Earnest, P. Geo., President of REI notes that the mineral reserves above are stated as estimated and reported by PAS, and have not been rounded in accordance with NI 43-101 guidelines.

The following metal prices were used for estimation of the mineral reserves summarized above:

|         |                     |
|---------|---------------------|
| Silver: | US\$9.00/troy ounce |
| Lead:   | US\$1,000/Tonne     |
| Copper: | US\$5,000/Tonne     |
| Zinc:   | US\$2,100/Tonne     |
| Gold:   | US\$425/troy ounce  |

Mr. Donald Earnest, P. Geo., President of REI notes that while these metal prices are significantly higher than the metal prices reported in the initial Morococha Operations NI 43-101 Technical Report dated February 2004, these prices reflect the metal market conditions and reasonable metal price forecasts that were available at the end of 2006. Current spot prices for all five metals are significantly higher than those used for the December 31, 2006 Mineral Reserve estimate.

Table 19-2 summarizes these reserves by economic unit area, zone and by vein/manto. In the opinion of Mr. Donald Earnest, P. Geo., President of REI, these reserves were estimated in accordance with the guidelines set forth in NI 43-101 and in accordance with accepted North American mining industry practices.



43-101 (PanAm)

Morococha Mine

73

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**Table 19-2: Summary of Proven / Probable Mineral Reserves by Vein / Manto  
MOROCCOCHA OPERATIONS**

**Summary of Proven/Probable Ore Reserves By Vein & Manto  
As of December 31, 2006**

Ag=US\$9.00/oz, Pb = US\$1,000/Tonne, Cu =  
US\$5,000/Tonne, Zn = US\$2,100/Tonne, Au =  
US\$525/oz

Page1/2

| Vein/Manto                                   | Mine Area | V/RB Width (m) | Mining Width (m) | Tonnes (M)       | Ag (g/mt)  | Cu (%)      | Pb (%)      | Zn (%)      | Value/MT (\$US) |
|--|-----------|----------------|------------------|------------------|------------|-------------|-------------|-------------|-----------------|
| <b>MANUELITA ECONOMIC UNIT AREA</b>          |           |                |                  |                  |            |             |             |             |                 |
| Veta 3                                       | Manuelita | 0.45           | 0.83             | 15,787           | 126        | 0.37        | 0.82        | 4.87        | \$ 78.73        |
| Veta 4                                       | Manuelita | 0.55           | 0.94             | 88,752           | 144        | 0.55        | 0.84        | 2.94        | \$ 65.33        |
| Veta 5                                       | Manuelita | 0.39           | 0.80             | 52,122           | 119        | 0.26        | 1.26        | 4.83        | \$ 73.44        |
| Veta 6                                       | Manuelita | 0.29           | 0.80             | 24,726           | 110        | 0.24        | 0.83        | 4.98        | \$ 70.98        |
| Veta 10                                      | Manuelita | 0.67           | 1.06             | 94,537           | 145        | 0.41        | 1.58        | 5.18        | \$ 84.88        |
| Veta 11                                      | Manuelita | 2.40           | 2.87             | 189,594          | 191        | 0.26        | 3.94        | 4.64        | \$ 95.94        |
| Veta 13A                                     | Manuelita | 0.43           | 0.89             | 37,683           | 113        | 0.38        | 1.49        | 3.38        | \$ 62.39        |
| Veta 3B                                      | Manuelita | 0.26           | 0.80             | 19,442           | 137        | 0.64        | 0.91        | 2.89        | \$ 65.04        |
| Veta 5C                                      | Manuelita | 0.68           | 1.04             | 29,949           | 128        | 0.54        | 0.69        | 3.26        | \$ 63.94        |
| Veta C                                       | Manuelita | 0.97           | 1.32             | 24,705           | 163        | 0.26        | 1.38        | 3.03        | \$ 67.86        |
| Veta Don Pedro                               | Manuelita | 0.45           | 0.81             | 27,839           | 164        | 0.18        | 3.14        | 3.88        | \$ 80.06        |
| Veta Eneida                                  | Manuelita | 1.33           | 1.70             | 87,038           | 169        | 0.21        | 2.05        | 2.53        | \$ 66.37        |
| Veta Ingenieros                              | Manuelita | 0.40           | 0.80             | 18,748           | 200        | 0.82        | 0.96        | 1.53        | \$ 69.41        |
| Veta Lila                                    | Manuelita | 0.22           | 0.80             | 8,128            | 89         | 0.24        | 1.80        | 4.64        | \$ 67.03        |
| Veta Minero 378                              | Manuelita | 0.83           | 1.22             | 54,242           | 117        | 0.62        | 1.49        | 5.74        | \$ 86.46        |
| Veta Ramal 800                               | Manuelita | 0.25           | 0.80             | 9,679            | 175        | 0.88        | 0.60        | 2.25        | \$ 70.00        |
| Veta Roma                                    | Manuelita | 0.75           | 1.07             | 112,845          | 200        | 0.52        | 1.16        | 1.93        | \$ 69.31        |
| Veta Rosalvina                               | Manuelita | 0.65           | 0.99             | 13,512           | 247        | 0.20        | 2.46        | 3.87        | \$ 95.14        |
| Veta Split 11-H                              | Manuelita | 0.34           | 0.80             | 24,758           | 123        | 0.20        | 1.59        | 4.74        | \$ 73.68        |
| Veta Split Roma                              | Manuelita | 0.78           | 1.13             | 59,564           | 157        | 0.83        | 0.74        | 2.79        | \$ 70.33        |
| Veta Alberto                                 | Manuelita | 1.46           | 1.85             | 202,748          | 188        | 1.44        | 0.39        | 1.00        | \$ 69.21        |
| Veta Roma Piso                               | Manuelita | 0.94           | 1.30             | 6,036            | 338        | 0.84        | 0.72        | 1.22        | \$ 94.91        |
| Veta Split 11                                | Manuelita | 1.58           | 2.01             | 37,059           | 179        | 0.29        | 1.86        | 2.90        | \$ 72.09        |
| Veta Zulema                                  | Manuelita | 1.13           | 1.61             | 42,878           | 243        | 1.51        | 1.55        | 1.95        | \$ 93.80        |
| <b>Subtotal Manuelita Economic Unit Area</b> |           |                |                  | <b>1,282,369</b> | <b>168</b> | <b>0.61</b> | <b>1.60</b> | <b>3.21</b> | <b>\$ 76.17</b> |
| <b>MOROCCOCHA 1 ECONOMIC UNIT AREA</b>       |           |                |                  |                  |            |             |             |             |                 |
| Veta Andrea                                  | Sulfurosa | 0.62           | 0.94             | 24,045           | 177        | 0.12        | 1.84        | 2.09        | \$ 62.37        |
| Veta Jaqueline                               | Sulfurosa | 0.66           | 0.99             | 33,108           | 202        | 1.67        | 0.43        | 2.87        | \$ 91.37        |
| Veta Jessica                                 | Sulfurosa | 0.61           | 0.91             | 79,156           | 191        | 2.11        | 0.70        | 4.13        | \$ 106.62       |
| Veta Minero Manuelita                        | Sulfurosa | 0.89           | 1.23             | 4,260            | 68         | 0.78        | 0.40        | 1.48        | \$ 38.97        |
| Veta Pisco Maria                             | Sulfurosa | 1.37           | 1.78             | 194,204          | 213        | 1.59        | 1.13        | 3.45        | \$ 99.74        |
| Veta Ramal 380 Josefina                      | Sulfurosa | 0.88           | 1.21             | 32,848           | 270        | 0.37        | 0.61        | 1.01        | \$ 71.94        |
| Veta San Andrea                              | Sulfurosa | 0.95           | 1.31             | 109,403          | 142        | 0.26        | 1.07        | 2.21        | \$ 55.50        |

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|                                      |             |      |      |                |            |             |             |             |           |              |
|--------------------------------------|-------------|------|------|----------------|------------|-------------|-------------|-------------|-----------|--------------|
| Veta Jenny                           | Sulfurosa   | 1.03 | 1.42 | 29,199         | 122        | 1.40        | 0.64        | 1.88        | \$        | 63.30        |
| Veta Split Andrea                    | Sulfurosa   | 0.46 | 0.80 | 2,882          | 83         | 0.05        | 4.01        | 1.24        | \$        | 42.19        |
| Veta Anita                           | San Antonio | 0.78 | 1.09 | 37,069         | 113        | 0.18        | 1.71        | 4.47        | \$        | 69.38        |
| Veta Maria Carmen                    | San Antonio | 0.59 | 0.91 | 18,840         | 126        | 0.13        | 1.64        | 3.22        | \$        | 60.60        |
| Veta Split Victoria                  | San Antonio | 0.62 | 0.93 | 9,015          | 248        | 0.11        | 2.78        | 4.07        | \$        | 96.83        |
| Veta Victoria                        | San Antonio | 0.75 | 1.10 | 10,959         | 103        | 0.10        | 0.87        | 4.68        | \$        | 65.11        |
| Veta Maria Teresa                    | San Antonio | 0.72 | 1.05 | 4,869          | 153        | 0.16        | 1.30        | 4.39        | \$        | 75.42        |
| Veta Ramal Maria Carmen              | San Antonio | 0.82 | 1.15 | 2,312          | 163        | 0.37        | 1.17        | 3.66        | \$        | 73.94        |
| Veta Vanessa                         | Antonio     | 1.21 | 1.59 | 22,191         | 106        | 0.16        | 2.75        | 7.38        | \$        | 95.64        |
| Manto Alapampa                       | Alapampa    | 1.11 | 1.26 | 16,182         | 186        | 0.33        | 2.93        | 5.54        | \$        | 99.95        |
| Veta Alfonso Ugarate                 | Alapampa    | 0.48 | 0.81 | 23,931         | 157        | 0.66        | 0.95        | 4.71        | \$        | 84.94        |
| Veta Ombla 4                         | Alapampa    | 0.70 | 1.06 | 39,641         | 128        | 1.37        | 0.71        | 5.49        | \$        | 94.64        |
| Veta Ombla 5                         | Alapampa    | 0.70 | 1.04 | 95,260         | 141        | 0.43        | 1.11        | 5.76        | \$        | 87.66        |
| Veta San Luis 7                      | Alapampa    | 0.66 | 1.03 | 61,616         | 255        | 1.07        | 1.68        | 5.80        | \$        | 122.66       |
| Veta Yanamina                        | Alapampa    | 1.06 | 1.43 | 15,290         | 143        | 0.77        | 1.70        | 4.63        | \$        | 85.38        |
| <b>Subtotal Morococha 1 Economic</b> |             |      |      |                |            |             |             |             |           |              |
| <b>Unit Area</b>                     |             |      |      | <b>866,280</b> | <b>176</b> | <b>0.96</b> | <b>1.19</b> | <b>3.91</b> | <b>\$</b> | <b>87.13</b> |

43-101 (PanAm)

Morococha Mine

74

| Structure Type                     | Mine Area | V/RB Width (m) | Mining Width (m) | Tonnes (M) | Ag (g/mt) | Pb (%) | Cu (%) | Zn (%) | Value/mt (\$US) |
|------------------------------------|-----------|----------------|------------------|------------|-----------|--------|--------|--------|-----------------|
| <b>ANTICONA ECONOMIC UNIT AREA</b> |           |                |                  |            |           |        |        |        |                 |
| Cuerpo Freiberg                    | Codiciada | 6.23           | 6.99             | 502,561    | 155       | 0.17   | 1.28   | 2.88   | \$ 63.33        |
| Cuerpo Laura                       | Codiciada | 0.82           | 1.26             | 3,067      | 147       | 0.17   | 1.69   | 3.12   | \$ 64.82        |
| Cuerpo Rosita                      | Codiciada | 15.74          | 16.74            | 533,041    | 215       | 0.23   | 1.56   | 3.24   | \$ 80.53        |
| Cuerpo Potosi                      | Codiciada | 7.30           | 8.00             | 141,707    | 79        | 0.13   | 1.60   | 3.23   | \$ 50.87        |
| Manto Codiciada                    | Codiciada | 1.63           | 1.79             | 7,181      | 82        | 0.11   | 0.58   | 3.37   | \$ 49.05        |
| Manto Codiciada 1                  | Codiciada | 2.05           | 2.26             | 3,509      | 150       | 0.09   | 0.99   | 1.12   | \$ 45.29        |
| Manto Italia 1                     | Codiciada | 3.69           | 4.06             | 80,185     | 132       | 0.18   | 3.18   | 6.23   | \$ 93.22        |
| Manto Italia 2                     | Codiciada | 3.36           | 3.70             | 244,785    | 101       | 0.14   | 2.61   | 5.49   | \$ 77.97        |
| Manto Italia 3                     | Codiciada | 2.48           | 2.73             | 181,845    | 90        | 0.08   | 2.43   | 6.46   | \$ 82.61        |
| Manto Italia 4                     | Codiciada | 3.76           | 4.13             | 231,035    | 74        | 0.09   | 1.85   | 5.63   | \$ 70.34        |
| Manto Italia 5                     | Codiciada | 3.81           | 4.20             | 172,842    | 57        | 0.07   | 1.60   | 4.53   | \$ 56.37        |
| Manto Italia 6                     | Codiciada | 4.13           | 4.55             | 47,827     | 47        | 0.39   | 0.64   | 4.71   | \$ 57.19        |
| Manto Italia 7                     | Codiciada | 3.23           | 3.55             | 17,368     | 120       | 0.49   | 4.35   | 4.49   | \$ 84.57        |
| Manto Italia 8                     | Codiciada | 2.87           | 3.16             | 25,067     | 112       | 0.18   | 2.97   | 4.23   | \$ 71.59        |
| Manto Italia 9                     | Codiciada | 3.59           | 3.94             | 229,927    | 63        | 0.32   | 2.23   | 6.10   | \$ 76.63        |
| Manto Italia 10                    | Codiciada | 1.91           | 2.11             | 99,565     | 257       | 0.17   | 0.27   | 0.33   | \$ 59.78        |
| Manto Sierra Nevada                | Codiciada | 5.49           | 6.03             | 331,400    | 82        | 0.16   | 1.44   | 5.42   | \$ 69.74        |
| Veta 1                             | Codiciada | 0.72           | 1.07             | 93,368     | 246       | 0.34   | 1.85   | 4.02   | \$ 96.27        |
| Veta 2                             | Codiciada | 0.82           | 1.24             | 77,750     | 216       | 0.24   | 1.53   | 2.67   | \$ 76.14        |
| Veta 5                             | Codiciada | 0.43           | 0.85             | 39,080     | 142       | 0.12   | 1.11   | 3.13   | \$ 61.47        |
| Veta 8                             | Codiciada | 0.38           | 0.81             | 23,747     | 168       | 0.21   | 1.27   | 3.11   | \$ 68.54        |
| Veta 1A                            | Codiciada | 1.00           | 1.36             | 15,832     | 171       | 0.33   | 1.62   | 4.00   | \$ 79.43        |
| Veta Alianza                       | Codiciada | 0.95           | 1.37             | 23,206     | 169       | 0.21   | 2.21   | 6.12   | \$ 97.14        |
| Veta Chabela                       | Codiciada | 0.26           | 0.80             | 2,294      | 192       | 0.08   | 0.59   | 1.56   | \$ 56.37        |
| Veta Codiciada                     | Codiciada | 1.07           | 1.44             | 89,636     | 98        | 0.11   | 1.83   | 4.43   | \$ 65.55        |
| Veta Dina                          | Codiciada | 0.28           | 0.80             | 20,029     | 197       | 0.09   | 0.67   | 0.87   | \$ 51.83        |
| Veta Eldemira                      | Codiciada | 0.65           | 1.02             | 22,707     | 135       | 0.10   | 1.94   | 4.73   | \$ 75.90        |
| Veta El Loquito                    | Codiciada | 0.20           | 0.80             | 4,766      | 251       | 0.12   | 0.35   | 0.84   | \$ 62.19        |
| Veta Elizabeth                     | Codiciada | 1.04           | 1.45             | 94,221     | 265       | 0.29   | 1.10   | 2.76   | \$ 86.35        |
| Veta Freiberg                      | Codiciada | 0.83           | 1.15             | 8,421      | 183       | 0.10   | 0.72   | 0.62   | \$ 47.22        |
| Veta Gordiano                      | Codiciada | 0.49           | 0.81             | 10,558     | 135       | 0.08   | 2.14   | 4.47   | \$ 73.99        |
| Veta Huamachuco                    | Codiciada | 0.92           | 1.28             | 91,817     | 194       | 0.19   | 1.16   | 3.88   | \$ 79.64        |
| Veta Isabel                        | Codiciada | 0.54           | 0.92             | 111,864    | 232       | 0.61   | 1.44   | 4.66   | \$ 100.98       |
| Veta Isabel II                     | Codiciada | 0.35           | 0.81             | 75,006     | 149       | 0.13   | 1.20   | 2.62   | \$ 59.01        |
| Veta Italia                        | Codiciada | 0.52           | 0.82             | 449        | 116       | 0.12   | 1.97   | 4.11   | \$ 67.15        |
| Veta Julia                         | Codiciada | 0.42           | 0.81             | 8,311      | 93        | 0.16   | 1.36   | 4.11   | \$ 60.82        |
| Veta Margarita                     | Codiciada | 1.00           | 1.35             | 28,931     | 159       | 0.25   | 0.76   | 1.39   | \$ 50.88        |
| Veta Maria Luisa                   | Codiciada | 0.67           | 1.07             | 25,843     | 142       | 0.20   | 1.60   | 3.45   | \$ 66.96        |
| Veta Ollanta                       | Codiciada | 0.39           | 0.88             | 23,405     | 121       | 0.57   | 2.40   | 3.62   | \$ 72.00        |
| Veta Purisima                      | Codiciada | 0.34           | 0.80             | 5,738      | 104       | 0.10   | 1.45   | 3.73   | \$ 59.47        |
| Veta Ramal Dina                    | Codiciada | 0.28           | 0.80             | 7,642      | 164       | 0.12   | 1.19   | 2.08   | \$ 57.49        |
| Veta Ramal Veta 1                  | Codiciada | 0.47           | 0.80             | 4,589      | 213       | 0.30   | 2.05   | 5.13   | \$ 98.79        |

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|   |           |      |      |                  |            |             |             |             |                 |
|---|-----------|------|------|------------------|------------|-------------|-------------|-------------|-----------------|
| Veta San Pablo 4                            | Codiciada | 0.71 | 1.07 | 1,674            | 221        | 0.13        | 1.07        | 1.08        | \$ 60.59        |
| Veta San Pablo 5                            | Codiciada | 1.01 | 1.35 | 3,106            | 190        | 0.15        | 0.94        | 0.79        | \$ 51.61        |
| Veta Split Elizabeth                        | Codiciada | 0.38 | 0.80 | 1,154            | 160        | 0.19        | 0.98        | 2.06        | \$ 56.65        |
| Veta Split Freiberg                         | Codiciada | 1.45 | 1.84 | 14,228           | 200        | 0.09        | 0.17        | 0.32        | \$ 46.28        |
| Veta Split Julia                            | Codiciada | 0.19 | 0.80 | 1,871            | 83         | 0.09        | 0.47        | 1.82        | \$ 35.53        |
| Veta Victoria                               | Codiciada | 1.21 | 1.57 | 1,534            | 163        | 0.17        | 1.09        | 6.94        | \$ 98.46        |
| Veta Alicia                                 | Codiciada | 0.69 | 1.02 | 18,683           | 124        | 0.14        | 0.79        | 3.48        | \$ 59.71        |
| Veta Buenaventura                           | Yacumina  | 2.22 | 2.68 | 181,480          | 322        | 0.10        | 0.97        | 1.65        | \$ 85.64        |
| Veta Buenaventura Ramal                     |           |      |      |                  |            |             |             |             |                 |
| Techo 1                                     | Yacumina  | 0.57 | 0.88 | 5,665            | 1227       | 0.22        | 1.49        | 2.58        | \$ 285.45       |
| Veta Buenaventura Ramal                     |           |      |      |                  |            |             |             |             |                 |
| Techo 2                                     | Yacumina  | 0.91 | 1.26 | 4,286            | 289        | 0.18        | 0.37        | 1.43        | \$ 76.14        |
| Veta Galera                                 | Yacumina  | 0.66 | 1.05 | 17,475           | 85         | 0.12        | 3.87        | 6.23        | \$ 84.84        |
| Veta Galera1                                | Yacumina  | 1.78 | 2.35 | 117,756          | 76         | 0.13        | 3.38        | 7.74        | \$ 94.24        |
| Veta Galera 2                               | Yacumina  | 1.19 | 1.56 | 58,930           | 85         | 0.18        | 3.28        | 8.48        | \$ 102.59       |
| Veta Gitana                                 | Yacumina  | 0.35 | 0.80 | 2,456            | 222        | 0.07        | 0.28        | 0.70        | \$ 54.11        |
| Veta Transversal 1                          |           |      |      |                  |            |             |             |             |                 |
| California                                  | Yacumina  | 0.48 | 0.88 | 3,813            | 191        | 0.89        | 1.75        | 3.16        | \$ 84.90        |
|   | San       |      |      |                  |            |             |             |             |                 |
|   | Florencio | 1.00 | 1.45 | 32,683           | 179        | 0.52        | 2.02        | 4.82        | \$ 92.11        |
| <b>Subtotal Anticona Economic Unit Area</b> |           |      |      | <b>4,228,915</b> | <b>148</b> | <b>0.19</b> | <b>1.71</b> | <b>4.19</b> | <b>\$ 74.57</b> |

**GRAND TOTAL, ALL ECONOMIC UNIT AREAS**

**6,377,564 156 0.38 1.61 3.96 \$ 76.60**

**SUMMARY, TOTAL PROVEN AND PROBABLE MINERAL RESERVES**

|                  |                  |            |             |             |             |
|------------------|------------------|------------|-------------|-------------|-------------|
| <b>PROVEN:</b>   | <b>4,073,423</b> | <b>155</b> | <b>0.36</b> | <b>1.49</b> | <b>3.84</b> |
| <b>PROBABLE:</b> | <b>2,304,141</b> | <b>157</b> | <b>0.41</b> | <b>1.83</b> | <b>4.16</b> |

43-101 (PanAm)

Morococho Mine

75

Metal prices, processing recoveries, transportation, smelting, and refining costs were incorporated by PAS in the calculation of a net smelter return value (NSR) for each metal by the separate mine operating areas. Based on these calculations for individual metals, separate break-even NSR cut-offs were compiled that included all applicable fixed and variable operating costs for production of all metals (silver, lead, copper, zinc, and gold). These cut-offs were then applied to the individual mineral resource blocks to determine proven and probable mineral reserves for each operating area. For gold, an aggregate value based on the amount of gold typically recovered from the individual areas was added to the total net recoverable value for each block. This approach, which was used due to the lack of gold assays in the database, recognizes the documented gold recovered during smelting from each individual area. Mineral reserve blocks that have NSR's greater than the break-even NSR cutoff support all fixed and variable operating costs. Separate Incremental NSR cutoffs were also derived for each mine area, and these were applied to mineral reserve blocks having NSR's that were less than the break-even NSR cutoff, but which contain value (on a per tonne basis) that met or exceeded only the applicable variable operating costs associated with mining and processing each block. These costs include direct mining costs (including supplies), underground and surface haulage, hoisting (where applicable), and processing costs (milling, transportation, smelting and refining).

The break-even and incremental NSR cutoffs (in \$US) used for the determination of proven and probable mineral reserves for the various Morococha operating areas are summarized as follows:

| Area         | Break-even<br>NSR | Incremental<br>NSR |
|--------------|-------------------|--------------------|
| Manuelita    | \$ 49             | \$ 34              |
| Sulfurosa    | \$ 48             | \$ 33              |
| Codiciada    | \$ 46             | \$ 32              |
| San Antonio  | \$ 64             | \$ 45              |
| Yacumina     | \$ 55             | \$ 38              |
| Manto Italia | \$ 46             | \$ 32              |

Mr. Donald Earnest, P. Geo., President of REI checked the calculations of these NSR cut-offs and found them to be acceptable. In the opinion of Mr. Donald Earnest, P. Geo., President of REI the use of unique mineral reserve cut-offs for the different mine operating unit areas is highly appropriate, given the spatially distinct operating areas that contribute ore production and the different underground mining methods used. With respect to the inclusion of incremental (marginal) material in the Morococha mineral reserves, in the opinion of Mr. Donald Earnest, P. Geo., President of REI, this practice is acceptable at Morococha because there is sufficient mill capacity (at 2,000 tonnes per day) to process the incremental material, without displacing higher grade ore.

In the opinion of Mr. Donald Earnest, P. Geo., President of REI, with the exception of the surface title issue discussed in item 6 that could affect access to mineral reserves in the Yacumina area, there are not any known environmental, permitting, legal, title, socio-economic, marketing, or political issues that could materially affect the Morococha mineral reserves. More detailed discussion of these topics can be found in Item 6 (Property Description and Location), Item 25e (Environmental Considerations), and Item 25c (Markets). Normal depletion of mineral reserves by mining should be offset by new mineral reserve additions from ongoing exploration and delineation work, particularly if current metal prices hold steady or continue to increase due to world demand. In the opinion of the author of this section of the Technical Report, there are no adverse metallurgical or other relevant factors that could materially affect the mineral reserves for the Morococha property. Except for the potential issues related to certain surface facilities and rights described in Section 6 of this Technical Report, in the opinion of the author of this section, no issues exist related to infrastructure that could materially affect these same mineral reserves.

### 19.2.2 Mineral Resources

As stated at the beginning of Item 19.2, mineral reserves and mineral resources are reported separately for the Morococha operations. No mineral reserves are included in the tabulation of mineral resources.

The measured and indicated mineral resources for the Morococha operations as of December 31, 2007, as reported in the Pan American Silver Corporation Annual Information Form for the Year Ended December 31, 2007, are as follows:

|                   |   |
|-------------------|---|
| <b>Measured:</b>  | <b>2,052,231</b><br><b>Tonnes @</b><br><b>192 g/mt</b><br><b>Ag, 1.47%</b><br><b>Pb, 0.30%</b><br><b>Cu, 3.52%</b><br><b>Zn</b> |
| <b>Indicated:</b> | <b>810,905</b><br><b>Tonnes @</b><br><b>178 g/mt</b><br><b>Ag, 1.26%</b><br><b>Pb, 0.41%</b><br><b>Cu, 2.90%</b><br><b>Zn</b>   |
| <b>Total M+I:</b> | <b>2,863,136</b><br><b>Tonnes @</b><br><b>188 g/mt</b><br><b>Ag, 1.41%</b><br><b>Pb, 0.33%</b><br><b>Cu, 3.34%</b><br><b>Zn</b> |

In addition to the measured and indicated mineral resources summarized above, the inferred mineral resources for the Morococha operations total:

**Inferred: 9,783,592 Tonnes @ 227 g/mt Ag, 1.90% Pb, 0.47% Cu, 4.37% Zn**

As with the Morococha Mineral Reserves summarized and described in Item 19.2.1, the above mineral resource estimates were prepared under the supervision of, or were reviewed by Michael Steinmann, P.Geol., Senior Vice President, Geology and Exploration, Pan American Silver Corp., and Martin G. Wafforn, P.Eng., Vice President of Mine Engineering, Pan American Silver Corp., as Qualified Persons per definition in NI 43-101. REI notes that the mineral resources above are stated as estimated and reported by PAS and have not been rounded in accordance with Canada NI 43-101 guidelines.

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The same metal prices that were used for estimation of the Morococha mineral reserves also were used for estimation of the mineral resources summarized above:

Silver: US\$9.00/troy ounce  
Lead: US\$1,000/Tonne  
Copper: US\$5,000/Tonne  
Zinc: US\$2,100/Tonne  
Gold: US\$425/troy ounce

43-101 (PanAm)

Morococha Mine

77

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The measured, indicated, and inferred mineral resources stated above are based on the NSR cut-offs for the various mine operating areas shown in the following table:

In the opinion of Mr. Donald Earnest, P. Geo., President of REI, with the exception of the surface title issue discussed in item 6 that could affect access to mineral reserves in the Yacumina area, there are not any known environmental, permitting, legal, title, socio-economic, marketing, or political issues that could materially affect the Morococha mineral reserves. More detailed discussion of these topics can be found in Item 6 (Property Description and Locatin), Item 25e (Environmental Considerations), and Item

| Area         | Incremental<br>NSR | Sub-marginal<br>NSR |
|--------------|--------------------|---------------------|
| Manuelita    | \$ 34              | \$ 27               |
| Sulfurosa    | \$ 33              | \$ 26               |
| Codiciada    | \$ 32              | \$ 25               |
| San Antonio  | \$ 45              | \$ 38               |
| Yacumina     | \$ 38              | \$ 31               |
| Manto Italia | \$ 32              | \$ 25               |

The incremental mineral resources consist of blocks that have not been included in the mineral reserves and operations mine plan and schedule for reasons that largely are due to tonnage limitations of the blocks, block location/access issues, or the inability of the blocks to support secondary development costs. Sub-marginal mineral resources consist of material that could become incremental (and thus mineable) with increases in metal prices and/or operating cost reductions/savings. All inferred resources are based on the sub-marginal NSR cut-offs listed above.

In REI's opinion, the mineral resources summarized in this section were estimated in accordance with the guidelines set forth in NI 43-101 and accepted North American mining industry practices. With the exception of the surface title issue discussed in Item 6 of this Technical Report, REI is unaware of any known environmental, permitting, legal, title, socio-economic, marketing, political, metallurgical, mining or infrastructure issues or problems that could materially affect the mineral reserves.

## 20.0 OTHER RELEVANT DATA AND INFORMATION

No other data or information is relevant for the review of the Morococha operations.

## 21.0 INTERPRETATION AND CONCLUSION

This updated Technical Report is based on historical information and data that was previously reviewed for the initial Morococha Operations Technical Report (February 2004), as well as information and data generated by the Morococha operations since the acquisition by PAS in 2004. In the opinion of the QP's who co-authored this Technical Report, substantial improvements have been made at the operations since the date of the initial Technical Report, such that the technical procedures currently used by the Morococha operations conform to CIM guidelines and NI 43-101 requirements, and that the Life of Mine (LOM) plan described in Section 24.8 of this Technical Report is sound.

While there are no outstanding material technical issues regarding the Morococha operations and the LOM plan and schedule, in the opinion of the QP's the major risks to the Morococha operations include possible production shortfalls/interruptions that could take place if development of the Toromocho project proceeds during the next 10 years, a decline in metal prices to points lower than those that were used to estimate the proven and probable mineral reserves as of December 31, 2006, and unanticipated increases to operating costs. For the longer term, the major challenge for the Morococha operations will be the ability to continue to upgrade inferred mineral resources to proven and probable mineral reserves and to discover new proven and probable mineral reserves in a timely and systematic manner through drilling and underground drifting and sampling.



## 22.0 RECOMMENDATIONS

Based on the review by the QP's who co-authored this Technical Report, the following action items are recommended:

Continuation of development drilling at the same or increased rates to convert inferred mineral resources to proven and probable mineral reserves;

Continuation of the quality control/quality assurance programs for sample handling, sample preparation, and sample analysis currently in place;

Assay all underground chip-channel samples and core samples from diamond drill hole intercepts of veins and mantos for iron to enable development of more comprehensive density (specific gravity) data via regression analysis for estimation of mineral reserve and resource tonnes;

Accelerate underground development to provide the following:

Completion of the decline in the northern portion of the property that will provide access to the Manto Italia and Kingsmill tunnel level for haulage of ore from the Codiciada zone;

Completion of access on the 400 level and 700 level to the Yacumina and San Antonio zones which will allow for continued mining of the high grade Veta Buenaventura and Manto Galera and delineation of new mineral reserves;

Access around the outside limits of the Toromocho property on the 400 level to replace the existing 400 level workings that currently cross the Toromocho ground;

Completion of main haulage levels in the lower areas of the mine that will allow the use of 10-tonne trolley locomotives and 100 ft<sup>3</sup> cars;

Additional ore passes and waste passes in Codiciada, Alapampa and in areas of Yacumina in order to reduce ore handling and direct the material to the Central shaft;

Continue extending the length of the stopes to 70 metres which will result in a 30% reduction of raise preparation;

Continue efforts to establish better control of external dilution in the Codiciada Alta, Sulfurosa, and Alapampa areas.

### 23.0 REFERENCES

Data, documents, and other information used for the compilation of this report were obtained from personnel in the PAS offices in Vancouver, British Columbia, and Lima, Peru, and from PAS personnel at the Morococha operations site. The documents from which key information was obtained include:

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43-101 (PanAm)

Morococha Mine

80

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43-101 (PanAm)

Morococha Mine

81

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

The Morococha operation has grown through the years with the acquisition of various properties, either purchased or leased. Between 1988 and 1998, the mine operated as Minera Yauli, producing from only two areas Manuelita and Codiciada Baja. In 1999, Compañía Minera Corona was established by merging Minera Yauli with Compañía Minera Santa Rita S.A., which added production in the San Florencio and Yacumina areas. Subsequently, the company again increased the number of producing areas with the inclusion of Sulfurosa, Codiciada Alta, and Alapampa, although many of the veins in these areas require further exploration and reserve definition.

### **24.1 Mining Operations**

Underground mining operations consist primarily of typical overhand cut and fill, shrinkage, and mechanized room and pillar methods using classified tailings or waste rock for backfill where needed (see figure 9). Holes are drilled in the mining face using jacklegs or jumbo drills (in Codiciada) which are loaded with explosives and blasted between shifts twice per day. Slushers are used in the cut and fill and shrink stopes and scooptrams are used in the room and pillar stopes and some of the wider cut and fill stopes to transport the broken rock to chutes that report to levels with track haulage. Locomotives transport the ore from the chutes to one of three shafts for hoisting. Highway dump trucks then haul the ore from shaft coarse ore bins to mill stock piles. In addition to the three main shafts, some ore is also transported from certain sectors of the mine to stockpiles using LHD s (scoop trams). The mine operates two eight hour shifts per day, six days a week.

The Yauli (also referred to as the Manuelita), Maria and Central production shafts provide access down to the Kingsmill drainage tunnel level at elevation 4,020m. The Central shaft is located approximately 1,500m west of the Maria Shaft and 2,500m west of the Yauli shaft. The Maria and Central shafts, which were part of the Centromin Morococha acquisition, are equipped with above-ground head frames, hoists and ore bins. The Maria Shaft has a single split drum hoist with two 2.0-tonne skips (the mine plan includes capital to replace the hoist in 2008 as the current unit is not certified for man transport). The Central Shaft is larger with two split drum hoists. One hoist is fitted with two 3.5-tonne production skips and the other is used for men and materials. The Yauli shaft (which was used by Corona prior to the PAS Morochoca acquisition) is equipped with two 2.6-tonne skips and its collar is located beneath the surface. Ore from the Yauli shaft feeds into chutes from which it is then transported by a small locomotive to an adjacent subsurface truck loading facility. The three shafts have a combined capacity to support production schedules in excess of 700,000 tonnes per year.

In addition to the existing shafts, the operation is in the process of developing a decline from east to west across the northern portion of the property, extending from a portal in the area of the Sierra Nevada vein past Manto Italia and on down to the Kingsmill tunnel level. This decline will provide additional haulage capacity as it will be the primary haulage access from Codiciada and later from San Antonio and Yacumina in the western part of the property. These zones combined contain some 62% of the proven and probable mineral reserves tonnage and 71% of the mineral reserves and mineral resources used in the life of mine plan. The ore from these zones will be transported to surface via a conveyor belt and then hauled to the mill in dump trucks.

In order to determine the life of the Morococha operation, a long range mine plan and development program has been completed. This plan is based on the current production rate of 661,000 tonnes of ore per annum in its early years, increasing to a maximum of 705,000 tonnes per annum as the development underway in the north and west zones of the mine are advanced. The capital and operating costs used to develop the mine plan are discussed in Section 24.7. Production is scheduled to come from all areas of the operation at different levels through 2017, with the mineral reserves in the Sulfurosa, Yacumina and San Antonio zones being exhausted by the end of 2014. The long range mine plan was completed with economic cut off logic based on the same prices used for the calculation of the proven and probable mineral reserves presented in this report (see Section 19.2.1).

The mine typically adds new, previously unidentified mineral reserves each year simply as a consequence of development and mining within the veins and structures. Because of the history, some measured and indicated mineral resources were included in the life of mine plan ( LOM ) to more closely reflect this. In total, the plan includes 6.4 million tonnes of proven and probable mineral reserves and 0.8 million tonnes of measured and indicated mineral resources. Preference was given to first mining proven and probable mineral reserves and then measured and indicated mineral resources. There are no inferred mineral resources included in the plan. The earliest years of the mine plan can be considered as having a higher degree of certainty with more detail planning applied through 2013. The amounts of mineral reserves and mineral resources in the mine plan through 2013 are as shown in the table below:

|           | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Total |
|-----------|------|------|------|------|------|------|-------|
| Reserves  | 99%  | 95%  | 94%  | 88%  | 81%  | 65%  | 87%   |
| Resources | 1%   | 5%   | 6%   | 12%  | 19%  | 35%  | 13%   |

Mine development is forecast to total 18,469 metres in 2007 and is planned to be 20,015 metres in 2008. Development will remain at those levels through 2013 and decline later as mining becomes more focused in the wider mantos and ore bodies of the Codiciada zone where less development is required per tonne of ore.

Planned production from the various zones in the Morococha deposit is discussed in the following subsections.

#### **24.1.1 Manuelita Zone**

Located in the east part of the mine and serviced by the Manuelita shaft, proven and probable mineral reserves estimated for this zone are 1.28 million tonnes at 168 g/t silver and 3.2% zinc. Production is entirely from overhand cut and fill mining in narrow veins with access and haulage via tracked drifts. Classified mill tailings are slurried and piped to stopes as hydraulic backfill. Manuelita is forecast to produce 145,000 tonnes in 2007 and a similar amount in 2008. Production is forecast to continue at between 120,000 and 145,000 tonnes per annum throughout the term of the LOM, with the current reserves being depleted in 2016. Development of the known extensions of the veins below the Kingsmill drainage tunnel has not been included in the mine plan but is an option that will be considered in the future subsequent to the acquisition of additional diamond drill data.

**24.1.2 Sulfurosa Zone**

Located next to the Manuelita zone and serviced by the Maria shaft, proven and probable mineral reserves in this zone total 509,000 tonnes grading 188 g/t silver, 1.2% copper, 1.0% lead and 2.9% zinc. Production is forecast at 100,000 to 110,000 tonnes per annum in the LOM plan until 2014 when the current mineral reserves will be depleted.

**24.1.3 Codiciada Zone**

Located to the north of the Peruvian Central Highway that runs through the Morococha property, the Codiciada zone contains proven and probable mineral reserves totaling 3.8 million tonnes grading 141 g/t silver and 4.1% zinc. The zone was not subject to extensive mining previously and is considered by the mine geology staff to be a very prospective area for the discovery and delineation of additional mineral reserves and resources. In addition to the proven and probable mineral reserves, the life of mine plan contains an additional 0.25 million tonnes of measured and indicated mineral resources at similar grades. The higher zinc grades and lower silver grades are characteristic of the more massive Manto Italia which is mined by room and pillar methods using mechanized equipment that includes a face drill jumbo and scooptrams. Production from this area is currently limited to 280,000 tonnes per annum, but production capacity will be increased significantly when the decline that is being developed arrives at Manto Italia in 2008. Other significant ore bodies in the Codiciada area include Rosita, Potosi and Manto Sierra Nevada.

**24.1.4 San Antonio Zone**

Located in the northern portion of the Morococha property, the San Antonio zone contains proven and probable mineral reserves of 105,000 tonnes grading 127 g/t silver and 4.8% zinc. Production in the LOM plan is expected to continue at the current rate of 5,000 tonnes per month. This zone is currently being developed and explored and accordingly, the plan includes 328,000 tonnes of measured and indicated mineral resources that to date have not been converted to proven and probable mineral reserves because of the lack of development. Consideration will be given to upgrading these mineral resources to mineral reserves in for future disclosures.

**24.1.5 Yacumina Zone**

The western portion of the property contains the Yacumina and the San Florencio zones. The Yacumina zone contains proven and probable mineral reserves of 392,000 tonnes grading 213 g/t silver and 4.7% zinc. This zone contains some of the highest value per tonne ore on the property in veins and mantos such as Veta Buenaventura and Manto Galera but at the same time has the highest mining costs due to the long haulage distances, cut and fill mining method and dewatering of the 7 level. The 7 level is 4509 metres above sea level ( masl ). Access to the Yacumina zone is via the Vulcano tunnel or from surface on the 2 level (4727 masl) and 4 level (4639 masl), although transit distances are long in both cases. Development of the 7 level is currently being hampered by dewatering and poor ground conditions which are made worse by the ground water inflows. The development plan for the western portion of the property includes development of a new track haulage drift down the west side of the property starting from the Codiciada zone on the 400 level will solve the dewatering problems and provide a much more efficient haulage route. Later in the mine life, this will be followed by a tunnel down the west side of the property on the 1700 level and an internal shaft between the 1700 and 400 levels.



Note that because the Morococha mine is now an amalgamation of several smaller mines, the level numbering system in the different zones is different and to date has not been rationalized. Where important the nominal elevation of the level above sea level has been provided. For the western portion of the property it is important to note that the larger veins have been largely mined down to the 6 level (4545 masl). PAS is developing the 7 level (4509 masl) Buenaventura vein using an internal inclined shaft. The new 400 level development (4375 masl) will come in approximately 115 meters below the 7 level in the Buenaventura vein when allowing for development gradient for the purposes of drainage. The 1700 level (4025 masl) will develop a further 350 vertical metres of the vein assuming that exploration drilling confirms its continuation to that depth. There are other large vein systems in the western portion of the property that will be opened for mining with this new development including the high zinc grade veta Cuña. The Veta Buenaventura on the PAS property has been nearly mined out from 6 level to surface. An inclined shaft with a winch for hoisting ore has been developed from the 6 level down to the 7 level, and development of the 7 level is in progress. Ore off of 7 level will be trammed at the rate of 5,500 tonnes per month to surface in trains on the 6 level via the Vulcano tunnel which daylight just to the west of the mill.

#### **24.1.6 Potential Impact of the Proposed Toromocho Development on the Mine Plan**

The LOM plan has been developed based on the assumption that the adjacent Toromocho property is not developed during the same period as certain mining operations planned to take place at Morococha. The development of the Toromocho open pit would have the following impacts on the mine plan:

The pit would encompass or impact large parts of the current PAS surface facilities and infrastructure, including the Amistad processing plant, surface offices, the Central Shaft, compressor house, the 6 level portal that currently provides access to the Yacumina zone and the town of Morococha.

The previously mentioned surface facilities and infrastructure, processing plant, surface offices and compressor house would all need to be replaced. PAS would need to either refurbish the Sacracancha surface facilities (including the Saracancha processing plant) in the Alpamina area, or acquire from Centromin the necessary surface rights to build new facilities at a location of Centromin's choice away from the impact area of the pit. This choice would be dependent on metal prices and required production rate.

The ore currently hoisted via the Central shaft would in the future be brought to surface via the conveyor and new decline being constructed in the Codiciada area in the northern part of the property.

As the upper portion of the Maria shaft would be too close to the final pit wall, the hoist would need to be relocated underground and an existing adit utilized for tramping the ore to surface.

Development of new tunnels across the Toromocho property on the 400 and 1000 levels to access the deeper portions of the Yacumina and San Antonio zones has been stopped for 3 years. PAS has started underground access development around the outside limits of the Toromocho property on the 400 level to replace the existing 400 level development across Toromocho. This development will also eliminate the need for access via the current 6 level portal. If future diamond drilling confirms the continuation of the mineralization in the Yacumina and San Antonio area veins to depth then PAS can develop to these areas on the 1700 level as a replacement for the existing 1000 level development access across Toromocho. The possible increase in mineral reserves from this deeper potential ore has not been considered in the LOM plan presented in Section 24.10 of this Technical Report.

As part of an agreement made with previous owners of the mine, if the option agreement for the Toromocho property is exercised then the owners of the Toromocho property are obliged to provide PAS with either \$8 million, or the mining rights to the portion of the Veta Buenaventura in the Yacumina zone that is on the Toromocho property. In keeping with the assumptions, neither of these benefits have been considered in the LOM plan.

The co-authors consider that the development and operation of the Toromocho open pit during the expected life of the Toromocho underground operation described in this Technical Report would present operational challenges to PAS. The LOM plan could be re-worked to increase production from Codiciada earlier in order to minimize any production delays. The capital requirements to refurbish the Sacracancha plant or to build new facilities net of compensation from the Toromocho development presently are not known to any normal degree of accuracy.

#### **24.2 Recoverability**

Since the completion of the initial Morococha Operations NI 43-101 Technical Report in February 2004, PAS closed the Sacracancha mill and shifted all processing of ore from the various mines that comprise the Morococha operations to the 2,000 tonne/day capacity Amistad mill and concentrating plant. The Amistad plant processes ore by selective flotation methods. Ore from the individual mines in the Manuelita, Codiciada, Sierra Nevada, Buenaventura, Sulfurosa, San Antonio and Alapampa areas is transported to the Amistad mill yard, placed in separate piles, and sampled to determine the metal grades for blending purposes. Figure 8 is the processing plant flowsheet for the Amistad concentration plant.

### 24.2.1 Crushing

Ore is loaded into a 600-tonne capacity coarse ore bin after passing through an 8' screen. Ore from the bin is then fed to the crushing circuit by two 24' x 18' reciprocating feeders onto separate conveyors (1A and 1B) which both discharge onto conveyor F2. This conveyor discharges onto a 4' x 8' vibrating screen with 3' openings. Screen oversize is passed through a FIMA 24' x 36' primary crusher. Screen undersize material is combined with the primary crusher discharge and transported by conveyor F3 to a 5' x 16' Allis Chalmers single-deck screen with 1' openings. Screen oversize is fed by conveyor F4 to a Symons Short Head 5.5' secondary crusher set to produce an 11mm product. Discharge from the secondary crusher is transported by three in-line conveyors (F5, F6, and F7) that send the ore through a 5' x 10' screen with 4' openings. Oversize from this screen is conveyed back to the 5.5-inch Symons secondary crusher, closing the secondary crushing circuit. Screen undersize is transferred by conveyor F8 onto conveyor F9, which also collects screen undersize and transports the minus-<sup>3</sup>/<sub>4</sub>' crushed ore product to a succession of in-line conveyors (F10, F11, F12, and F13) to one of three fine ore bins that have a total capacity of 1,200 tonnes.

### 24.2.2 Grinding and Classification

Ore is fed from the fine ore bins to a 3-stage grinding circuit that produces a 65%-200 mesh feed for the flotation circuit. The primary grinding stage consists of a 9' x 12' 500 HP ball mill in open circuit with two D20 cyclones (a third cyclone is available on standby). Underflow from these cyclones is fed to two secondary 8' x 6' 250HP ball mills in closed circuit with the D15 cyclones. Overflow from the cyclones (50% -200 mesh) feeds by gravity into two in-line WS-240 flotation cells that recover coarse lead particles. Overflow from these cells is fed to a bulk cleaning circuit, while underflow is sent through a bank of four D15 cyclones. Overflow from these cyclones feeds the bulk rougher flotation circuit and underflow feeds a 8' x 6' 300HP regrind ball mill in closed circuit with the cyclones.

### 24.2.3 Flotation

#### Bulk Flotation Circuit

All feed from the grinding circuit passes through an initial flotation section of the Amistad mill to make a bulk concentrate. Ore from the grinding circuit is fed first to an Outokumpu OK-10 rougher cell (rougher circuit No.1). Overflow (froth) from this cell feeds the third bulk cleaning circuit, while underflow passes into a second OK-10 rougher cell. Overflow from this cell transfers to the second bulk cleaning circuit, and underflow is fed to an OK-10 scavenger cell (scavenger circuit No.1). The tailings from the OK-10 scavenger cell are then fed scavenger circuit No. 2, which consists of twelve Alistair No. 48 cells that in turn feed scavenger circuit No. 3, consisting of eight Agitair No. 120 cells. The concentrates from scavenger circuits No.1 and No. 2 feed back into the first OK-10 rougher cell (rougher circuit No.1). Froth from scavenger circuit No.3 feeds to scavenger circuit No.1. Underflow from scavenger circuit No.3 are the bulk concentrate tails, which constitute part of the head feed for the zinc flotation circuit.

Rougher froth is subject to 5 cleaning stages within a bank of 18 Agitair No. 48 cells (first through fifth stages 6/4/4/2/2 cells, respectively). Overflow (froth) from the fifth cleaning stage constitutes the bulk concentrate feed to the separation circuit for production of lead and copper concentrates. The tailings from the first cleaning stage are returned to the first OK-10 1 rougher cell.

Lead Copper Concentrate Separation Circuit

The bulk concentrate is separated into lead and copper concentrates beginning with a two-stage conditioning process. In the first stage, activated carbon is added to eliminate residues of the collectors used in the previous stages. This is followed by the addition of RCS, a combination of sodium dichromate (a lead sulfate depressant), CMC (which depresses zinc and insolubles), and monosodium phosphate (to depress the lead). The conditioned concentrate then feeds a bank of six Denver Sub A100 cells; 3 rougher flotation cells and 3 scavenger flotation cells. The scavenger tailings constitute the lead concentrate (approximately 50% lead content) are pumped to the lead thickener.

The copper rougher froth is cleaned in a 5-stage circuit that includes two Denver Sub A100 cells and four Denver Sub A50 cells to produce a copper concentrate. This concentrate (which contains approximately 15% lead) is gravity-fed into an inverse flotation circuit to depress the copper sulfides with sodium cyanide (NaCN) and float the lead. The inverse circuit includes eight Denver Sub A24 cells; two rougher flotation cells, three scavenger flotation cells, and three cells that constitute a two-stage cleaning circuit. The underflow (tailings) from this cleaning stage are the copper concentrate, (containing approximately 25% copper), which are then pumped into the copper thickener. The froth from the last cleaning stage is a secondary lead concentrate (approximately 50% lead) that is then combined with the other lead concentrate in the lead thickener.

Zinc Flotation Circuit

The head feed material for the zinc flotation circuit consists of the flotation froth from the lead-copper separation circuit and the bulk concentrate flotation tailings (underflow from scavenger circuit No.3). The zinc flotation feed is treated in two 10 x10 conditioners by adding lime to the first conditioner to depress the iron sulfides and then by adding copper sulfate to the overflow into the second conditioner to activate the zinc. The overflow from the second conditioner feeds into two Celda WS-340 cells. The froth from these cells flows directly to the zinc thickener as zinc concentrate. The tailings from these cells are fed into the rougher circuit that includes Celda OK-20, RCS-30, and OK-10 cells. The froth from these rougher cells is fed into a cleaning circuit that includes 12 Denver Sub A100 cells. The material from the last cleaning cell is gravity-fed into the zinc concentrate thickener and the tailings from that cleaning cell are pumped back to the OK-20 rougher cell that closes the circuit. The rougher circuit tailings are fed into RCS-10 and OK-8 cells and finally into two banks of three OK-8 scavenger cells (in line). The tailings from the OK-8 scavenger cells are pumped to the Huascacocha tailings dam.

**24.2.4 Thickening and Filtration**

A 30 x 10 Dorr thickener is used to separate much of the water from the copper concentrates. Lead concentrates are dewatered in a 40 x 10 Dorr thickener, while the zinc concentrates are dewatered in a 50 x 10 thickener. Because the thickened concentrates all contain approximately 58% solids by weight, each concentrate is dewatered further in separate filters. The copper and lead concentrates are sent to separate 8 x 12 drum filters which reduce the overall concentrate moisture contents to 10% and 11%, respectively. Zinc concentrates are fed into a larger 12 x 12 filter that reduces concentrate moisture to 12%. Water recovered from the thickener overflows is mixed with the water from the drum filters and collected in the decantation pond to recover fines. Once filtered, the copper concentrate is sent to the Doe Run smelter facility in La Oroya and the lead and zinc concentrates are sent to a warehouse at the port of Callao near Lima.

#### **24.2.5 Tailings Disposal**

The tailings from the Amistad concentrator collected in a distributor box attached to two horizontal 10 x 8 (SRL-C) Denver pumps, one of which serves as a standby. The tailings are then pumped to a D-20 cyclone, and the overflow (96% minus-200mesh) is pumped via an 8 HDPE tailings line to the Huascacocha dam. Underwater disposal (2 metres beneath the water surface) is used in order to prevent the tailings from coming in contact with oxygen and forming acid water. Underflow from the D-20 tailings cyclone ( $\pm 27\%$  minus-200 mesh) is stored in an 8 x 8 tank and then pumped by two 8 x 6 in-line pumps to Codiciada where it is used for hydraulic backfill.

#### **24.2.6 Water Supply and Consumption**

The water supply for the Amistad concentrator plant is taken from two sources. Approximately 60% of the required process water is gravity-fed from Huacracocha Lake, with the remaining 40% gravity-fed from the Vulcano mine portal to the flotation section of the plant and pumped into the water storage tank. Process water from the storage tank is gravity-fed to the grinding and flotation sections of the plant, as well as to other areas.

#### **24.3 Markets**

For the last three years, prices for the metals that the Morococha operation produces have been robust after several years of prolonged weakness. Factors contributing to the recovery in metal prices include demand resulting from strong industrial growth in China and India, weakness in the US dollar, and supply concerns related to under-investment in new production capacity. PAS anticipates that these factors will continue to support metal prices in the future and that the long-term fundamentals for metal prices are positive.

The principal products from the Morococha operation are silver rich, copper, lead, and zinc concentrates. All of these concentrates are sold under arm's length contracts to metals trading companies or integrated mining and smelting companies. Under the terms of all of its sales contracts, the Morococha operation receives payment for an agreed percentage of the silver, copper, lead, or zinc contained in the concentrate, after deductions for smelting and refining costs.

In 2006, the revenues per type of concentrate produced at the Morococha Mine were as follows:

**Table 24-1: Concentrate Revenues 2006**

|                    | Revenue      | Tonnes | Average Sales Price |
|--------------------|--------------|--------|---------------------|
| 2006               | (\$ Million) | Sold   | (\$/Tonne)          |
| Copper Concentrate | 32.3         | 7,209  | 4,481               |
| Lead Concentrate   | 14.9         | 12,955 | 1,150               |
| Zinc Concentrate   | 38.1         | 41,968 | 908                 |

#### **24.3.1 Trading of Peruvian Copper, Lead, and Zinc Concentrates**

Sales of copper, lead, and zinc concentrates by large and medium size mining companies in Peru are done through tenders to international traders and refineries. Currently, part of the production is sold locally to the Doe Run Peru and Cajamarquilla refineries and the balance is exported. Most mining companies sell directly to traders, mainly Glencore, Trafigura, BHL, Pechiney, and Transamine, but in lesser amounts to Hochschild Partners, Marc Rich, Euromin, Mintrade, LN Metals, and Samsung, among others, with less participation. Foreign refineries that buy directly from producers are mainly UMICORE (Belgium) and Paraibuna (Brazil). PAS, through its Morococha, Huaron and Quiruvilca operations, already has developed business relationships with traders and refiners, and these relationships will play a key role in future concentrate transactions.

#### **24.3.2 Weighing, Sampling and Moisture Determination**

Currently, weighing, sampling, and moisture determinations are made at the time of shipment of concentrate lots. PAS and the Buyer nominate a Supervisor company that represents both parties and takes 250WMT to 500 WMT lot samples at the time of loading the concentrates into the trucks. The Supervisor company provides the moisture content and use the scale at ENAPU (Peruvian Port Authority). The samples obtained at the time of shipment are distributed to PAS and the Buyer, the individual parties assay the samples and at an agreed date, assays are exchanged for payable metals and impurities. If the differences in assays exchanged are between contractual split limits the average of the assays is considered final. In the event that the results are outside of the agreed limits, final assays are determined by an independent umpire Laboratory.

#### **24.4 Contracts**

To date, PAS has been able to secure contracts for the sale of the Morococha concentrates. Table 24-2 shows a list of the existing sales contracts.

43-101 (PanAm)

Morococha Mine

90

**Table 24-2: List of Existing Sale Contracts**

Contract Sales for Morococha Mine 2008-09

|                    | Client   | Sales<br>(Tonnes Per Year) | Contract<br>Duration<br>(Year) |
|--------------------|--|----------------------------|--------------------------------|
| Copper Concentrate | Doe Run Peru S.A.C   | 6,500 to 7,200             | 2008                           |
|                    | Consortio Minero Cormin S.A.   | 400                        | 2008                           |
| Lead Concentrate   | Doe Run Peru S.A.C   | 6,000 ( $\pm 10\%$ )       | 2008 - 2009                    |
|                    | Consortio Minero Cormin S.A.   | 3,000 ( $\pm 15\%$ )       | 2008 - 2009                    |
| Zinc Concentrate   | BHL Resources Ltd.   | 5,000 ( $\pm 20\%$ )       | 2008 - 2009                    |
|                    | Glencore International AG  | 8,600 ( $\pm 10\%$ )       | 2008                           |
|                    | Glencore International AG  | 15,400 ( $\pm 10\%$ )      | 2009                           |
|                    | Glencore International AG  | 8,400                      | 2008                           |
|                    | Glencore International AG  | 13,400                     | 2009                           |
|                    | BHL Resources Ltd.   | 8,500 ( $\pm 20\%$ )       | 2008                           |
|                    | BHL Resources Ltd.   | 11,000 ( $\pm 20\%$ )      | 2009                           |
|                    | Votorantim Metais<br>Cajamarquilla S.A.<br>Votorantim Metais<br>Cajamarquilla S.A. | 10,000 ( $\pm 20\%$ )      | 2008                           |
|                    | 15,000 ( $\pm 20\%$ )  | 2009                       |                                |

PAS has retained the plus or minus tonnage options shown in the Sales column.

The terms of smelting contracts are confidential as specified within each contract. However, the co-authors of this Technical Report have reviewed these terms and compared them with similar contracts signed at the other PAS operations. The authors consider these contracts to be within industry norms.

Some of the mining, mine construction projects and hauling of concentrates are done by third party contactors, as is a normal practice in Peru. The markets for mining and hauling contactors in Peru are extremely well-established and they historically have been and continue to be very competitive. The co-authors of this Technical Report have reviewed these contracts and considered the mining and hauling contracts that pertain to the Morococha operation to be within industry standards.

The mine has a contract for the supply of electrical power with Sociedad Minera Corona that extends until August 31, 2011. The current cost of electrical power to PAS is US\$0.0503 per kilowatt hour, the contract allows for periodic rate adjustments based on a formula that is established in the contract.

## 24.5 Environmental Considerations

### 24.5.1 General

The mine area is located between 4,500 and 4,900 metres above sea level. At this altitude, vegetation is sparse and wildlife is limited to birds, small mammals, reptiles, and amphibians. Human use of the area is almost exclusively for mining and exploration activities, except for occasional grazing of sheep. Soil development is generally poor, and is limited to a thin (10-20 cm) layer of sandy loam with low organic content. The area has been significantly impacted by historic mining activities.

The landforms of the area have been created by the glacial activity with U-shaped valleys, hanging valleys and tarns (glacial lakes). These landforms create locally isolated surface water basins and locally steep valley walls. Several drainages are tributary to the Rio Yauli, which in turn is tributary to the Rio Mantaro. The Kingsmill area drainage tunnel discharges between 1.5 to 1.8 m<sup>3</sup>/s of water into the Rio Yauli and has been determined to be a significant source of pollution according to studies done in the late 1990 s.

**24.5.2 External Review**

As part of its due diligence effort for the purchase of the Morococha mining concessions, PAS retained outside consultants who have intimate knowledge of the area and the site conditions and who also understand the legal climate for environmental legislation in Peru. At the forefront of the review was Dr. Carlos Soldi of SVS Ingenieros in Lima, Peru. Dr. Soldi retained the services of SRK Consulting of Reno, Nevada to assist with developing closure strategies from an international perspective, and also to assist with the development of a cost estimate for the closure plan.

The first phase of the environmental technical due diligence was to gain an understanding of the existing legal agreements for the project and to determine the distribution of the pre-existing liabilities to the various owners, operators, and other interests in the Morococha district. The second phase was an assessment of the potential closure and post-closure liabilities at the Morococha site, based on the potential risks to the local environment. Some of the local environmental conditions serve to minimize impacts to critical resources given the harsh conditions, elevation, limited human activity apart from mining and exploration, and the conditions of the natural mineralized outcrops that exist in the area.

**24.5.3 Kingsmill Drainage Tunnel Discharge**

The single largest environmental liability defined by the PAS due diligence is the Corona & Natividad share of the proposed Kingsmill tunnel water treatment plant. This share was defined by a study completed in 1997 by Water Management Consultants ( WMC ), which determined the following liability distributions:

|  |       |
|--|-------|
| Centromin Peru                         | 72.2% |
| Soc. Minera Corona (Sta. Rita & Yauli) | 12.3% |
| Soc. Minera Puquiococha                | 8.5%  |
| Soc. Minera Austria Duvaz              | 4.9%  |
| Minera Centrominas                     | 2.1%  |



The capital 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. PAS's 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 the Natividad purchase contract establishes that the purchaser is responsible for incremental flows in those concessions, subsequent studies in 2004 by WMC 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; however they have been challenged by PAS and have not been 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 PAS's purchase of the applicable concessions. PAS has included the estimated costs for 12.3% of the construction and operations of the water treatment facility in its closure and reclamation estimates.

Because of the current uncertainty with respect to eventual liability for the Kingsmill tunnel discharge, as part of its due diligence, PAS conducted its own sampling and flow measurements in the Kingsmill Tunnel and several surface water locations. The results of the PAS study, combined with data received from Corona, indicate no material change to the flow rate of the discharge. However, the sampling indicates that the quality of the water discharging from the tunnel has actually improved. A comprehensive hydrogeological study would be required to determine the exact cause of the water quality improvement, but it is believed to be a result of recent mitigation programs completed by Centromin on a large tailings facility situated directly above the Kingsmill tunnel. Although this could significantly reduce the original capital and operating cost projections for the water treatment plant, PAS has elected to plan for the original cost projections developed in the 1997 study.

In order to assess the possible impacts on water quality discharged from the Kingsmill tunnel from increased mine production, PAS retained the services of an experienced independent hydrogeologist (David Evans and Todd Hamilton of HCI Itasca) who is familiar with the Kingsmill tunnel. The results indicate that future mining may increase flow rates by 10% to 15%, and these increased flow rates were included in the PAS economic model. The study also identified opportunities to improve treatment costs through the sealing off of old mining areas and segregating flow sources.

During 2006, Peru Copper Inc. (Peru Copper), a company investigating the development of the nearby Toromocho copper project, placed \$US 15 million in a trust account to pay for the design and construction of the proposed water treatment and associated sludge storage facility for the flows from the Kingsmill tunnel. Peru Copper has contracted AMEC, an international mining consulting firm, to carry out the detailed design and environmental studies for the proposed treatment plant and sludge storage facility. The detailed design was completed in 2007 with the capital cost estimated at \$24 million. Peru Copper has not requested that PAS or any of the other mining entities contributing to the Kingsmill drainage flows contribute their share of the cost for the design and construction of the treatment plant. The terms of Peru Copper's contract for the purchase of the Toromocho Project require it to fund the total cost of the construction of the plant, as Peru Copper needs to secure future access to the water flows from the Kingsmill Tunnel for the development of the Toromocho project. There is a small likelihood the PAS may be asked to fund its share of the design, construction, and operation of the facility. PAS has included this potential outcome in its future reclamation and closure costs for Morococha.

#### 24.5.4 Huascacocha Tailings Facility

The Peruvian government has a conceptual plan to increase water supply to the city of Lima by diverting the flow from the Kingsmill Tunnel drainage and regional surface water to the Rio Rimac in order to feed the Lima groundwater aquifer. This could be a competing interest for the flow from the Kingsmill to that of Peru Copper. The potential impact to PAS is related to the long-term use of the Huascacocha tailings area for tailings storage, as the discharge from this facility could also be included in the water diverted to Lima. PAS has been requested by the Directorate of Environmental Health of the Ministry of Health ( DIGESA ), at a very preliminary level, to identify other potential areas for tailings storage and identify the potential pros and cons for such alternatives.

The Huascacocha Lake, which is adjacent to the Morococha mining operations, has been used for tailings disposal since 1960. Initial deposition created a beach of tails which eventually raised environmental concerns related to dust and acid generation. Water Management Consultants (WMC) completed a study in 2001 to determine what may be required to mitigate the historical tails. The WMC design includes raising the dike to submerge a large portion of tails and covering the remaining beach tails with top soil. Vector Engineering has confirmed that the facility has an additional capacity for 15 million tonnes of tailings with the raising of the dike. This dike raise was completed in 2007. The share of responsibility for the mitigation has been distributed as follows:

|  |        |
|--|--------|
| Centromin Peru                           | 67.15% |
| Soc. Minera Corona (Sta, Rita and Yauli) | 21.01% |
| Soc. Minera Austria Duvaz                | 11.84% |

During late 2006 and early 2007 the raising of the dam and construction of the overflow spillway was completed under the supervision of Centromin. PAS has reviewed the construction achieved and the design criteria. PAS also retained Vector Engineering to review the construction details and as-built conditions. As of the date of this Technical Report, it is anticipated that some expansion of the dam stabilization berm and installation of instrumentation will be required to assure the achievement of all design objectives.

#### 24.5.5 Environmental Improvement and Management Program (PAMA)

This program was instituted by the General Directorate for Environmental Affairs ( DGAA ) of the Ministry of Energy and Mines of Peru. The objective of the program was to have all mines operating in 2006 conduct an inventory of all negative environmental impacts associated with their operations and to develop a program to minimize and mitigate these impacts. The program required an estimate of the anticipated investments and a schedule for the completion of the works and investment. The PAMA s for the Morococha mining district were divided between the three concessions

Morococha, Anticona and Manuelita. A total of 23 projects were identified, with a number of them being joint responsibilities, such as the Huascacocha tailings facility and Kingsmill drainage tunnel discharge. Of these 23 projects, nine remained the responsibility of Centromin, the state agency responsible for the privatization of the concessions and the remaining 14 became the responsibility of Anticona (PAS) and Manuelita (PAS). Only the Kingsmill Drainage tunnel discharge project remains to be completed (see discussion in Section 24.5.3).

#### **24.5.6 Closure and Reclamation Plan**

PAS submitted a closure and reclamation plan to the DGAA in August 2007 in conformance with the specifications defined by the directorate. The closure plan included a cost estimate for the reclamation of all environmental liabilities and removal and disposal of all surface infrastructure. The closure plan recently has been reviewed by the DGAA and PAS has responded to all comments, most of which were administrative in nature. As of the date of this Technical Report, PAS is awaiting further response from the DGAA.

PAS has accounted for the mitigation of these liabilities and has made an estimate of future mining impact mitigation costs in the financial model discussed in Section 24.5.8. An inspection and review of the environmental liabilities and closure and reclamation cost estimates was conducted in 2007 by PAS's financial auditors with only minor proposed changes. The total undiscounted closure cost estimate for the Morococha operations is estimated to be USD \$11.96 million.

#### **24.5.7 Environmental Monitoring**

PAS's environmental monitoring program was approved as part of its PAMA. The monitoring program involves a network of seven monitoring points:

3 effluent monitoring points;

2 receiving water monitoring points; and

2 water supply monitoring points.

The compliance point for all liquid effluents from the Morococha operations is the overflow spillway discharge from the Huascacocha tailings facility. The average annual discharge from the impoundment following the completion of the dike raise in 2007 has been 520 l/s, with all water quality indicators being within permissible levels.

#### **24.6 Taxes**

The following subsections summarize current Peruvian fiscal rates and legislation.

##### **24.6.1 Fiscal Depreciation Rates**

The following is a summary of the annual depreciation rates for various types of assets:

Exploration, mine development, mine rehabilitation: 100%

Mine equipment: 20%

Vehicles: 20%

Computers: 25%

Buildings and other infrastructure: 3%

Other: 10%

#### **24.6.2 Income Tax and Workers Participation**

The corporate tax rate on taxable income in Peru is 30%. The workers participation rate is 8%. Because workers participation is deductible from taxable income, the effective income tax / worker s participation rate is 35.6%.

#### **24.6.3 Value Added Taxes**

The value added tax ( VAT ) rate in Peru is 19%. VAT is paid on all goods and services except for direct labour costs. Indirect labour costs (i.e. contractors and sub-contractors) are subject to VAT. The VAT is recovered through domestic sales, where a 19% VAT rate is applied to all domestic sales and in turn is applied against the VAT receivables. Companies cannot recover more VAT in any period than the amount accounted for as receivables.

#### **24.6.4 Mining Royalties**

Mining royalties are charged by the government of Peru on rmining revenues net of refining, smelting, transportation, and general selling charges. Mining royalties are income tax deductible, and based on the following sliding scale:

1% on the first \$60 million of net revenues;

2% on net revenues from \$60 million to \$120 million; and

3% on net revenues above \$120 million.

#### **24.6.5 Voluntary Contributions**

Voluntary contributions are paid into separate local and regional mine funds. The contribution calculations are based on after tax net income. The following are the rates on the two funds:

Local mining fund: 2% of after tax net income excluding mining royalties

Regional mining fund: 1% of after tax net income.

#### **24.7 Capital and Operating Costs**

##### **24.7.1 Capital Costs**

Table 24-3 is a summary of the capital expenditures, by operating area, forecast in the LOM plan. Highlights of the 2008 capital budget consist of:

\$2.6M for development and rehabilitation of mine workings

\$2.0M for the purchase of newly integrated mine equipment

\$2.0M for exploration and definition drilling

\$1.0M for replacing / repairing old equipment

\$0.8M on camp improvements / modifications

\$0.8M for underground ventilation upgrades

**Table 24-3: Life of Mine Projected Capital Expenditures**

| <b>Capital Costs</b>    | <b>2008</b>      | <b>2009</b>      | <b>2010</b>      | <b>2011</b>     | <b>2012</b>     | <b>2013</b>     | <b>2014</b>     | <b>2015</b>     | <b>2016</b>     | <b>2017</b>     |
|-------------------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Geology                 | \$ 1,950         | \$ 1,700         | \$ 1,475         | \$ 850          | \$ 650          | \$ 650          | \$ 650          | \$ 650          | \$ 650          | \$ 650          |
| Mine                    | \$ 7,230         | \$ 10,113        | \$ 10,417        | \$ 8,047        | \$ 7,765        | \$ 5,495        | \$ 5,000        | \$ 4,000        | \$ 2,000        | \$ 500          |
| Plant                   | \$ 898           | \$ 130           | \$ 250           | \$ 250          | \$ 250          | \$ 250          | \$ 250          | \$ 250          | \$ 250          | \$ 250          |
| Maintenance +<br>Power  | \$ 1,971         | \$ 425           | \$ 371           | \$ 375          | \$ 210          | \$ 210          | \$ 210          | \$ 210          | \$ 210          | \$ 50           |
| Safety +<br>Environment | \$ 70            | \$ 694           | \$ 0             | \$ 0            | \$ 0            | \$ 0            | \$ 0            | \$ 0            | \$ 0            | \$ 0            |
| Other                   | \$ 2,034         | \$ 360           | \$ 360           | \$ 360          | \$ 260          | \$ 260          | \$ 260          | \$ 260          | \$ 260          | \$ 50           |
| <b>Total</b>            | <b>\$ 14,153</b> | <b>\$ 13,422</b> | <b>\$ 12,873</b> | <b>\$ 9,882</b> | <b>\$ 9,135</b> | <b>\$ 6,865</b> | <b>\$ 6,370</b> | <b>\$ 5,370</b> | <b>\$ 3,370</b> | <b>\$ 1,500</b> |

**24.7.2 Operating Costs**

Operating costs as captured by the Morococha accounting department for the year-to-date as of the end of October 2007 are shown in Table 24-4. These actual costs serve as the basis for the operating cost estimates used in the LOM plan. Table 24-5 expresses these costs on a per tonne unit basis.

**Table 24-4: Operating Cost Estimate for the Life of Mine Plan**

| <b>Costs</b>                | <b>2007</b>      | <b>2008</b>      | <b>2009</b>      | <b>2010</b>      | <b>2011</b>      | <b>2012</b>      | <b>2013</b>      | <b>2014</b>      | <b>2015</b>      | <b>2016</b>      | <b>2017</b>      |
|-----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Mine                        | \$ 24,315        | \$ 19,621        | \$ 20,221        | \$ 20,123        | \$ 20,436        | \$ 20,434        | \$ 20,536        | \$ 19,210        | \$ 16,621        | \$ 16,490        | \$ 6,457         |
| Processing                  | \$ 3,019         | \$ 3,151         | \$ 3,191         | \$ 3,185         | \$ 3,205         | \$ 3,206         | \$ 3,212         | \$ 3,214         | \$ 3,214         | \$ 3,214         | \$ 1,163         |
| Planning &<br>Engineering   | \$ 628           | \$ 686           | \$ 686           | \$ 686           | \$ 686           | \$ 686           | \$ 686           | \$ 686           | \$ 686           | \$ 686           | \$ 253           |
| Geology                     | \$ 777           | \$ 863           | \$ 870           | \$ 869           | \$ 873           | \$ 873           | \$ 874           | \$ 874           | \$ 874           | \$ 874           | \$ 319           |
| Safety & Environ            | \$ 735           | \$ 937           | \$ 941           | \$ 941           | \$ 943           | \$ 943           | \$ 943           | \$ 944           | \$ 944           | \$ 944           | \$ 346           |
| General<br>Maintenance      | \$ 2,851         | \$ 3,299         | \$ 3,348         | \$ 3,341         | \$ 3,366         | \$ 3,366         | \$ 3,374         | \$ 3,376         | \$ 3,376         | \$ 3,376         | \$ 1,218         |
| Electric System             | \$ 2,780         | \$ 2,769         | \$ 2,857         | \$ 2,843         | \$ 2,889         | \$ 2,889         | \$ 2,904         | \$ 2,907         | \$ 2,907         | \$ 2,907         | \$ 1,022         |
| Camp<br>Administration      | \$ 3,406         | \$ 3,602         | \$ 3,679         | \$ 3,667         | \$ 3,707         | \$ 3,707         | \$ 3,720         | \$ 3,723         | \$ 3,723         | \$ 3,723         | \$ 1,330         |
| <b>Production<br/>Costs</b> | <b>\$ 38,512</b> | <b>\$ 34,928</b> | <b>\$ 35,793</b> | <b>\$ 35,655</b> | <b>\$ 36,104</b> | <b>\$ 36,103</b> | <b>\$ 36,249</b> | <b>\$ 34,934</b> | <b>\$ 32,345</b> | <b>\$ 32,214</b> | <b>\$ 12,108</b> |
| Transaction<br>Costs        | \$ 190           | \$ 166           | \$ 166           | \$ 166           | \$ 166           | \$ 166           | \$ 166           | \$ 166           | \$ 166           | \$ 166           | \$ 61            |
| Mining<br>Concessions       | \$ 138           | \$ 151           | \$ 151           | \$ 151           | \$ 151           | \$ 151           | \$ 151           | \$ 151           | \$ 151           | \$ 151           | \$ 56            |
| Administrative              | \$ 1,167         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 1,230         | \$ 454           |
| Insurance+Legal             |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |

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|                    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>+PAMA</b>       |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Management Fee     |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Peru               | \$ 1,867         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 2,120         | \$ 783           |
| Management Fee     |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Canada             | \$ 387           | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             | \$ 0             |
| <br>               |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Shipping & Selling | \$ 918           | \$ 1,008         | \$ 1,079         | \$ 1,006         | \$ 988           | \$ 1,004         | \$ 978           | \$ 1,167         | \$ 1,167         | \$ 1,167         | \$ 1,167         | \$ 404           |
| <br>               |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| <b>Operations</b>  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| <b>Costs</b>       | <b>\$ 43,179</b> | <b>\$ 39,604</b> | <b>\$ 40,540</b> | <b>\$ 40,328</b> | <b>\$ 40,760</b> | <b>\$ 40,775</b> | <b>\$ 40,895</b> | <b>\$ 39,769</b> | <b>\$ 37,180</b> | <b>\$ 37,049</b> | <b>\$ 37,049</b> | <b>\$ 13,866</b> |

43-101 (PanAm)

Morococha Mine

97



**Table 24-5: Operating Unit Cost Estimate for the Life of Mine Plan**

| <b>Costs</b>                   | <b>2007</b>     | <b>2008</b>     | <b>2009</b>     | <b>2010</b>     | <b>2011</b>     | <b>2012</b>     | <b>2013</b>     | <b>2014</b>     | <b>2015</b>     | <b>2016</b>     | <b>2017</b>     |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Mine                           | \$ 35.77        | \$ 29.69        | \$ 29.35        | \$ 29.39        | \$ 29.23        | \$ 29.22        | \$ 29.17        | \$ 27.25        | \$ 23.58        | \$ 23.39        | \$ 26.46        |
| Processing                     | \$ 4.44         | \$ 4.77         | \$ 4.63         | \$ 4.65         | \$ 4.58         | \$ 4.58         | \$ 4.56         | \$ 4.56         | \$ 4.56         | \$ 4.56         | \$ 4.77         |
| Planning & Engineering         | \$ 0.92         | \$ 1.04         | \$ 1.00         | \$ 1.00         | \$ 0.98         | \$ 0.98         | \$ 0.98         | \$ 0.97         | \$ 0.97         | \$ 0.97         | \$ 1.04         |
| Geology                        | \$ 1.14         | \$ 1.31         | \$ 1.26         | \$ 1.27         | \$ 1.25         | \$ 1.25         | \$ 1.24         | \$ 1.24         | \$ 1.24         | \$ 1.24         | \$ 1.31         |
| Safety & Environ               | \$ 1.08         | \$ 1.42         | \$ 1.37         | \$ 1.37         | \$ 1.35         | \$ 1.35         | \$ 1.34         | \$ 1.34         | \$ 1.34         | \$ 1.34         | \$ 1.42         |
| General Maintenance            | \$ 4.19         | \$ 4.99         | \$ 4.86         | \$ 4.88         | \$ 4.81         | \$ 4.81         | \$ 4.79         | \$ 4.79         | \$ 4.79         | \$ 4.79         | \$ 4.99         |
| Electric System                | \$ 4.09         | \$ 4.19         | \$ 4.15         | \$ 4.15         | \$ 4.13         | \$ 4.13         | \$ 4.13         | \$ 4.12         | \$ 4.12         | \$ 4.12         | \$ 4.19         |
| Camp Administration            | \$ 5.01         | \$ 5.45         | \$ 5.34         | \$ 5.36         | \$ 5.30         | \$ 5.30         | \$ 5.28         | \$ 5.28         | \$ 5.28         | \$ 5.28         | \$ 5.45         |
| <b>Production Costs</b>        | <b>\$ 56.65</b> | <b>\$ 52.85</b> | <b>\$ 51.96</b> | <b>\$ 52.08</b> | <b>\$ 51.64</b> | <b>\$ 51.63</b> | <b>\$ 51.50</b> | <b>\$ 49.55</b> | <b>\$ 45.88</b> | <b>\$ 45.69</b> | <b>\$ 49.62</b> |
| Transaction Costs              | \$ 0.28         | \$ 0.25         | \$ 0.24         | \$ 0.24         | \$ 0.24         | \$ 0.24         | \$ 0.24         | \$ 0.24         | \$ 0.24         | \$ 0.24         | \$ 0.25         |
| Mining Concessions             | \$ 0.20         | \$ 0.23         | \$ 0.22         | \$ 0.22         | \$ 0.22         | \$ 0.22         | \$ 0.21         | \$ 0.21         | \$ 0.21         | \$ 0.21         | \$ 0.23         |
| Administrative Insurance+Legal | \$ 1.72         | \$ 1.86         | \$ 1.79         | \$ 1.80         | \$ 1.76         | \$ 1.76         | \$ 1.75         | \$ 1.75         | \$ 1.75         | \$ 1.75         | \$ 1.86         |
| Management Fee Peru            | \$ 2.75         | \$ 3.21         | \$ 3.08         | \$ 3.10         | \$ 3.03         | \$ 3.03         | \$ 3.01         | \$ 3.01         | \$ 3.01         | \$ 3.01         | \$ 3.21         |
| Management Fee Canada          | \$ 0.57         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         |
| Shipping & Selling             | \$ 1.35         | \$ 1.52         | \$ 1.57         | \$ 1.47         | \$ 1.41         | \$ 1.44         | \$ 1.39         | \$ 1.66         | \$ 1.66         | \$ 1.66         | \$ 1.66         |
| Ocean Freight                  | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         | \$ 0.00         |
| <b>Operations Costs</b>        | <b>\$ 63.52</b> | <b>\$ 59.92</b> | <b>\$ 58.85</b> | <b>\$ 58.91</b> | <b>\$ 58.30</b> | <b>\$ 58.32</b> | <b>\$ 58.10</b> | <b>\$ 56.41</b> | <b>\$ 52.74</b> | <b>\$ 52.55</b> | <b>\$ 56.83</b> |

The current LOM plan extends to 2017 and is based on the costs listed in Tables 24-4 and 24-5. Although these estimated costs are projected from historical actual costs, they are subject to change due to the fluctuating exchange

rate between the Peruvian Sol and the USD. In 2007, the Peruvian Sol has strengthened against the USD. A portion of the operating expenditures, such as mine site labour, are in Soles, which has caused the operating costs that are reported in USD to increase. These operating costs might continue to increase if the Sol continues to strengthen. PAS has assumed that the Sol will remain near its current levels of 3 Soles per USD throughout the LOM plan.

PAS has assumed that there will be a 5% increase in labour, contractor and material costs in 2008 and that there will be no cost increases thereafter. This is normal practice for evaluating projects where the metal prices are assumed to be flat throughout the LOM plan, and where capital investments made in the mine will provide productivity increases that are not otherwise accounted for.

#### **24.8 Economic Analysis**

PAS, like many other precious metals producers, uses methods established by The Gold Institute (Production Cost Standards, Nov. 1999) to calculate costs per ounce of silver produced at mine operations. For each mine, PAS totals all direct mining costs, adds smelting and shipping costs, plus royalties, production-related taxes, interest on loans and mine management / administration costs. From this total operating cost, PAS subtracts the amount received from selling the mine's by-products (zinc, lead, copper, and gold) and divides by the number of payable ounces produced to get the total cash cost per ounce of silver produced. This calculation allows comparison of operational efficiency at a mine relative to its performance in previous years and also allows comparison with peer companies' operations. As well, this cost reflects by-product metal prices. For instance, when zinc prices are low, PAS receives lower by-product revenues from zinc. Subtracting this smaller by-product revenue from total costs yields a higher total cash cost per ounce of silver produced. The total production cost per ounce of silver differs from the total cash cost per ounce of silver in that it includes provisions for depreciation, depletion and amortization (DD&A) and reclamation, which are non-cash items on the financial statement and the effect of all other taxes.

43-101 (PanAm)

Morococha Mine

98



The DD&A number is an accounting allowance for the cost to acquire, develop, construct and sustain a mining operation. The reclamation component is an accounting allowance of the estimated cost to reclaim the mine at the end of its life. The bulk of these expenditures occur at the beginning or end of a mine's life and in the case of a large underground mine like Morococha significant sustaining capital is required for mine development.

The Economic model based on the LOM plan is presented in Table 24-6. The Net Present Value (NPV) is US\$24.83 million at a 10% discount rate and is US\$20.71 million at a 15% discount rate. The undiscounted after tax cash flow is US\$39.57 million. At the time that this Technical Report was completed, the following price assumptions were used:

The metal prices used in the economic analysis for January through October, 2007 were the actual prices for which production revenue realized. These prices for the metals produced are known and so they have not been subjected to the metal price sensitivity, or any of the other sensitivities.

For all future periods, the metal prices are assumed to be constant for the duration of mine life at the prices shown in each case. Current market prices are considerably higher than those used in Case 1, and Martin Wafforn, P.Eng., considers them to be reasonable assumptions for mineral reserve prices.

Following an agreement between the previous owners of the Morococha operation and the owners of the Toromocho property, some of the Morococha properties were pledged to Toromocho. In return, the owners of Toromocho must pay \$8 million in 2008, or give the mining rights for the eastern half of the Veta Buenaventura to Morococha, or return the properties to Morococha. As there is no certainty regarding which option will be selected, none of these potentially beneficial outcomes have been included in the economic analysis or the LOM plan. Similarly if development of the Toromocho pit proceeds and the deposit is placed into production, there will be significant capital required on PAS's part to relocate the mine's infrastructure away from the pit.

Sensitivity analyses were conducted for variances in metal prices, metal grades, capital costs and operating costs. These sensitivities are discussed in the following subsections.

**Table 24-6: Economic Model**

| 2008        | 2009        | 2010        | 2011        | 2012        | 2013        | 2014        | 2015        | 2016        |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 9.00 \$     | 9.00 \$     | 9.00 \$     | 9.00 \$     | 9.00 \$     | 9.00 \$     | 9.00 \$     | 9.00 \$     | 9.00 \$     |
| 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ | 2,100.00 \$ |
| 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ | 1,000.00 \$ |
| 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ | 5,000.00 \$ |
| 525.00 \$   | 525.00 \$   | 525.00 \$   | 525.00 \$   | 525.00 \$   | 525.00 \$   | 525.00 \$   | 525.00 \$   | 525.00 \$   |
| 660,900     | 688,900     | 684,600     | 699,100     | 699,200     | 703,900     | 705,000     | 705,000     | 705,000     |
| 166         | 168         | 166         | 166         | 160         | 162         | 146         | 146         | 146         |
| 3.41        | 3.79        | 3.72        | 3.55        | 3.69        | 3.69        | 4.43        | 4.43        | 4.43        |
| 1.41        | 1.47        | 1.43        | 1.33        | 1.45        | 1.27        | 1.99        | 1.99        | 1.99        |
| 0.51        | 0.42        | 0.40        | 0.40        | 0.40        | 0.40        | 0.26        | 0.26        | 0.26        |
| 2,970,127   | 3,157,232   | 3,069,482   | 3,139,919   | 2,996,624   | 3,061,731   | 2,716,534   | 2,716,534   | 2,716,534   |
| 18,710      | 22,120      | 21,555      | 20,895      | 21,801      | 21,948      | 26,698      | 26,698      | 26,698      |
| 6,879       | 7,498       | 7,201       | 6,699       | 7,495       | 6,397       | 10,658      | 10,658      | 10,658      |
| 2,438       | 1,850       | 1,708       | 1,744       | 1,745       | 1,756       | 956         | 956         | 956         |
| 52,834.43   | 56,847.21   | 54,763.60   | 54,226.65   | 55,240.94   | 55,240.04   | 57,850.94   | 57,850.94   | 57,850.94   |
| (39,603.87) | (40,539.70) | (40,328.20) | (40,760.31) | (40,775.25) | (40,895.08) | (39,768.98) | (37,179.92) | (37,179.92) |
| (1,879.10)  | (763.94)    | (589.27)    | (592.62)    | (691.43)    | (766.20)    | (1,113.86)  | (1,379.60)  | (1,379.60)  |
| (471.11)    | (333.09)    | (226.21)    | (209.14)    | (195.50)    | (195.50)    | (195.50)    | (195.50)    | (195.50)    |
| (3,892.70)  | (4,057.62)  | (4,032.29)  | (4,117.70)  | (4,118.29)  | (4,145.97)  | (4,152.45)  | (4,152.45)  | (4,152.45)  |
| 6,987.65    | 11,152.85   | 9,587.63    | 8,546.88    | 9,460.47    | 9,237.29    | 12,620.15   | 14,943.47   | 14,943.47   |

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|            |              |              |              |              |              |              |              |              |
|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| (523.13)   | (2,246.66)   | (1,688.00)   | (1,747.60)   | (2,062.34)   | (2,342.28)   | (3,442.00)   | (4,294.58)   | (4,294.58)   |
| 0.00       | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| (688.47)   | (948.51)     | (841.31)     | (724.12)     | (787.90)     | (734.32)     | (977.47)     | (1,134.11)   | (1,134.11)   |
| 5,776.05   | 7,957.69     | 7,058.32     | 6,075.15     | 6,610.23     | 6,160.69     | 8,200.68     | 9,514.78     | 9,514.78     |
| 3,892.70   | 4,057.62     | 4,032.29     | 4,117.70     | 4,118.29     | 4,145.97     | 4,152.45     | 4,152.45     | 4,152.45     |
| 648.00     | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| 14,153.00) | (13,422.00)  | (12,873.00)  | (9,882.00)   | (9,135.00)   | (6,865.00)   | (6,370.00)   | (5,370.00)   | (5,370.00)   |
| 0.00       | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| 688.47     | 948.51       | 841.31       | 724.12       | 787.90       | 734.32       | 977.47       | 1,134.11     | 1,134.11     |
| (250.00)   | (344.00)     | (344.00)     | (344.00)     | (344.00)     | (344.00)     | (344.00)     | (344.00)     | (344.00)     |
| 471.11     | 333.09       | 226.21       | 209.14       | 195.50       | 195.50       | 195.50       | 195.50       | 195.50       |
| 27,725.27  | 2,114,802.64 | 2,199,202.19 | 2,170,584.56 | 2,204,015.77 | 2,244,389.78 | 2,420,081.33 | 2,420,081.33 | 2,420,081.33 |
| 5.97       | 4.39         | 4.68         | 5.55         | 4.46         | 4.67         | 1.53         | 0.46         | 0.46         |
| 2.39       | 2.08         | 1.94         | 1.99         | 1.96         | 1.93         | 1.80         | 1.80         | 1.80         |
| 8.36       | 6.47         | 6.62         | 7.55         | 6.42         | 6.61         | 3.32         | 2.26         | 2.26         |
| 79.94      | 82.52        | 79.99        | 77.57        | 79.01        | 78.48        | 82.06        | 82.06        | 82.06        |
| 59.92      | 58.85        | 58.91        | 58.30        | 58.32        | 58.10        | 56.41        | 52.74        | 52.74        |
| 20.02      | 23.67        | 21.09        | 19.26        | 20.69        | 20.38        | 25.65        | 29.32        | 29.32        |

1 Metal prices shown for 2007 are for November and

December,  
2007 only. The  
prices used for  
the period  
January to  
October, 2007  
are actual  
realized prices  
for those  
months. The  
average of those  
actual realized  
prices are Ag  
\$13.17 /oz, Zn  
\$3401.33  
/tonne, Pb  
\$2503.66  
/tonne, Cu  
\$7189.79 /tonne  
and Au \$  
676.04 /oz.

43-101 (PanAm)

Morococha Mine

100

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**24.8.1 Metal Price Sensitivity**

The economics of the LOM plan at varying metal prices are shown in Table 24-7. Case 1 is considered the LOM Base Case as shown in Table 24-6 earlier in this section. The Case 2 metal prices are the actual metal prices that PAS plans to use for the statement of proven and probable mineral reserves as of December 31, 2007 at all PAS operating mines and development projects. Case 3 prices are those that were used by PAS as the basis for the December 31, 2006 proven and probable mineral reserves. The co-authors of this Technical Report caution that sensitivity analyses such as these must be considered as very cursory when applied to underground mines. To be meaningful, sensitivity factors should be applied to each underground stope in the Base Case (and also to potential stope blocks) in order to arrive at a valid estimate of the reductions and/or additions that result to the proven and probable mineral reserve base. However, the time required to complete multiple sensitivity exercises that are truly optimized in the same manner as the Base Case for the Morococha operations is prohibitive.

**Table 24-7: Metal Price Sensitivity**

| Metal Prices                | Case #1     | Case #2     | Case #3     |
|-----------------------------|-------------|-------------|-------------|
| Silver \$/Ounce             | \$ 9.00     | \$ 11.00    | \$ 6.50     |
| Lead \$/Tonne               | \$ 1,000.00 | \$ 1,700.00 | \$ 600.00   |
| Copper \$/Tonne             | \$ 5,000.00 | \$ 6,000.00 | \$ 3,500.00 |
| Zinc \$/Tonne               | \$ 2,100.00 | \$ 2,100.00 | \$ 1,500.00 |
| Gold \$/Ounce               | \$ 525.00   | \$ 600.00   | \$ 450.00   |
| NPV                         |             |             |             |
| Discount Rate<br>(x \$1000) | Case #1     | Case #2     | Case #3     |
| NPV 0%                      | \$ 39,567   | \$ 116,594  | \$ (61,887) |
| NPV 10%                     | \$ 24,827   | \$ 69,287   | \$ (36,385) |
| NPV 15%                     | \$ 20,705   | \$ 55,923   | \$ (28,697) |

**24.8.2 Grade Sensitivity**

In order to provide a cursory test of the sensitivity of the LOM plan to the grade of the mineral reserves, the estimated head grade for each metal for each year of operation was multiplied by factors of 100% (the base case presented in Table 24-6), 75%, 90%, 110%, and 125%. The cash flow and financial metrics for each case were then recalculated and are shown in Table 24-8. As with the price sensitivity analyses, the co-authors of this Technical Report caution that sensitivity analyses such as these must be considered as very cursory when applied to underground mines. To be meaningful, grade sensitivity factors should be applied to each underground stope in the Base Case (and also to potential stope blocks) in order to arrive at a valid estimate of the reductions and/or additions that result to the proven and probable mineral reserve base. However, the time required to complete multiple sensitivity exercises that are truly optimized in the same manner as the Base Case for the Morococha operations is prohibitive.

**Table 24-8: Metal Grade Sensitivity**

| Metal Grade<br>(x \$1000) | 100%<br>(Base Case) | 75%         | 90%      | 110%      | 125%       |
|---------------------------|---------------------|-------------|----------|-----------|------------|
| NPV 0%                    | \$ 39,567           | \$ (65,020) | \$ 4,252 | \$ 73,800 | \$ 125,177 |
| NPV 10%                   | \$ 24,827           | \$ (37,886) | \$ 4,286 | \$ 44,414 | \$ 73,810  |
| NPV 15%                   | \$ 20,705           | \$ (29,734) | \$ 4,369 | \$ 36,145 | \$ 59,316  |

**24.8.3 Capital Cost Sensitivity**

Because Morococha is an operating mine, capital requirements in the LOM plan are limited to those projects required to sustain the operation. The capital costs are accounted for within the LOM plan and are shown in Table 24-9. As these capital costs are scheduled amounts, the pay back periods for these costs are irrelevant, as the annual cash flows are positive and are capable of paying for the incurred capital expenditures. As Table 24-9 illustrates, the economics of the Morococha operation are not significantly sensitive to changes in capital costs of plus or minus 25%.

**Table 24-9: Capital Cost Sensitivity**

| Capital Cost<br>(x \$1000) | 100% (Base<br>Case) | 75%       | 90%       | 110%      | 125%      |
|----------------------------|---------------------|-----------|-----------|-----------|-----------|
| NPV 0%                     | \$ 39,567           | \$ 60,810 | \$ 48,071 | \$ 31,053 | \$ 18,265 |
| NPV 10%                    | \$ 24,827           | \$ 38,404 | \$ 30,264 | \$ 19,381 | \$ 11,173 |
| NPV 15%                    | \$ 20,705           | \$ 31,920 | \$ 25,198 | \$ 16,205 | \$ 9,408  |

**24.8.4 Operating Cost Sensitivity**

The economics of the Morococha operations to variances in operating costs were calculated in a manner similar to capital costs. As Table 24-10 shows, the economics of the operations are sensitive to fluctuations in operating costs. If operating costs increase by 15% the undiscounted NPV would be equal to \$0.00. However, once again it must be stressed that sensitivity analyses such as these must be considered as very cursory when applied to underground mines. To be meaningful, operating cost sensitivity factors should be applied to each underground stope in the Base Case (and also to potential stope blocks) in order to arrive at a valid estimate of the reductions and/or additions that result to the proven and probable mineral reserve base. However, the time required to complete multiple sensitivity exercises that are truly optimized in the same manner as the Base Case for the Morococha operations is prohibitive.

**Table 24-10: Operating Cost Sensitivity**

| Operating Cost<br>(x \$1000) | 100% (Base Case) | 75%        | 90%       | 110%      | 125%        |
|------------------------------|------------------|------------|-----------|-----------|-------------|
| NPV 0%                       | \$ 39,567        | \$ 105,546 | \$ 65,958 | \$ 12,440 | \$ (34,517) |
| NPV 10%                      | \$ 24,827        | \$ 65,158  | \$ 40,959 | \$ 8,087  | \$ (21,117) |
| NPV 15%                      | \$ 20,705        | \$ 53,621  | \$ 33,872 | \$ 6,983  | \$ (16,992) |

**24.9 Mine Life**

All of the proven and probable mineral reserves (totaling 5.70 million tonnes grading 156 g/t Ag, 0.36 % Cu, 1.49 % Pb and 3.84 % Zn) are scheduled to be mined over a mine life that extends for approximately 10 years to 2017. The LOM mine plan also includes 0.79 million tonnes (of a total 2.86 million tonnes) of measured and indicated mineral resources grading 188 g/t Ag, 0.33% Cu, 1.41% Pb and 3.34% Zn. The included mineral resources are forecast to be mined at a yearly rate not exceeding 35% of the overall tonnes mined during that year. The justification for including these mineral resources in the LOM plan is based on operating history. Every year, the Morococha operations have mined mineral resources that were not included in the previous year's mineral reserves. This occurs as a result of ordinary planned development along the veins, which consistently delineates more new ore than anticipated. Because the LOM plan should reflect anticipated actual operating conditions, the co-authors of this Technical Report believe that the inclusion of a portion of the measured and indicated mineral resources in the LOM plan is reasonable. It is important to note that the LOM plan does not include any of the inferred mineral resources or other potential (but currently undefined) economic mineralization that may be defined by further exploration.

43-101 (PanAm)

Morococha Mine

103

**25.0 DATE AND SIGNATURE PAGE**

The information in this report is current as of December 30, 2007. Operating data such as costs and recovery are more current, as it was made available during the time frame between the mineral resource and reserve estimate and the period taken to prepare this Technical Report.

This report has been prepared by Martin G. Wafforn, P. Eng., Don Earnest, P.Geo., and Dr. Michael Steinmann, P. Geo. each of whom are Qualified Persons.

Respectfully submitted this 30th day of January, 2008.

Martin Wafforn

Signature and seal of Qualified Person

Martin Wafforn, P.Eng.

Print Name of Qualified Person

Michael Steinmann

Signature and seal of Qualified Person

Michael Steinmann, P.Geo., Ph.D.

Print Name of Qualified Person

Don Earnest

Signature and seal of Qualified Person

Don Earnest, P.Geo.,

Print Name of Qualified Person

43-101 (PanAm)

Morococha Mine

104



**26.0 FIGURES**

**Figure 1: Location Map**

43-101 (PanAm)

Morococha Mine

105

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**Figure 2: Morococha Mine Surface Rights**

43-101 (PanAm)

Morococha Mine

106

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**Figure 3: Morococha Mine Concession**

43-101 (PanAm)

Morococha Mine

107

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**Figure 4: Morococha Surface Installments**

43-101 (PanAm)

Morococha Mine

108

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**Figure 5: Regional Geology Map Plan**

43-101 (PanAm)

Morococha Mine

109

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**Figure 6: District Geology Map**

43-101 (PanAm)

Morococha Mine

110

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**Figure 7: Mineral Reserve Blocks Isabel Vein, Codiciada Zone**

43-101 (PanAm)

Morococha Mine

111

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**Figure 8: Mineral Processing Flowsheet**

43-101 (PanAm)

Morococha Mine

112

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**Figure 9: Mining Method**

43-101 (PanAm)

Morococha Mine

113

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**CERTIFICATE OF QUALIFIED PERSON**

I, Martin Wafforn, P.Eng, of Pan American Silver Corp., 1500-625 Howe St., Vancouver, British Columbia, Canada V6C 2T6, do hereby certify that:

1. I graduated with a degree in Bachelor s of Science in Mining from Camborne School of Mines in Cornwall, England in 1980.
2. I am a Professional Engineer in good standing in the Province of British Columbia in the areas of Mining engineering. I am a Chartered Engineer in good standing in the United Kingdom.
3. I am currently employed as Vice President of Mine Engineering for Pan American Silver Corp. and by reason of my employment, am not independent of Pan American Silver Corp. as described in section 1.4 of National Instrument 43-101 ( NI 43-101 ).
4. I have worked as an engineer in the mining industry for a total of twenty six years since my graduation from Camborne School of Mines.
5. I have read the definition of qualified person set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. Pan American Silver Corp. is a producing issuer as defined in NI 43-101.
7. I visited the Morococha mine site from October 2 to October 4, 2007. I am responsible for the sections 1, 2, 3, 4, 5, 6, 7, 8, 18, 19, 20, 21, 22, 23, 24 and 25 of the report entitled Morococha Property Yauli Province, Peru, Technical Report dated effective December 30, 2007 (the Technical Report ) and for all figures, tables, and graphs within those sections of the Technical Report.
8. I am co-author of the Technical Report dated effective December 30, 2007.
9. I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated the 28th day of January, 2008.

Martin Wafforn

Signature and seal of Qualified Person

Martin Wafforn, P. Eng.

**CONSENT OF QUALIFIED PERSON**

TO: British Columbia Securities Commission

Alberta Securities Commission

Saskatchewan Financial Services Commission

The Manitoba Securities Commission

Ontario Securities Commission

Autorité des marchés financiers

New Brunswick Securities Commission

Securities Commission of Newfoundland & Labrador

Nova Scotia Securities Commission

Registrar of Securities, Prince Edward Island

Government of the Northwest Territories, Department of Justice, Securities Registry

Nunavut Legal Registries

Registrar of Securities, Government of the Yukon Territories

I, Martin Wafforn, P.Eng. do hereby consent to the filing with the regulatory authorities referred to above of the technical report titled Morococha Property Yauli Province, Peru, Technical Report dated effective December 30, 2007 (the Technical Report ).

No additional written disclosure will be filed with the Technical Report.

Dated the 28th day of January, 2008.

Martin Wafforn

Signature and seal of Qualified Person

Martin Wafforn, P. Eng.

**CERTIFICATE OF QUALIFIED PERSON**

I, Dr. Michael Steinmann, P.Ge., Ph.D., of Pan American Silver Corp., 1500-625 Howe St., Vancouver, B.C., Canada V6C 2T6, do hereby certify that:

1. I graduated with a degree in Master of Science in Geology from the University of Zurich in 1993. In addition, I earned a Doctor of Natural Science in Geology from the Swiss Federal Institute of Technology, Zurich, Switzerland.
2. I am a Professional Geoscientist in good standing in the Province of British Columbia in the areas of mining geology and exploration.
3. I have worked as a geologist for a total of fourteen years since my graduation from the University of Zurich.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 ( "NI 43-101" ) and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of the NI 43-101.
5. I am currently employed as Senior Vice President of Exploration and Geology for Pan American Silver Corp. and by reason of my employment, am not independent of Pan American Silver Corp. as described in section 1.4 of NI 43-101.
6. Pan American Silver Corp. is a "producing issuer" as defined in NI 43-101.
7. I visited the Morococha mine site from October 2, 2007 to October 4, 2007. I am responsible for sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24 of the report entitled "Morococha Property Yauli Province, Peru, Technical Report" dated effective December 30, 2007 (the "Technical Report" ) and for figures, tables, and graphs contained in sections 9, 10, 11, 12, 13, 14, 15, and 19 of the Technical Report.
8. I am co-author of the Technical Report dated effective December 30, 2007.
9. I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated the 28th day of January, 2008.

Michael Steinmann

Signature and seal of Qualified Person

Michael Steinmann, P.Ge., Ph.D.

**CONSENT OF QUALIFIED PERSON**

TO: British Columbia Securities Commission

Alberta Securities Commission

Saskatchewan Financial Services Commission

The Manitoba Securities Commission

Ontario Securities Commission

Autorité des marchés financiers

New Brunswick Securities Commission

Securities Commission of Newfoundland & Labrador

Nova Scotia Securities Commission

Registrar of Securities, Prince Edward Island

Government of Northwest Territories, Department of Justice, Securities Registry

Nunavut Legal Registries

Registrar of Securities, Government of the Yukon Territory

I, Dr. Michael Steinmann, P.Ge., Ph.D., do hereby consent to the filing with the regulatory authorities referred to above of the technical report titled Morococha Property Yauli Province, Peru, Technical Report dated effective December 30, 2007.

No additional written disclosure will be filed with the Technical Report.

Dated the 28th day of January, 2008.

Michael Steinmann

Signature and seal of Qualified Person

Michael Steinmann, P.Ge., Ph.D.

**CERTIFICATE OF QUALIFIED PERSON**

I, Donald F. Earnest, P.Geo., of Resource Evaluation, Inc., 2560 W. La Cresta Rd., Tucson, Arizona, 85742, do hereby certify that:

1. I graduated with a Bachelor of Science degree in Geology from The Ohio State University, Columbus Ohio, USA, in 1973.
2. I am a Registered Professional Geologist in good standing in the State of Arizona (#36976) and in the State of Idaho (#746).
3. I am currently employed as President of Resource Evaluation Inc. and I am independent of Pan American Silver Corp. as described in Section 1.4 of National Instrument 43-101 ( NI 43-101 ).
4. I have worked as a Geologist in the mining industry for a total of thirty-four years since my graduation from The Ohio State University.
5. I have read the definition of "qualified person" set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. Pan American Silver Corp. is a "producing issuer" as defined in NI 43-101.
7. I visited the Morococha operations site from October 3 to October 4, 2007. I am responsible for the sections 3, 7, 8, 9, 10, 11, 16, 19, 21, 22, 23, 24 and 25 of the report entitled "Morococha Property Yauli Province, Peru, Technical Report" dated effective December 30, 2007 (the "Technical Report") and for all figures, tables, and graphs within those sections of the Technical Report.
8. I am co-author of the Technical Report dated effective December 30, 2007.
9. I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101.
10. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated the 28th day of January, 2008.

Donald F. Earnest

Signature and seal of Qualified Person

Donald F. Earnest, P.Geo.

**CONSENT OF QUALIFIED PERSON**

TO: British Columbia Securities Commission

Alberta Securities Commission

Saskatchewan Financial Services Commission

The Manitoba Securities Commission

Ontario Securities Commission

Autorité des marchés financiers

New Brunswick Securities Commission

Securities Commission of Newfoundland & Labrador

Nova Scotia Securities Commission

Registrar of Securities, Prince Edward Island

Government of Northwest Territories, Department of Justice, Securities Registry

Nunavut Legal Registries

Registrar of Securities, Government of the Yukon Territory

I, Mr. Don Earnest, P.Geo., do hereby consent to the filing with the regulatory authorities referred to above of the technical report titled Morococha Property Yauli Province, Peru, Technical Report dated effective December 30, 2007 (the Technical Report ).

I hereby confirm that I have read the Written Disclosure and the Written Disclosure fairly and accurately represents the information in the Technical Report that supports the Written Disclosure.

Dated the 28th day of January, 2008.

Don Earnest

Signature and seal of Qualified Person

Don Earnest, P.Geo.