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# **KING & SPALDING LLP ON BEHALF OF BEAR CREEK MINING CORPORATION**

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## **TECHNICAL REVIEW OF THE SANTA ANA PROJECT AND CORANI PROJECT, PUNO, PERU**

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**May 29, 2015**

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# 1 INTRODUCTION AND SUMMARY

RPA Inc. (RPA) was retained by King & Spalding LLP (K&S) on behalf of Bear Creek Mining Corporation (BCM) for the completion of a technical review of BCM's Santa Ana Silver Project (the Project), located in Peru. The review also included a technical review of BCM's Corani Project (Corani), also located in Peru.

On June 25, 2011, the Peruvian government issued Supreme Decree DS-032-2011, which rescinded BCM's rights to operate on the Santa Ana Project concessions. This resulted in a complete stoppage of activities. On August 12, 2014, BCM announced that it had commenced arbitration proceedings against the government of Peru, pursuant to Article 824 of the Free Trade Agreement between Canada and Peru.

This report summarizes the results of RPA's technical review. RPA understands that the review will be used by K&S and its damages consultant, FTI Consulting Inc. (FTI), to prepare a damages report in connection with the arbitration proceedings.

## **SANTA ANA PROJECT**

The Project is located 120 km southeast of the city of Puno, Peru at an elevation of 4,150 masl to 4,300 masl. Prior to being nationalized by the Peruvian government, BCM held clear title to 5,400 ha of mineral claims that encompass the Project.

A Feasibility Study (FS) was completed by Ausenco Vector, Independent Mining Consultants (IMC), and Resource Development Inc. (RDi) and disclosed in a NI 43-101 Technical Report dated October 21, 2010. An updated Feasibility Study (FSU) was completed by the same consultants and disclosed in a NI 43-101 Technical Report dated April 1, 2011. MTB Project Management Professionals, Inc. (MTB) completed the financial analysis for the Santa Ana Project using capital and operating cost estimates provided by other members of the FSU team. The detailed process design for the Project was completed by Heap Leach Consulting S.A.C. of Lima, Peru. RDi was responsible for review and interpretation of the process test results, development of the flow sheet, development of the process design criteria, and estimation of the quantity of the consumable items in the process plant, as well as signing off as the Qualified Person for the Technical Reports.

The FSU was based on open pit mining and heap leach processing with a mine life of 11 years, producing a total of 47.4 million ounces of silver. The processing operation includes three crushing stages and two classification stages, heap leaching, and recovery by Merrill-Crowe zinc precipitation.

Preproduction capital was estimated to be \$71.6 million and sustaining capital was estimated to average \$1.4 million per year over the 11 year life of the mine.

### ***CORANI PROJECT***

RPA was requested to prepare a high level technical review of the information used as a basis for the Corani Project Feasibility Study (Corani FS), which is scheduled to be published June 2015. The Corani FS is being developed by M3 Engineering & Technology Corporation (M3) with the assistance of Global Resource Engineering (GRE).

Corani is 100% owned by BCM. The Project will comprise an open pit mine producing 7.8 million tonnes of silver/lead/zinc ore over 18 years. A conventional flotation plant will produce lead and zinc concentrates containing silver. The primary revenue mineral is silver.

Preproduction capital is estimated to be \$628.1 million and sustaining capital is estimated to average \$4 million per year over the 18 year life of the mine.

### ***RPA TEAM***

RPA's team for the study included:

- Graham Clow, P.Eng., Chairman, Principal Mining Engineer
- Katharine Masun, P.Geo., Senior Geologist
- Ian Weir, P.Eng., Senior Mining Engineer
- Kathleen Altman, Ph.D., P.E., Director of Metallurgy and Mineral Processing, Principal Metallurgist

No site visit was conducted as part of this review. References are shown in Section 18.

## 2 DISCLAIMER

This report has been prepared by RPA at the request of K&S and FTI, on behalf of BCM, solely for use in the Arbitration. Conditions and limitations of use apply to this report. This report shall not be used nor relied upon by any other party, nor for any other purpose, without the written consent of RPA. RPA accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information, conclusions, opinions, and estimates contained herein are based on:

- a. information available to RPA at the time of preparation of this report,
- b. assumptions, conditions, and qualifications as set forth in this report, and
- c. data, reports, and opinions supplied to BCM and other third party sources.

While it is believed that the information contained herein is reliable under the conditions and subject to the limitations set forth herein, this report is based in part on information not within the control of RPA and RPA does not guarantee the validity or accuracy of conclusions or recommendations based upon that information.

The report is intended to be read as a whole, including the Introduction and Summary and Appendices, and sections should not be read or relied upon out of context. The information contained in this report may not be modified or reproduced in any form, electronic or otherwise, except for the use in the Arbitration unless the RPA's express permission has been obtained.

**LIST OF ABBREVIATIONS**

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

%	per cent
\$/ha	dollar per hectare
C\$	Canadian dollars
cm	centimetre
cm <sup>2</sup>	square centimetre
g	gram
g/cm <sup>3</sup>	grams per cubic centimetre
g/t	gram per tonne
ha	hectare
kg	kilogram
km	kilometre
lb	pound
m	metre
masl	metres above sea level
Mlb	million pounds
Moz	million ounces
Mt	million tonnes
oz	Troy ounce (31.1035g)
oz/t, oz/ton	ounce per short ton
ppm	part per million
t	metric tonne
t/m <sup>3</sup>	tonnes per cubic metre
US\$	United States dollar

## **3 CONCLUSIONS AND RECOMMENDATIONS**

### **SANTA ANA PROJECT**

Based on a review of the available documentation, RPA considers the FSU to be a reasonable representation of the Project as planned, with some modifications as described below. RPA is of the opinion that an appropriate economic analysis of the Project can be made using the FSU and available data.

In addition, RPA offers the following conclusions on the Santa Ana Project:

#### **GEOLOGY AND MINERAL RESOURCES**

- In RPA's opinion, the Mineral Resources have been estimated according to industry standards and are compliant with reporting requirements under NI43-101.
- Measured and Indicated Resources underlying the Mineral Reserves were evaluated at a revised cut-off grade of 17.5 g/t Ag to reflect a revised Ag price of \$16.50 versus \$13.00.

#### **MINING AND MINERAL RESERVES**

- In RPA's opinion, the design of the open pits and the production schedule are reasonable.
- An equipment list was provided by IMC to estimate the size of fleet required to generate a basis for operating and capital costs.
- No dilution and extraction factors were incorporated in the Mineral Reserve estimate. RPA recommends the use of 5% and 95% for dilution and mining extraction factors respectively.
- The mine design appears to be slightly conservative. Based on geotechnical work carried out to date, there exists the possibility of increasing the overall slope angles in some sections of the pit.

#### **METALLURGICAL TESTWORK AND MINERAL PROCESSING**

- Based on a review of the metallurgical test program and results, RPA is in agreement with the metal recoveries assumed for leaching of the different ore zones.



## INFRASTRUCTURE

- Santa Ana is well positioned to connect with existing infrastructure in the area.

## ENVIRONMENTAL AND SOCIAL ASPECTS

- RPA's review of available data suggests that BCM was in compliance and intended to comply with the Peruvian permitting process and to demonstrate corporate social responsibility.

## CAPITAL COSTS

- Capital costs estimates were generally carried out to a satisfactory level for the process design and overall site infrastructure, although the costs include factored estimates for the indirect costs, which is not optimal, but not uncommon.
- The direct capital costs for process and infrastructure are approximately \$42.7 million which is the same order of magnitude as the 2011 InfoMine Cost Model (InfoMine) for a 10,000 tpd heap leach operation, which is \$40 million.
- Since the capital costs appear reasonable, no changes were made.
- In RPA's opinion the contingency level for Owner's costs should be increase from 10% to 30%.

## OPERATING COSTS

- RPA has reviewed the operating costs in the financial model *0911 - Santa Ana Financial Model 12OCT10 Rev 2 - finer crush - Herbs Rec.* Mining cost data were not provided in detail.
- For the revised FSU case, RPA has adjusted contractor mining costs upwards by 25% from \$1.68 per tonne moved to \$2.10 per tonne moved. The re-handle cost of crushed material to the leach pad of \$0.71 per tonne moved appears reasonable. There are some additional costs for items such as dewatering and geotechnical monitoring that are not accounted for in the FSU operating cost estimate but will be covered under the adjusted mining cost.
- Processing costs are supported by an appropriate level of detail and appear reasonable.
- G&A estimates do not contain detailed supporting information to be able to confirm their level of accuracy. In RPA's opinion, the contingency should be adjusted from 5% to 30% to reflect the level of uncertainty in the estimate.

Table 3-1 shows RPA's recommended changes to the BCM FSU Base Case for economic evaluation.

**TABLE 3-1 RPA REVISED BASE CASE AND OTHER ADJUSTMENTS**  
**Bear Creek Mining Corporation – Santa Ana Project**

<b>Description</b>	<b>RPA Revised Base Case</b>	<b>BCM Base Case</b>	<b>Comments</b>
Mineral Reserve	45.9 Mt 44.9 g/t Ag	37.1 Mt 53.0 g/t Ag	Measured and Indicated Resources underlying the Mineral Reserves were evaluated at a revised cut-off grade of 17.5 g/t Ag to reflect a revised Ag price of \$16.50 versus \$13.00.
Dilution	5%	0%	Global dilution factor of 5% added to account for inevitable mixing of ore with waste.
Extraction	95%	100%	Global mining extraction factor of 95% added to account for ore lenses that are too small to separate from waste.
Mining costs increased	\$2.10/t moved	\$1.68/t moved	For a contract mining operation at the proposed production rate, RPA expects mine operating costs should be in the range of \$2.00/t moved to \$2.50/t moved for Santa Ana.
Owner's capital costs	\$5.1 M	\$4.2 M	Change contingency from 10% to 30%
G&A	\$5.2 M/year	\$4.2 M/year	Change contingency from 5% to 30%

RPA has prepared three production schedules and associated cash flows, both based on the revisions shown in Table 3-1. The RPA Revised Base Case is based on Mineral Reserves. The Extended Life Case is based on Mineral Reserves plus a portion of Mineral Resources including Inferred material.

## CORANI PROJECT

Based on the high level technical review of the available documentation RPA considers the Corani FS to be a reasonable representation of the Project as planned. RPA is of the opinion that an appropriate economic analysis of the Project can be made using the cash flow model along with available data provided. RPA is of the opinion that the Corani FS work was carried out in a thorough and diligent manner.

## 4 QUALIFICATIONS OF RPA

RPA is a group of technical professionals who have provided advice to the mining industry for nearly 30 years. During this time, RPA has grown into a highly respected organization regarded as *the specialty firm of choice for resource and reserve work*. RPA provides services to the mining industry at all stages of project development from exploration and resource evaluation through scoping, prefeasibility and feasibility studies, financing, permitting, construction, operation, closure and rehabilitation. Our portfolio of customers includes clients in banking (both debt and equity), institutional investors, government, major mining companies, exploration and development firms, law firms, individual investors, and private equity ventures.

RPA offices are located in Canada, the United States, and the United Kingdom. Our professionals work globally, visiting mines and projects on six continents. Our home office is located in Toronto, Ontario, and the company is 100% owned by its employees.

Our mission is to apply our broad and deep experience to provide objective, independent advice. Our vision is to enable mining industry operators and investors to make the right decisions for business success. Clients return to RPA repeatedly because of the accurate, credible technical reports and advice we deliver, reports that are accepted and relied on time and time again, among financial institutions and major regulatory bodies worldwide.

RPA has carried out independent valuations of more than a thousand mineral exploration properties across Canada and in other countries, usually in conjunction with financial transactions involving mining companies in general, but also in connection with litigations or arbitrations where the market value of the mining property is at issue.

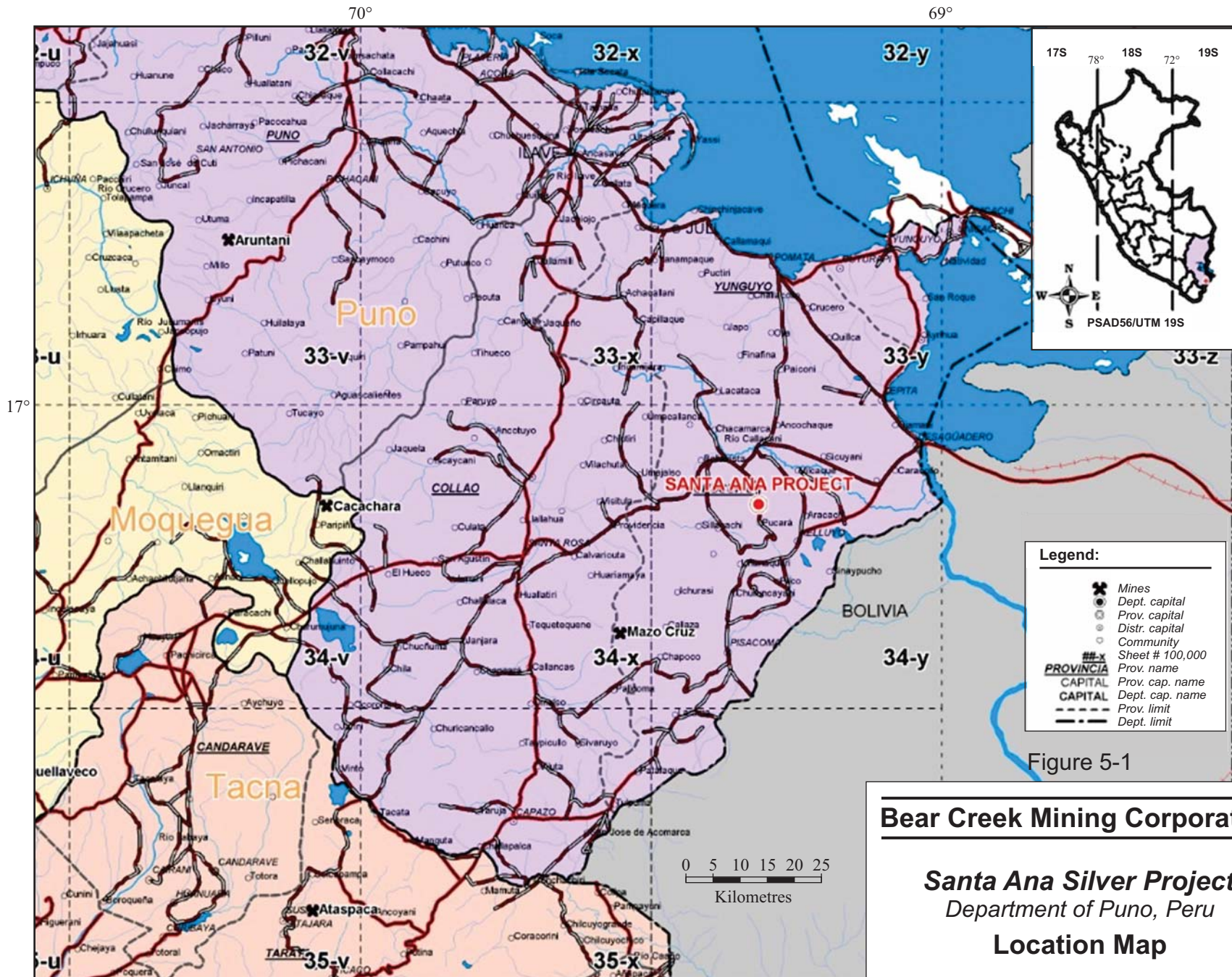
RPA monitors the exploration and mining markets and maintains an extensive database of mineral property transactions worldwide.

## **5 PROPERTY LOCATION, STATUS AND ACCESS**

The Santa Ana property (Figure 5-1) covers an area of 5,400 ha to the south of the village of Huacullani. The approximate UTM grid coordinates for the centre of the main portion of the property are 8,158,000 m North and 466,000 m East using the Provisional South American Datum (PSAD) 1956, Zone 19.

The property consists of six claims: Karina 9-A, Karina 1, Karina 2, Karina 5, Karina 6, and Karina 7. BCM has executed its option to acquire a 100% interest in the six mineral claims which comprises 5,400 ha. BCM completed the acquisition process of the mineral rights in late 2007 and at the time of expropriation, BCM held clear title to the claims.





## 6 GEOLOGY AND MINERAL RESOURCES

RPA completed an examination of the Santa Ana Mineral Resource estimate as reported in the FSU.

The review included:

- Drill hole database verification using tools within GEMS and additional verification in Excel.
- Review of the drill hole collar elevations with respect to topography surfaces.
- Preliminary silver grade capping analysis.
- Assay, composite, and block model statistics review and comparison.
- A check of local silver grade bias using trend plots of the assays, composites, and block model grades.
- Review of silver variography to ensure that grade interpolation parameters are reasonable.
- Checks for significant unnatural banding and smearing in the block model.
- A visual examination of the values of the block model on section and a comparison to assay and composite grades.
- A check for local silver grade bias using trend plots of the assays, composites, and block model grades.
- Block model tonnage and grade verification in GEMS.
- Exporting block models to Excel for further tonnage and grade confirmation.
- An assessment of the Mineral Resource classification criteria.

### GEOLOGY AND MINERALIZATION

The Santa Ana deposit occupies a broad volcanic upland that lies between extensive exposures of thin-bedded grey lithic sandstones and red beds of the Puno group (Cretaceous to Lower Tertiary) that underlie both Huacullani and the region to the south of the deposit. The central and western portion of the upland is occupied by a sequence of fine-grained andesite flows and autobreccias that possibly belong to the Tertiary Tacaza group, strike generally north or northeast, and dip to the west at angles ranging from 15° to 60°. To the west, these Tertiary flows are capped by coarse-grained dacitic porphyry that, in turn, is overlain unconformably by a thick sequence of Miocene-Pliocene dacitic volcanoclastic rocks. The andesite flows, autobreccias, and dacitic porphyry host the mineralization.

Earlier descriptions of the mineralization defined a northern Anomaly A and a southerly Anomaly B. Drilling has since connected these zones so that they represent major structural orientations that contain continuous mineralization.

The mineralized host rock is described as primarily volcanic andesites with minor dykes and intrusive. Potassium feldspars are the predominant gangue mineral, followed by illite and chlorite. The quartz content is low (less than ten percent), and the carbonate content is less than five percent. The majority of mineralization is within two major structural trends and hosted within the andesite unit. Both vein and disseminated mineralization occur within these trends. The northern two-thirds of the deposit has a strong north-south trend, and the southern third of the deposit is generally oriented northeasterly. A flexure in the structure, bending to the west, is thought to be responsible for this prominent bend. The mineralization is generally vertical.

Higher grade zones (>200 g/t Ag) within the deposit are associated with veins, vein swarms, breccias, and open space fillings. These zones are ubiquitous, but are not spatially continuous.

## **RESOURCE DATABASE**

The current Santa Ana Mineral Resource estimate is based on an updated resource estimation by IMC in 2010.

The resource database includes collar locations, down hole survey data, assay, and composite data from 349 drill holes and 60,144 m of drilling. The resource database includes data available as of June 2010.

A total of 28,696 Ag assay samples and 12,205 composite samples were included in the database. Each of the sampled intervals was also assayed for Cu, Pd, and Zn. Cu, Pd, and Zn were modelled, however, the heap leach process applied for metal recovery at Santa Ana only recovers Ag.

The resource database was checked by IMC for errors, including a comparison of the June 2010 database against the previously provided 2009 data. As part of the incremental data validation, IMC checked drill hole collar elevation versus topographic information. The primary

focus in the 2010 resource update was verification of silver, and IMC completed spot checks of certificates of assays versus assay information recorded in the database, and a review of the QA/QC data.

RPA received the Santa Ana drill hole database from IMC as a series of CSV files, a block model as a CSV file, and DXF line data for the topographic digital terrain model (DTM), resource floating cone pit shell, and the reserve pit shell. Only model blocks below the topography surface were included in the CSV file. IMC also provided RPA with simple statistics for Ag, which included the grade range and mean grade of the assays, composites, and mineralized blocks.

RPA imported the drill hole database, block model, and DXF files in Dassault Systèmes GEOVIA GEMS Version 6.7 (GEMS). Surfaces were created from the DXF lines. RPA validated the resource database with tools within GEMS, and carried out additional verification in MS Excel.

RPA reviewed the collar elevations with respect to topography surfaces and found that more than 25% of the drill collars deviated more than three metres from the surveyed topography surface (either above or below). It is RPA's opinion that this would not result in a material impact to the resource estimate.

## **GEOLOGICAL MODEL**

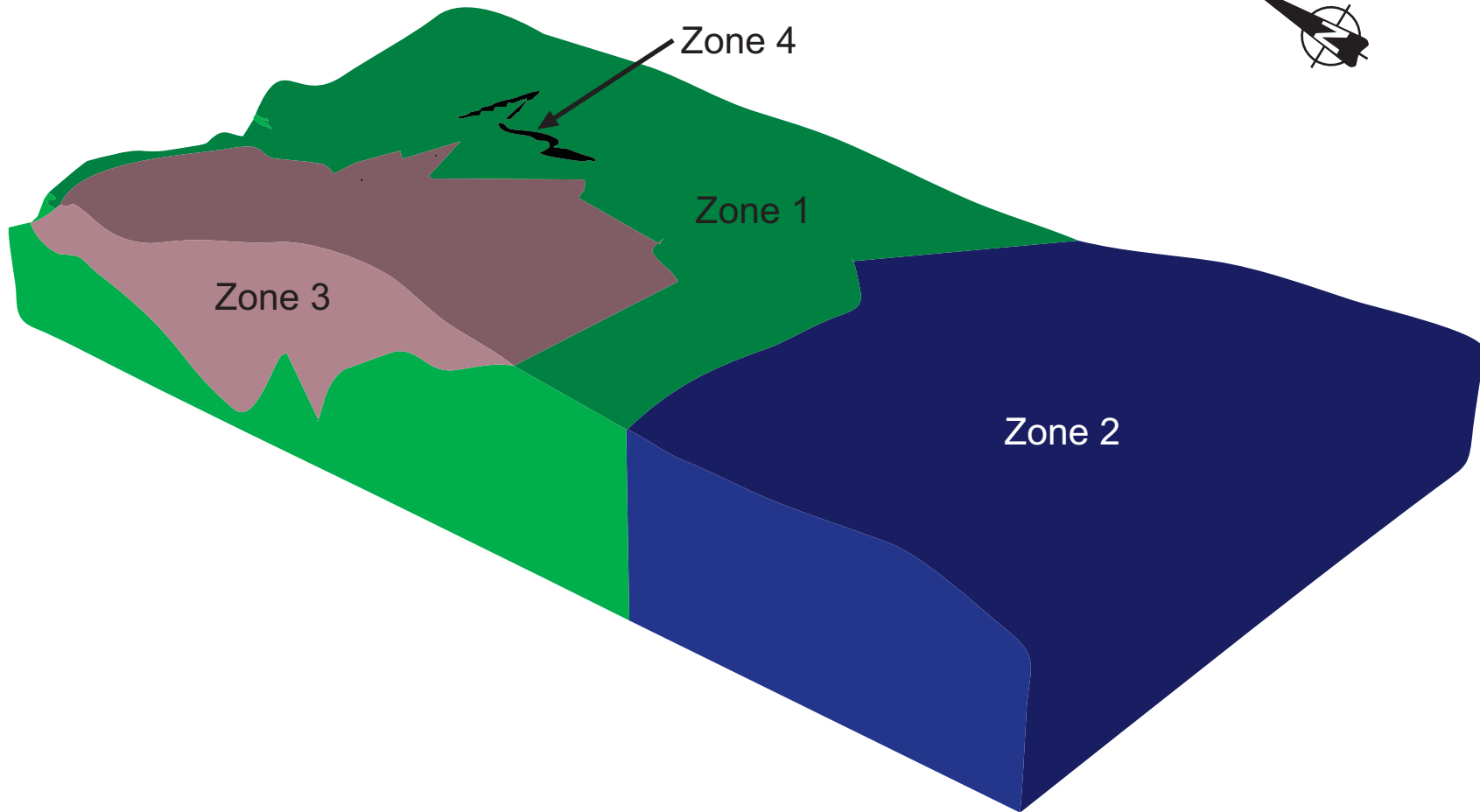
IMC created a simple rock type model in which four estimation zones were coded directly into the block model (Figure 6-1). No wireframe solids were used. The zones account for both the lithology and grade estimation domains.

The mineralized andesite was separated in two zones based on the predominant mineralization direction, which were coded as Zone 1 and Zone 2 in the block model (Figure 6-1). Zone 1 has a north-south orientation to the mineralization, and Zone 2 is north 40° east.

Post-mineralization volcanics overlie the mineralized andesites on the western edge of the deposit (Zone 3), and a sedimentary unit was added to the block model as Zone 4 (Figure 6-1). Zones 3 and 4 are barren and no grades were assigned to these blocks in the model.



Looking Northeast



0 100 200 300 400 500  
Metres

Figure 6-1

**Bear Creek Mining Corporation**

***Santa Ana Silver Project***  
*Department of Puno, Peru*

**3D Isometric View of  
Block Model Zones**

IMC reviewed the statistics of the assay from the mineralized zones and concluded that capping Ag to 1,000 g/t was required to limit the influence of high grade outliers on the block grade distribution. At 1,000 g/t Ag, 21 samples were capped (<0.1%), resulting in a 3% metal loss. Critically, however, more than 20% of the metal content remained within the 99<sup>th</sup> percentile of the sample population. RPA completed a preliminary capping analysis on the Ag assays using decile analysis and cumulative frequency plots, and investigated the impact of a lower Ag capping grade. It is RPA's opinion that the Ag grade-capping factor, together with high grade interpolation restrictions used by IMC, is acceptable.

Assays were composited by IMC to five metre lengths starting from the collar of each drill hole. Any composite that was less than 2.5 m was discarded. A total of 11,142 composite samples occur within Zones 1 and 2. These composite values were used to interpolate grade into the resource blocks.

RPA compiled, reviewed, and confirmed IMC's simple statistics for the resource Ag assays and composites, capped and raw.

## **BLOCK MODEL**

A 3D block model comprising blocks that were 5 m by 5 m by 5 m in the X, Y, and Z directions was created by IMC. The model was intersected with the topographic DTM to exclude whole blocks that extended above the surface.

The Santa Ana deposit is proposed to be mined by open pit. The selection of the small block size was based on a number of judgments including the width of high grade mineralization and the potential to ultimately mine the deposit with smaller mining equipment.

## **DENSITY**

BCM collected data for density determination on a regular basis, and IMC completed a spot check on the calculation method. In total, 843 density measurements were documented and provided to IMC. IMC reported that the density results correlated with rock type but showed no correlation with the Ag grade of the sample. As a result, each block zone in the model was assigned a single density value. IMC applied 2.469 t/m<sup>3</sup> to all blocks within mineralized Zones 1 and 2. Zone 3 was assigned a density of 2.059 t/m<sup>3</sup>, and Zone 4 was assigned a density of

2.318 t/m<sup>3</sup>. RPA reviewed the density data and is of the opinion that the spatial representativity is appropriate within the mineralized blocks.

## **GRADE ESTIMATION**

Block grades were estimated for Ag and Zn using Indicator Kriging (IK) in Zones 1 and 2. Lead and copper were estimated using Ordinary Kriging (OK). The IK procedure was used to establish a computer generated grade boundary (a “discriminator” value) for Ag and Zn by interpolating indicator values between zero and one into the blocks. The grade boundaries were used to domain the Ag and Zn blocks into low and moderate grade populations. A discriminator value of 15.0 g/t was used for Ag and 0.13% for Zn. This was done by assigning whole blocks that had a greater than 50% probability of being above the discriminator grade to the moderate grade domain. All other blocks were assigned to the low grade domain. Zones 1 and 2 utilize different search orientations, but the zone boundaries were treated as soft boundaries for the indicator assignment, such that composites from both zones could be used to inform a block.

Once the Ag and Zn indicators codes were assigned to the model, the block grades were estimated using OK for low and moderate grade domains for each metal. The indicator boundaries between the low and moderate grade domains were treated as hard boundaries.

The extent and direction of the range of influence determined by variography for Ag was used to establish the search area for grade interpolation. IMC used a single pass for metal grade estimation. A maximum of ten composites and a minimum of two were used to assign block grades. A maximum of three composites per drill hole were allowed within the search process. RPA reviewed variography for Ag, and confirmed the directions and ranges reported by IMC.

In order to limit the influence of high grade composite samples, IMC used a high grade limit during grade interpolation. The range of influence of Ag composite samples with grades that exceeded 200 g/t Ag was limited to a 33 m radius. In RPA’s opinion, this is a reasonable approach.

Once metal grades were assigned to blocks, a distance limit was applied to constrain the downward extrapolation of grade below the bottom of drill holes. This was a necessary step since the interpolation was unconstrained, with an extensive vertical search (90 m). IMC used

an Inverse Distance (ID) procedure to clip the mineralization at a 30 m limit. Informed blocks beyond this limit were assigned zero metal grades. Figure 6-2 shows the Ag block grades of the model. RPA considers this method to restrict extensive vertical grade interpolation acceptable.

## CLASSIFICATION

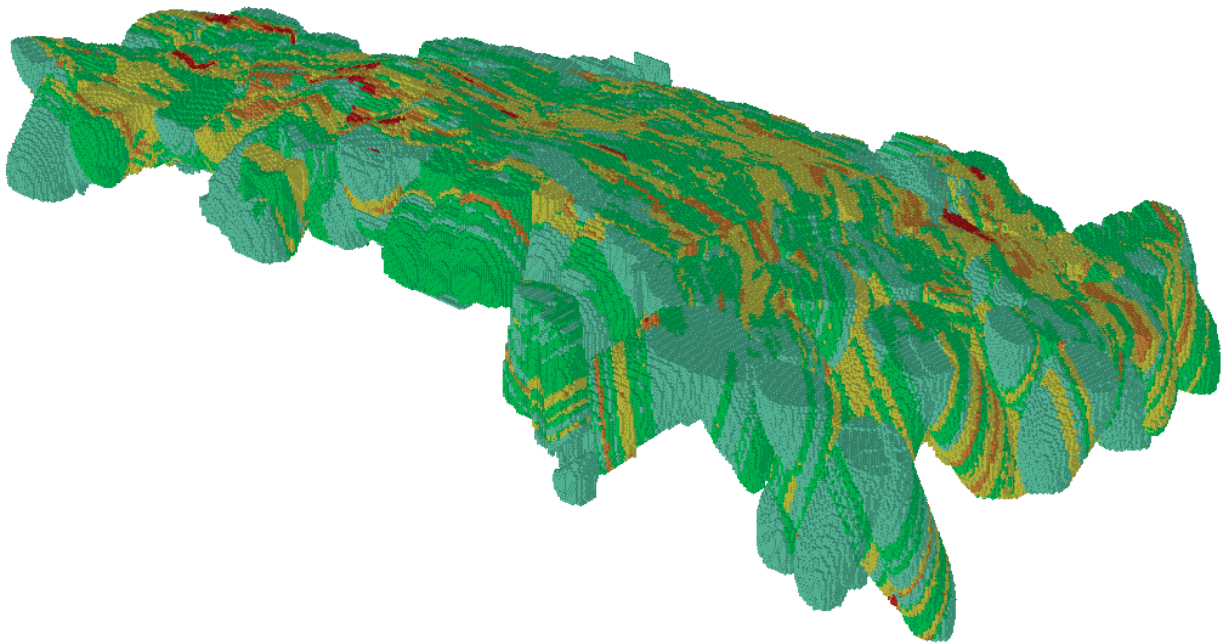
IMC classified the blocks as Measured, Indicated, or Inferred based on the Ag grade estimate. The kriged standard deviation (square root of the kriged variance) together with the number of composites used to inform the Ag block grade were used to establish the block classification. The classification parameters are summarized in Table 6-1 below.

**TABLE 6-1 MINERAL RESOURCE CLASSIFICATION PARAMETERS**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Classification Parameters
Measured	Silver grade was estimated, and the kriged standard deviation is less than or equal to 0.65, and 4 or more composites used to estimate the grade (2 or more drill holes)
Indicated	Silver grade was estimated, and the kriged standard deviation is less than or equal to 1.05
Inferred	A silver grade was estimated

The Santa Ana Mineral Resource classification is driven solely by the detailed block-by-block attributes generated by geostatistical estimation methods and not by the continuity of geology and mineralization. The result is a “spotted dog” output in which individual drill holes are surrounded by halos of Measured, Indicated, and Inferred Resource blocks, and isolated small “islands” of one classification embedded in another (Figures 6-3 and 6-4). While RPA does not consider this to be best practice, it does not change our opinion that the Mineral Resources have been estimated according to industry standards and are compliant with reporting requirements under NI43-101.

*Looking Northeast*



0 100 200 300 400 500  
Metres

Ag Grade (g/t)	
<span style="color: blue;">■</span>	<1
<span style="color: cyan;">■</span>	>1-5
<span style="color: green;">■</span>	>5-15
<span style="color: yellow;">■</span>	>15-50
<span style="color: orange;">■</span>	>50-100
<span style="color: red;">■</span>	>100-200
<span style="color: purple;">■</span>	>200

Figure 6-2

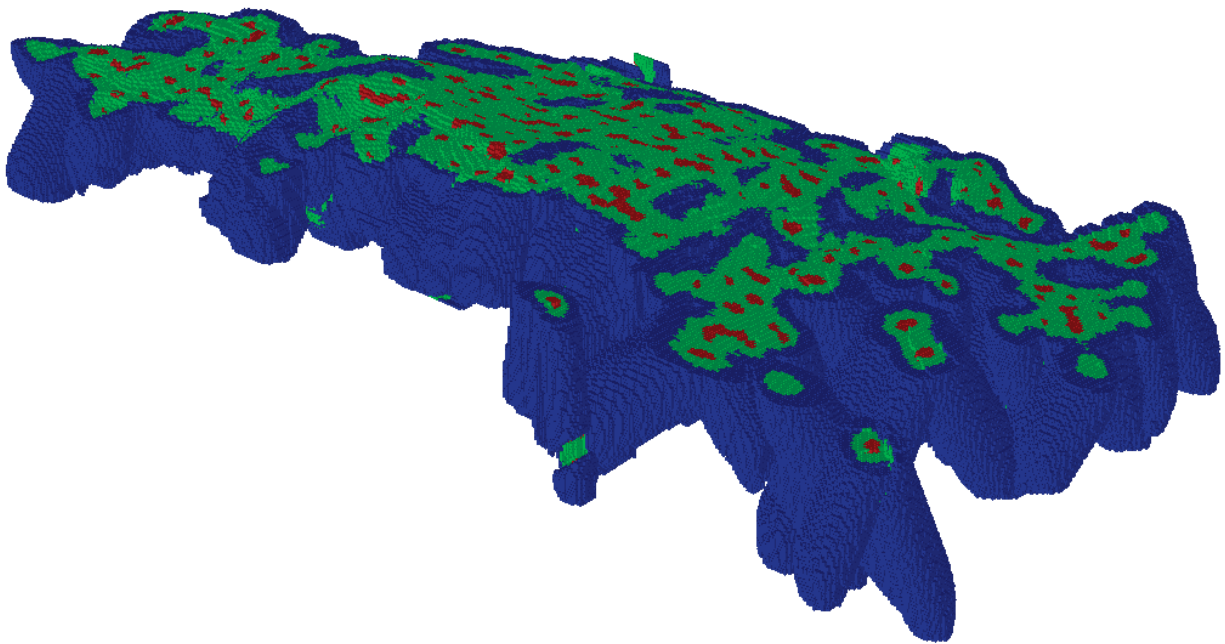
**Bear Creek Mining Corporation**

***Santa Ana Silver Project***

*Department of Puno, Peru*

**3D Isometric View of  
Block Silver Grades**

*Looking Northeast*



0 100 200 300 400 500  
Metres

Classification	
<span style="color: red;">■</span>	Measured
<span style="color: green;">■</span>	Indicated
<span style="color: blue;">■</span>	Inferred

Figure 6-3

**Bear Creek Mining Corporation**

***Santa Ana Silver Project***

*Department of Puno, Peru*

**3D Isometric View of  
Block Model Classification**

May 2015

Looking East

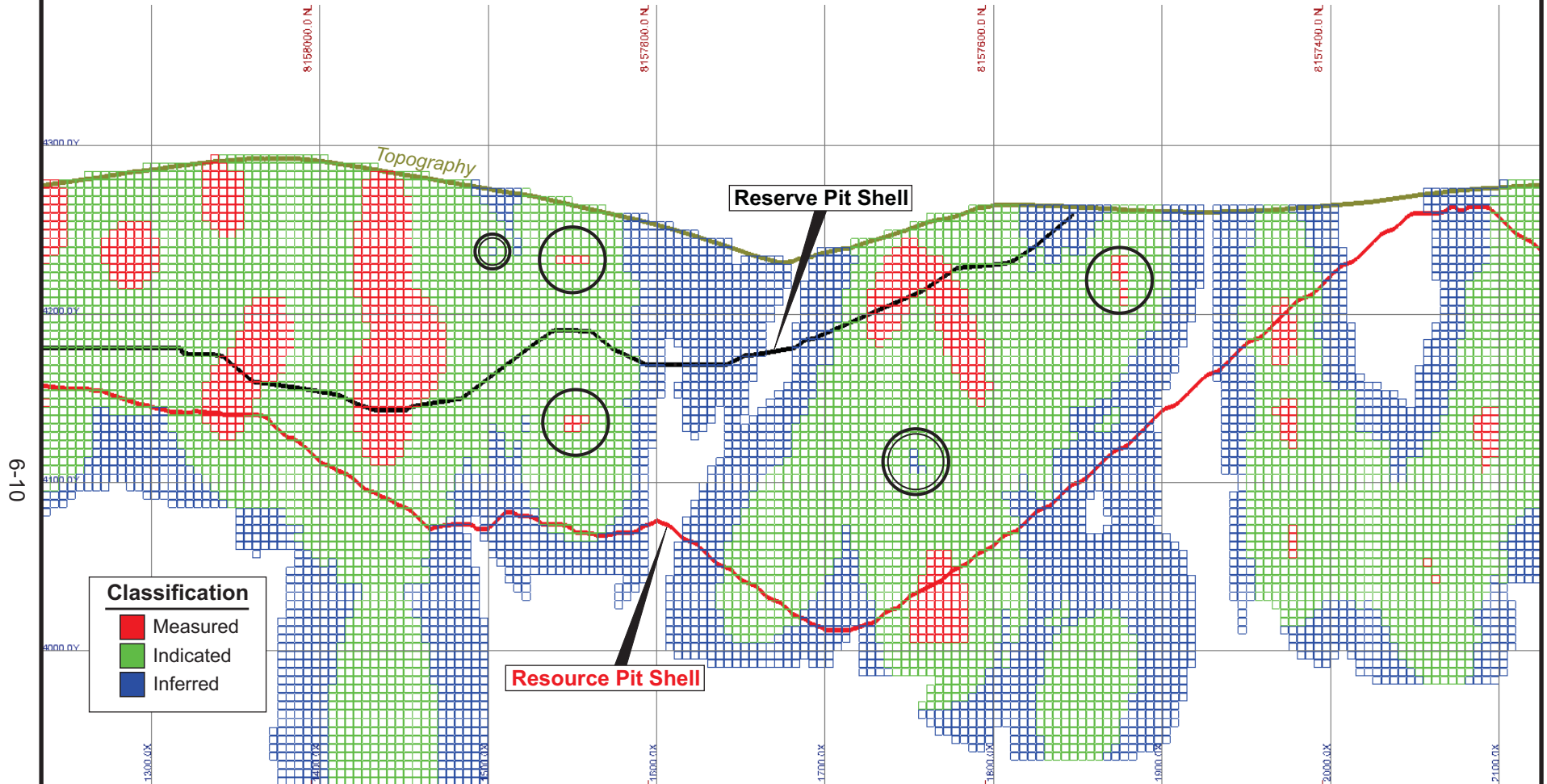


Figure 6-4

**Bear Creek Mining Corporation**

***Santa Ana Silver Project***

*Department of Puno, Peru*

**Isolated Blocks Shown on  
Section 466,200E**



RPA further examined the continuity of Measured and Indicated blocks within the resource pit shell and noted several small areas of Inferred embedded within the more continuous Measured and Indicated blocks. It is RPA's opinion that these blocks should be manually reclassified to smooth out the "spotted dog" classification and provide a more continuous domain for mine designs and Mineral Reserve estimation.

## MINERAL RESOURCE REPORTING

Mineral Resources were estimated as of July 12, 2010, and are summarized exclusive and inclusive of Mineral Reserves in Tables 6-2 and 6-3, respectively. IMC estimated Measured, Indicated, and Inferred Mineral Resources at a 15.0 g/t Ag cut-off grade. For the purposes of resource reporting, IMC constrained the block model to a computer generated open pit surface using the floating cone algorithm to establish the component of the block model that fulfills the reporting code requirement of "reasonable prospects for eventual economic extraction". The open pit geometry was generated using a \$16.00 per ounce Ag price, 70% Ag recovery under heap leaching, and the operating costs established in the PEA prepared by IMC in April 2009 (news release dated April 20, 2009).

**TABLE 6-2 SANTA ANA MINERAL RESOURCES (JULY 12, 2010 EXCLUSIVE OF RESERVES)**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Tonnes kt	Silver g/t	Lead %	Zinc %	Contained Silver Moz
Measured	13,386	34.6	0.30	0.50	14.9
Indicated	51,337	35.1	0.30	0.50	57.9
<b>Measured + Indicated</b>	<b>64,723</b>	<b>35.0</b>	<b>0.30</b>	<b>0.50</b>	<b>72.8</b>
Inferred	21,632	40.6	0.32	0.50	28.2

1. CIM definitions were followed for Mineral Resources.
2. No lead and zinc will be recovered.
3. Cut-off grade 15.0 g/t Ag.



**TABLE 6-3 SANTA ANA MINERAL RESOURCES (JULY 12, 2010 INCLUSIVE OF RESERVES)**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Tonnes kt	Silver g/t	Lead %	Zinc %	Contained Silver Moz
Measured	22,337	43.8	0.33	0.57	31.5
Indicated	79,463	40.9	0.31	0.52	104.5
<b>Measured + Indicated</b>	<b>101,800</b>	<b>41.5</b>	<b>0.31</b>	<b>0.53</b>	<b>136.0</b>
Inferred	21,632	40.6	0.32	0.49	28.2

1. CIM definitions were followed for Mineral Resources.
2. No lead and zinc will be recovered.
3. Cut-off grade 15.0 g/t Ag.

RPA completed a check estimate on the Santa Ana Mineral Resources to validate the tonnage and grade reported in Tables 6-2 and 6-3. There was excellent agreement between RPA's tabulated tonnes and grade for each metal and IMC's reported figures. At a cut-off grade of 15.0 g/t Ag, the difference was approximately 0.5% for Measured and Indicated tonnages, and less than 0.75% for Inferred. Contained Ag differed by approximately 1.5% for Measured and Indicated Resources, and 1.9% for Inferred Resources.

In all cases, RPA's tabulated tonnes and grade was the lower value. The reason for the slight discrepancy is likely related to the way the block model was constrained. IMC used whole blocks and RPA constrained the resources using a topographic surface, the open pit surface, and partial percentages.

#### **RPA OBSERVATIONS AND CONCLUSIONS**

It is RPA's opinion that the drill hole database is adequate to support a Mineral Resource estimate. The composite lengths are appropriate and although the grade interpolation is unconstrained, the application of an indicator cut-off surface and constraining the resource estimate to an open pit shell reduces the risk of overestimation of contained tonnage and metals. Assay, composite, and block model statistics support the observations made by IMC, and the search parameters used for metal grade interpolation into the block models are acceptable. RPA was able to confirm the grades and tonnages of the Santa Ana Mineral Resource estimate as reported in the FSU.

It is RPA's opinion, based on this, that the Measured, Indicated, and Inferred tonnage and grade of the Santa Ana Mineral Resource estimate are acceptable.

RPA has made no revisions to the FSU Base Case for geology and Mineral Resources

## 7 MINING AND MINERAL RESERVES

### MINERAL RESERVES

Mineral Reserves total 37.1 million tonnes at a grade of 53 g/t Ag, 0.34% Pb, and 0.6% Zn. Due to the low grades of Pb and Zn, these elements will not be recovered during processing. The Mineral Reserves as of March 2012 as estimated by IMC are shown in Table 7-1.

**TABLE 7-1 SANTA ANA MINERAL RESERVES (JULY 12, 2010)**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Tonnes kt	Silver g/t	Lead %	Zinc %	Contained Silver Moz
Proven	8,951	57.6	0.37	0.7	16.6
Probable	28,126	51.5	0.33	0.6	46.6
<b>Proven + Probable</b>	<b>37,077</b>	<b>53.0</b>	<b>0.34</b>	<b>0.6</b>	<b>63.2</b>

1. CIM definitions were followed for Mineral Reserves.
2. No lead and zinc will be recovered.
3. Cut-off grade 27 g/t Ag years 1 to 5, 24 g/t Ag years 6 to 11.

The Mineral Reserve estimation does not account for dilution and extraction factors. RPA recommends applying global dilution and extraction factors of 5% and 95% respectively.

Figure 7-1 shows the expected dilution and ore losses on a typical mining bench.

### MINE PRODUCTION

Mining is proposed to be carried out at an elevated cut-off grade of 27 g/t from Year 1 to Year 5 and material between 27 g/t and 34 g/t is stockpiled for later processing. From Year 6 onward, the cut-off grade of 24 g/t Ag will be used. Material between 27 g/t Ag and 34g/t Ag is stockpiled in the first five years and is processed at the end of the mine life. The cut-off grade is raised to 27 g/t Ag for the material going to the stockpile to account for the additional \$0.88/t cost to re-handle the material to the crusher. The mine production schedule is presented in Table 7-2.

## Plan View 4,200 m Bench 5 m Slice

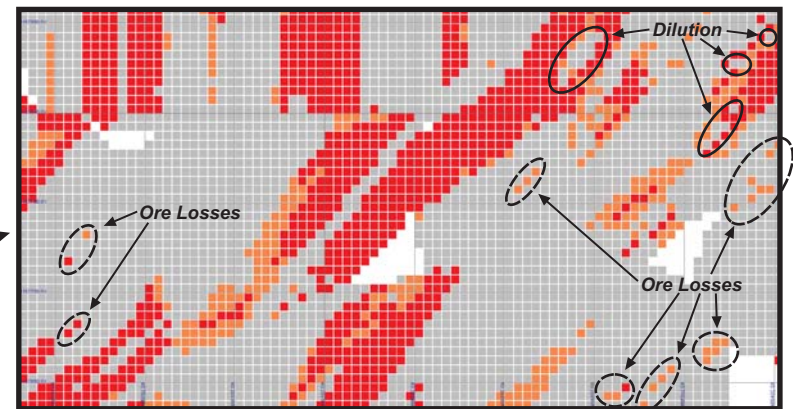
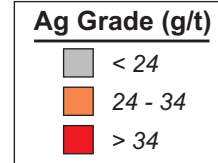
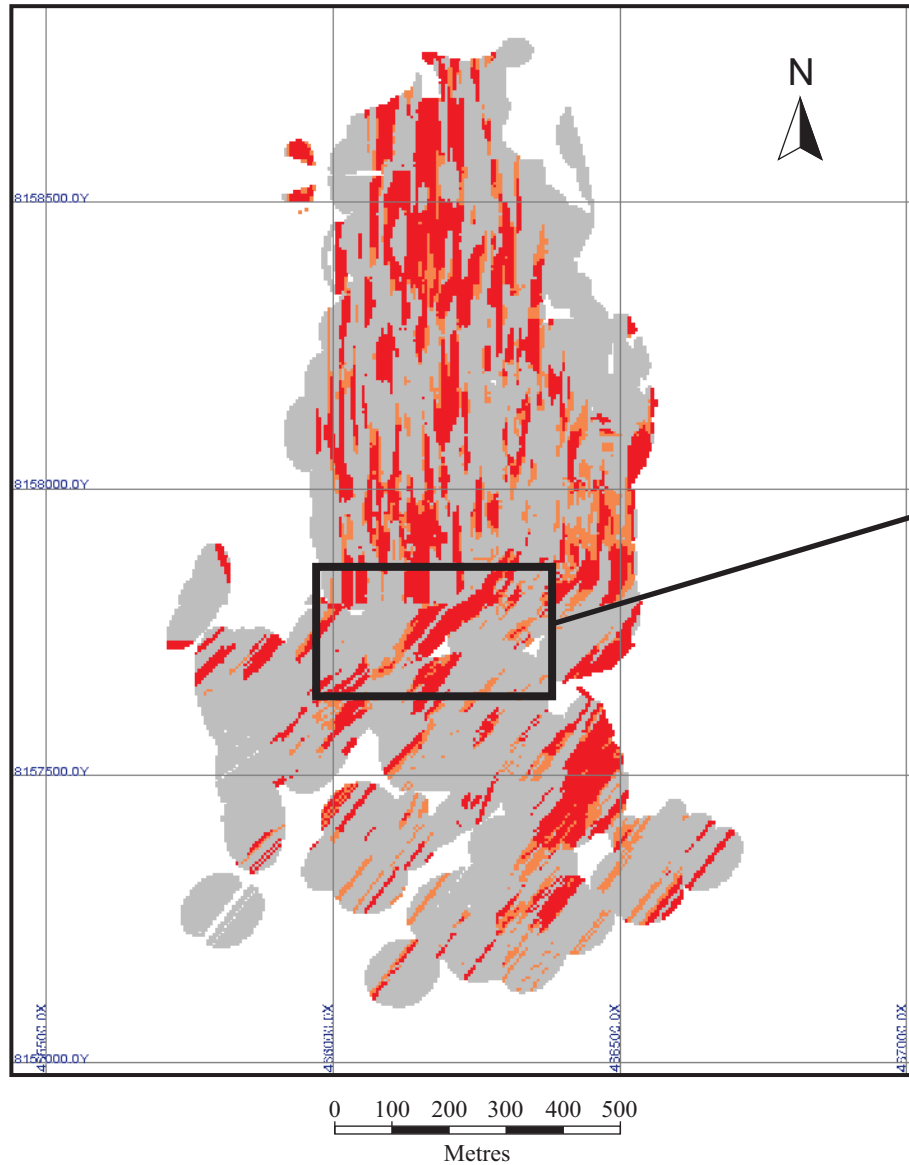


Figure 7-1

**Bear Creek Mining Corporation**

***Santa Ana Silver Project***

*Department of Puno, Peru*

**Dilution and Ore Losses  
on a Typical Mining Bench**

**TABLE 7-2 MINE PRODUCTION SCHEDULE – FSU BASE CASE**  
**Bear Creek Mining Corporation - Santa Ana Project**

Time Period	Crusher Feed			Low Grade at 27 g/t			Total Material (kt)
	Cut-off (g/t)	Ore (kt)	Silver (g/t)	To Stockpile (kt)	Silver (g/t)	Waste (kt)	
PPQ1	-	-	-	-	-	23	23
PPQ2	34	37	52.6	16	29.9	599	652
PPQ3	34	182	49.3	67	30.5	1,260	1,509
PPQ4	34	196	49.0	100	30.4	1,115	1,411
Y1,Q1	34	721	51.8	254	30.7	2,085	3,060
Y1,Q2	34	791	56.4	269	30.5	2,000	3,060
Y1,Q3	34	832	62.1	219	30.5	2,009	3,060
Y1,Q4	34	841	66.5	173	30.4	2,046	3,060
Y2	30	3,600	60.5	329	28.4	8,571	12,500
Y3	32	3,600	59.1	494	29.6	8,606	12,700
Y4	33	3,600	57.6	953	30.0	8,147	12,700
Y5	28	3,600	59.0	90	27.5	8,550	12,240
Y6	24	3,600	55.6			7,725	11,325
Y7	24	3,600	53.1			7,552	11,152
Y8	24	3,600	49.7			5,844	9,444
Y9	24	3,600	47.0			4,706	8,306
Y10	24	1,713	44.8			1,789	3,502
<b>Total</b>		<b>34,113</b>	<b>55.0</b>	<b>2,964</b>	<b>29.9</b>	<b>72,627</b>	<b>109,704</b>

## PIT DESIGN

A pit design was carried out using the floating cone analysis as a guide to design the pushbacks for the final pit. Six phases were designed for the development of a practical mine production schedule.

The following criteria were followed in designing the phases:

- Bench Height: five metres
- Inter-ramp Slope Angle: 40°
- Haul Road Width: 21 m
- Haul Road Gradient: 10%
- Minimum pushback width: approximately 100 m

It appears that the pit design is slightly conservative given that the geotechnical results indicate that the inter-ramp slopes are higher than the 40° used in the inter-ramp pit slopes. According to the FSU, the recommended inter-ramp slope angle is 40° for sectors of low rock quality designation (RQD) rock mass and use a five metre single bench design. The post-

mineralization tuff and andesite, both with high RQD, have a recommended inter-ramp slope angle of 43° and 44°, respectively, permitting the use of a 10 m double bench design. Furthermore, given the multiple pit bottoms, an opportunity exists to decrease the ramp to a single lane for the lower sections of the pit bottoms (the last few benches, for example).

RPA agrees with the recommendations in the FSU for monitoring of pit wall stability with the use of prisms and permanent survey stations.

Open pit slope stability is sensitive to the estimated phreatic condition. Therefore, RPA strongly recommends maintaining the phreatic surface as far as possible from the slope faces by implementing permanent horizontal drains and pumping water from the open pit bottom during operation. Installation of piezometers around the final pit area is recommended for monitoring the impact of the pumping and drainage measures during operation, and for permanent review of slope stability.

Costs for pit wall monitoring and water management are not accounted for in the mine operating costs. These costs are captured within the additional 25% contingency in the adjusted \$2.10/t moved unit rate suggested by RPA.

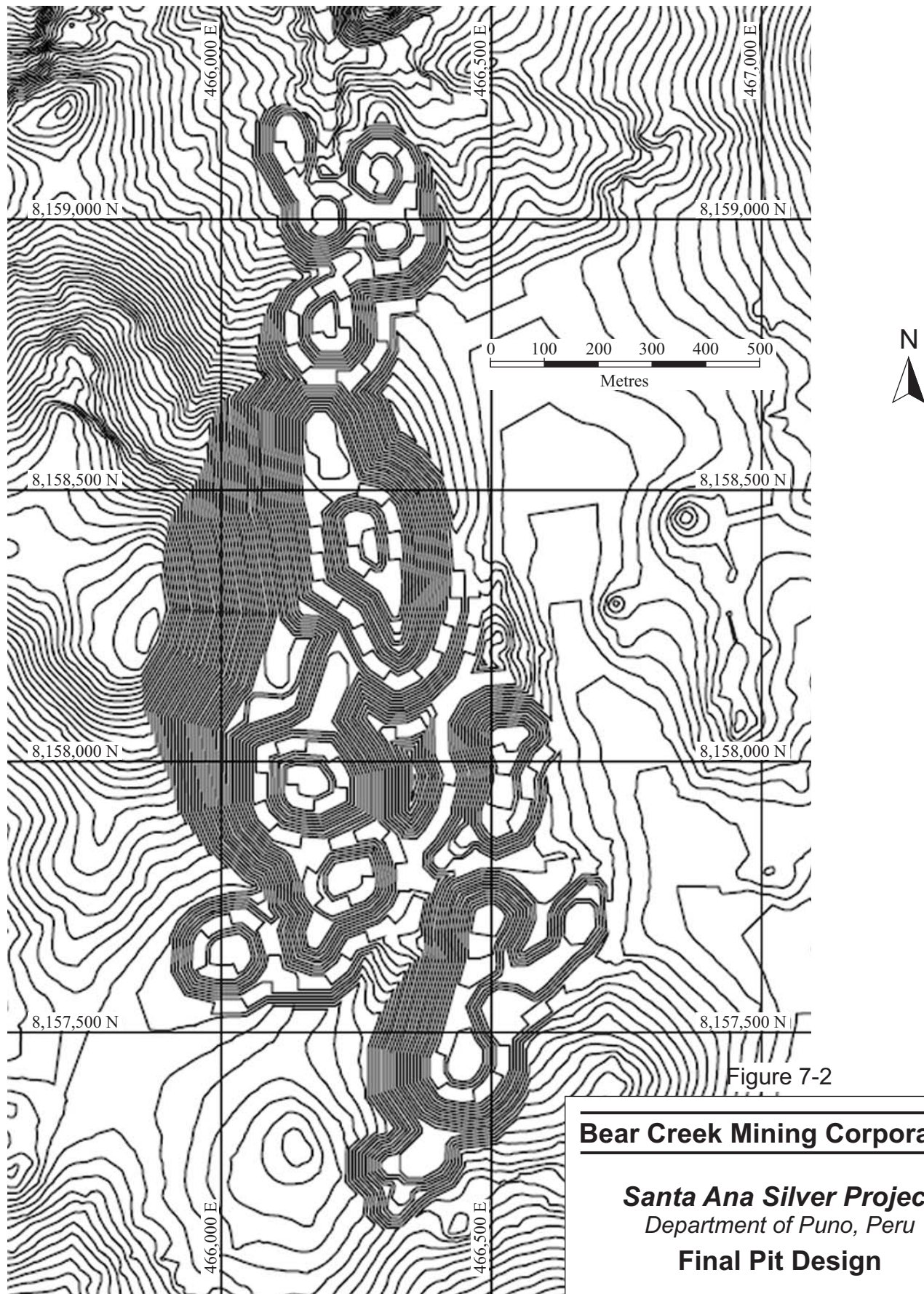
The final pit design is presented in Figure 7-2.

## **WASTE DUMPS AND STOCKPILES**

The waste dump is located at the southwest end of the pit. Waste rock is dumped downhill from a constant elevation of 4,255 m, which allows for efficient operation and reduced haulage cycle times since the trucks do not have to travel uphill to reach the top of the dump.

The low grade stockpile is located adjacent to the crusher, which will reduce haulage cycle times.





May 2015 Source: Independent Mining Consulting Inc., 2010.

## MINE EQUIPMENT

The mine equipment used to develop contractor costs are presented in Table 7-3 and Table 7-4. The actual equipment used in the operation will depend on the contractor's fleet.

**TABLE 7-3 MINE EQUIPMENT LIST FOR PRIMARY MINE OPERATIONS – FSU BASE CASE**  
**Bear Creek Mining Corporation - Santa Ana Project**

Equipment Type	Type		Year											
			-1	1	2	3	4	5	6	7	8	9	10	11
Blast Hole Drill	45,000 lb	(Units)	3	3	3	3	3	3	3	3	3	3	3	0
Wheel Loader	8.6 m³	(Units)	2	3	3	3	3	3	3	3	2	2	2	2
Haul Truck	63 t	(Units)	7	9	10	11	11	11	11	11	11	11	11	11
Track Dozer	310 hp	(Units)	3	3	3	3	3	3	3	3	3	3	3	3
Motor Grader	14 ft	(Units)	1	2	2	2	2	2	2	2	2	2	2	2
Water Truck	50,000 l	(Units)	1	1	1	1	1	1	1	1	1	1	1	1
Atlas Copco Drill	ROC D7	(Units)	1	1	1	1	1	1	1	1	1	1		
Excavator	2 yd³	(Units)	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL		(Units)	19	23	24	25	25	25	25	25	24	24	24	21

**TABLE 7-4 MINE EQUIPMENT LIST FOR HEAP LEACH LOADING AND MAINTENANCE – FSU BASE CASE**  
**Bear Creek Mining Corporation - Santa Ana Project**

Equipment Type	Type		Year											
			-1	1	2	3	4	5	6	7	8	9	10	11
Wheel Loader	8.6 m³	(Units)	2	3	3	3	3	3	3	3	2	2	2	2
Haul Truck	63 t	(Units)	7	9	10	11	11	11	11	11	11	11	11	11
Track Dozer	310 hp	(Units)	3	3	3	3	3	3	3	3	3	3	3	3
TOTAL		(Units)	19	23	24	25	25	25	25	25	24	24	24	21

## RPA OBSERVATIONS AND CONCLUSIONS

RPA makes the following observations and conclusions:

- Mineral Reserves were estimated based on 100% conversion of Measured and Indicated Resources without the application of dilution and extraction factors. RPA would expect mineral extraction of 95% with a global dilution of 5%.
- The proposed mining method is appropriate for the deposit.
- The pit design appears to be slightly conservative. A 40° inter-ramp slope was used for the pit design whereas the geotechnical report recommends the use of up to 44° in some sections of the pit.



- No loading rates for shovels and loaders were provided, nor equipment availabilities, utilization, etc. Material consumption rates (diesel, ANFO, etc.) were also not supplied.
- Haul cycle times were provided for the various haul profiles and appear to be carried out in a thorough manner.

For the RPA Revised Base Case, RPA has adjusted the cut-off grade calculation to reflect the change in metal price forecast consensus, as of the June 2011 date of expropriation, as well as make an adjustment to the metallurgical recovery based on the addition of a third stage crushing circuit. The adjustments result in a reduction of COG from 24 g/t Ag to 17.5 g/t Ag as shown in Table 7-5. The COG parameters used for the FSU were developed earlier in the initial FS. The FSU COG was not updated to reflect the updated process G&A costs and revised metallurgical recovery.

**TABLE 7-5 RPA REVISED COG**  
**Bear Creek Mining Corporation - Santa Ana Project**

Parameter	Unit	FSU	RPA Revised
Process and G&A Costs	\$/t ore	6.69	6.69
Recovery	%	70.0	75.0
Refining Cost	\$/oz	0.40	0.40
Refining Recovery	%	99.7	99.7
Ag Price	\$/oz	13.00	16.50
<b>COG*</b>	<b>g/t</b>	<b>24.0</b>	<b>17.5</b>

\*COG is rounded to nearest 0.5 g/t.

RPA reported the Mineral Resources from the FSU design pit at a COG of 17.5 g/t Ag. The resulting tonnes, grade, and contained silver are presented in Table 7-6.

**TABLE 7-6 RPA REVISED MINERAL RESOURCES**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Tonnes kt	Silver g/t	Contained Silver Moz
Measured	11,364	50.1	18.3
Indicated	34,695	46.1	51.5
<b>Measured + Indicated</b>	<b>46,059</b>	<b>47.1</b>	<b>69.8</b>

1. CIM definitions were followed for Mineral Resources.
2. No lead and zinc will be recovered.
3. Cut-off grade of 17.5 g/t Ag.

Dilution and mining extraction factors were applied to the RPA Revised Mineral Resources to determine the RPA Revised Mineral Reserves as shown in Table 7-7.

**TABLE 7-7 RPA REVISED MINERAL RESERVES**  
**Bear Creek Mining Corporation - Santa Ana Project**

<b>Category</b>	<b>Tonnes kt</b>	<b>Silver g/t</b>	<b>Contained Silver Moz</b>
Proven	11,336	47.7	17.4
Probable	34,608	43.9	48.9
<b>Proven + Probable</b>	<b>45,944</b>	<b>44.9</b>	<b>66.3</b>

1. CIM definitions were followed for Mineral Reserves.
2. No lead and zinc will be recovered.
3. Cutoff grade of 17.5 g/t Ag.
4. Dilution = 5%.
5. Mining Recovery = 95%.

## 8 MINERAL PROCESSING

RPA reviewed metallurgical data from ALS, Laboratorio Plenge, and McClelland Laboratories Inc.

The testwork was conducted in four phases using the following samples:

- Ten coarse reject samples ranging in grade from 50 g/t Ag to 238 g/t Ag.
- Two composite samples called High Grade core composite (~115 g/t Ag) and Heap Grade core composite (~37 g/t Ag).
- One Core Composite sample (~55 g/t Ag).

The test data in the reports consisted of:

- 20 bottle roll tests (BRTs) using the ten coarse reject samples.
- Four agitated cyanidation tests using two composite samples (high grade leach and heap grade leach samples).
- Two “partial” agitated cyanidation tests using the high grade leach sample for 48 hours and 168 hours.
- Six BRTs using the core composite sample at four particle sizes.
- One column leach test for pulp agglomeration using 20% pre-leached High Grade pulp ground to P<sub>80</sub> 150 microns.
- Two column leach tests using the High Grade and Heap Grade core samples.
- Four column leach tests using the Core Composite at four particle sizes.

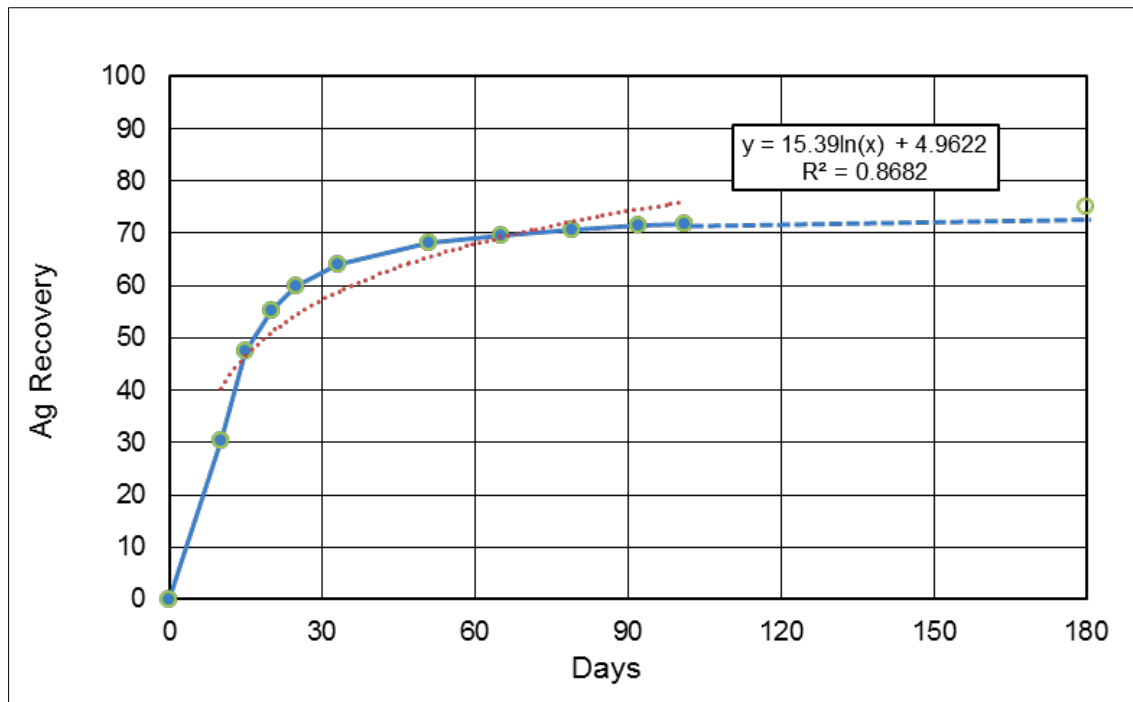
### SILVER RECOVERY

The FSU study team estimated that the Ag recovery would be 75% over a period of 180 days, however, the column test was only conducted for 110 days so the estimate is based on extrapolation of the data to a period of 180 days (Figure 8-1).

RPA has plotted the data and found that the actual recovery may be one to two percent lower since the leach curve (described by the formula in Figure 8-1) flattens significantly towards the end of the leach cycle. Also, assuming a recovery of 75% would not take into account the

impact of other unit operations such as Merrill-Crowe Zn precipitation which would reduce the Ag recovery somewhat from the extraction that occurs in heap leaching.

**FIGURE 8-1 COLUMN TEST RECOVERY VS. TIME**



## RPA OBSERVATIONS AND CONCLUSIONS

RPA has made several observations with respect to metallurgical testing and processing.

- The Ag extraction appeared to be independent of the head grade.
- Samples that had a sulphide sulphur concentration of approximately 0.25% had lower Ag extraction in the cyanide leach tests run at 10 mesh but no significant difference was observed when they were ground to minus 200 mesh.
- Pulp agglomeration did not appear to be effective at improving Ag extraction.
- The process design in the FSU is based on column tests.
- Production from the last two years of operation come from processing low grade stockpiles that have average Ag grades between 30 g/t and 40 g/t. No tests have been conducted on samples in this grade range.
- The cyanide consumption for the column test conducted at 9.5 mm was 1.64 kg/t, which means the consumption in a heap leach operation would be approximately 0.4 kg/t to 0.5 kg/t (i.e., 25% to 30% of the laboratory consumption).

- The lime consumption was 3.5 kg/t.

RPA has made no revisions to the FSU Base Case for processing.

## **9 ACCESSIBILITY, INFRASTRUCTURE, AND MANPOWER**

### **ACCESS**

Access to the property is by driving west 44 km from Desaguadero on paved and gravel roads to the village of Huacullani, then south on a good dirt road another 4.9 km to the Santa Ana Project site. In good weather, two-wheel drive vehicles can easily access the property. Off road or wet weather travel requires four-wheel drive vehicles.

In order to develop the Santa Ana Project, it will be necessary to improve the existing mine access road between the existing interstate highway and the Project site. Additional mine site roads will also be necessary for daily operation of the mine.

In general terms, the roads included in the FSU have a total width of 7.2 m including a diversion ditch. The slopes along these access roads are generally intended to be kept between 4 and 10%. Due to the relative steepness of the property some roadway sections will require slopes as great as 15% or more.

### **WATER**

The amount of fresh water required by the Santa Ana Project facilities is approximated at 73.8 m<sup>3</sup>/hour (20.5 L/s) with a peak delivery of 109.4 m<sup>3</sup>/hour (30.4 L/s). The well field and water supply pipeline will be designed for this peak demand.

Water quantities are limited and environmentally and socially sensitive in the region of the Santa Ana mine. Groundwater near the facilities was, therefore, not considered as a main source of water for the project; however an area does exist for auxiliary, short-term groundwater supply in fractured andesitic rocks if required.

The primary water supply for the project will be from the basin-fill deposits of the Challacollo Valley along the Callacame River, which lies 7.8 km from the mining facilities. A 339 ha parcel along the Callacame River was explored using surface resistivity geophysical methods. After completion of geophysics, a piezometer and a water supply test well were drilled in the area.

Aquifer testing of the water supply test well was conducted to determine aquifer parameters. It is estimated that three production wells in the area will meet the water supply needs for the Project, including back-up capacity.

## **POWER**

Power for exploration was supplied by generators. For mining operations, electrical power to the Santa Ana facilities will be provided from the Peruvian grid (Sistema Electrico Interconectado Nacional - SEIN). A new line would be built connecting the existing Pomata substation in the town of Pomata to the Santa Ana substation. In addition, there will be 10kV primary lines and distribution substations.

The electrical power transmission line would supply the power required for the future Santa Ana operations with a power of 6MW.

The Project area has a moderate topography (elevations generally vary from 4,150 masl to 4,300 masl) so the construction of site access roads is relatively simple compared to other projects in Peru where there is more severe topography, typical of alpine terrain.

There is only one small structure on the property and the exploration group used it during the drilling phase for offices and accommodations. The mine development plan describes installation of all new site infrastructure for the project.

## **MANPOWER**

The estimated contractor personnel to operate and maintain the equipment is summarized in Table 9-1. Contractor supervisory staff is included in Table 9-1, however, the owners, supervisory, engineering, and geology staff at the mine are not included in the personnel list because they are included in the owner's cost.

**TABLE 9-1 MANPOWER REQUIREMENTS – FSU BASE CASE**  
**Bear Creek Mining Corporation - Santa Ana Project**

<b>Areas</b>	<b>LOM Average Personnel</b>
Mine Operations	186
Process	83
G&A	39
<b>Total</b>	<b>308</b>

### **RPA OBSERVATIONS AND CONCLUSIONS**

RPA's review of available data suggests that the Santa Ana has favourable infrastructure. The Project has good road access with nearby power and water supply available. The site is well suited for a heap leach pad and the waste dump design allows for efficient dumping.

RPA has made no revisions to the FSU Base Case for accessibility, infrastructure, or manpower.



## 10 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

The following description is largely taken from the FSU.

The Santa Ana Project has been designed to meet industry standards of environmental compliance. The heap leach and solution ponds have been designed to industry standards of containment and stability. The waste rock storage facilities are designed to capture and manage any flows that may originate from the waste rock. Finally, an initial closure plan has been developed that will provide covers for both the heap leach and waste rock facilities that will result in safe and environmentally compliant closure of the mine. The laboratory tests conducted on samples of spent ore and waste rock have shown that the site has a very low potential to produce acid rock drainage (ARD).

In 2010, BCM was advancing the permitting process and submitted the Environmental and Social Impact Assessment (ESIA) community participation plan to the Peruvian authorities in December 2010, which was approved in January 2011. All additional necessary permitting would be processed once the ESIA itself has been approved by the national government.

BCM maintained good working relationships with the local communities based on information in the FSU.

### RPA OBSERVATIONS AND CONCLUSIONS

RPA's review of available data suggests that BCM was in compliance and intended to comply with the Peruvian permitting process and to demonstrate corporate social responsibility.

RPA has made no revisions to the FSU Base Case for environmental and social considerations.

## 11 CAPITAL COSTS

The estimated Project capital costs are summarized in Table 11-1 below.

**TABLE 11-1 CAPITAL COST SUMMARY – FSU BASE CASE**  
**Bear Creek Mining Corporation – Santa Ana Project**

Area	Units	Cost
<b>Direct Cost</b>		
Mining	\$ '000	
Processing	\$ '000	16,874
Infrastructure	\$ '000	25,794
Total Direct Cost	\$ '000	42,669
<b>Other Costs</b>		
Preproduction Mine Development & Equipment	\$ '000	9,909
Owners	\$ '000	4,226
Indirect Costs (EPCM, Freight, Insurance, etc)	\$ '000	7,947
Spare Parts	\$ '000	833
<b>Subtotal Costs</b>	<b>\$ '000</b>	<b>65,583</b>
Contingency	\$ '000	6,031
<b>Initial Capital Cost</b>	<b>\$ '000</b>	<b>71,613</b>

### RPA OBSERVATIONS AND CONCLUSIONS

#### **MINE**

All mining is carried out by contractors and capital costs for mine equipment are amortized over a seven year period at a cost of capital of 5%. The total cost of mining equipment over the life of mine, taking into consideration the cost of capital, is \$31.5 million comprising \$12.9 million for initial capital and \$18.6 million for sustaining capital. This expenditure is built into the operating cost of the contractor cost.

#### **PROCESS**

RPA reviewed the capital costs in the financial model *0911 - Santa Ana Financial Model 12OCT10 Rev 2 - finer crush - Herbs Rec.* The costs are the correct order of magnitude and they have been adjusted to include three-stage crushing based on the more recent testwork and the increased recovery. The estimated capital costs are also similar to the costs for a 10,000 tpd heap leach operation in the InfoMine cost model, which are approximately \$40 million for the process and infrastructure.

All capital costs for the process and infrastructure reportedly include 15% for EPCM and 15% for contingency.

### **INFRASTRUCTURE**

Detailed estimates were carried out for on-site infrastructure requirements, which include:

- Electrical supply
- Water supply
- Camp
- Buildings and offices
- Access roads

RPA reviewed the Other Costs comprising: Preproduction Mine Development and Equipment, Owner's Costs, Indirect Costs, and Spare Parts. RPA found that the Owner's Costs' estimates do not contain detailed supporting information to be able to confirm their level of accuracy and only consider a contingency of 10%. In RPA's opinion, this contingency should be adjusted to 30% to reflect the level of uncertainty in the estimate. The contingency adjustment results in a change from \$4.3 M to \$5.1 M.

## 12 OPERATING COSTS

The estimated Project operating costs are summarized in Table 12-1 below.

**TABLE 12-1 OPERATING COSTS – FSU BASE CASE**  
**Bear Creek Mining Corporation – Santa Ana Project**

Area	Units	Cost
Mine to Crusher	\$/t moved	1.68
Crusher to Leach Pad	\$/t milled	0.71
Mine	\$/t milled	5.60
Process	\$/t milled	3.49
General & Administration	\$/t milled	1.17
<b>Total</b>	<b>\$/t milled</b>	<b>10.26</b>

### RPA OBSERVATIONS AND CONCLUSIONS

#### **MINE**

Mine cost estimates do not contain detailed supporting information to be able to confirm their level of accuracy, and RPA has adjusted mining costs to what it considers a reasonable level based on in-house experience. The plan for the operation of the mine is to use a contract miner. IMC developed mining costs of \$1.68 per tonne of material mined (ore and waste) and \$0.71 per tonne for the rehandling of the crushed ore onto the heap leach. Separate budgetary quotes were received from local mining contractors, but did not contain a detailed breakdown

For a small, hard rock open pit, RPA would expect mining costs to be in the \$2.00 to \$2.50 per tonne moved range based on in-house experience. Infomine estimates \$2.86 per tonne moved for same size operation (this would be somewhat lower based on lower labour costs in Peru). RPA recommends adjusting the mine operating cost upwards by 25% to \$2.10 per tonne moved. This will also serve to capture some of the operating costs such as dewatering and geotechnical monitoring, which are not accounted for in the FSU operating cost estimate but will be covered under the adjusted mining cost.

#### **PROCESS**

RPA has reviewed the operating costs in the financial model *0911 - Santa Ana Financial Model 12OCT10 Rev 2 - finer crush - Herbs Rec.* The process operation costs are reasonable based on RPA's experience with similar projects.

***GENERAL AND ADMINISTRATION***

G&A costs estimates do not contain detailed supporting information to be able to confirm the level of accuracy and only consider a contingency of 5%. In RPA's opinion, this contingency should be adjusted to 30% to reflect the level of uncertainty in the estimate, however, this does not materially impact the overall G&A cost estimates.

## 13 PROJECT EXECUTION PLAN

The FSU PEP projected pre-production to be carried out over a 24 month period commencing immediately after the release of the FSU report (October 2010). Table 13-1 below illustrates the major milestones in the development plan.

Following ESIA approval, BCM was expected to advance the permitting process by obtaining the necessary construction and operating permits. In late 2011, once the proper permits were obtained, the principal off-site project infrastructure was expected to be developed. This would include the power line, the upgrading of the access road, the construction of the water supply pipe line, and drilling of any additional production water wells. Any temporary construction housing would be installed in preparation for the on-site construction.

On site construction was expected to start in the second quarter of 2012 and continue through the dry season. Commercial production was expected to start in early part of the fourth quarter of 2012, with full mill production commencing in Q1 2013.

**TABLE 13-1 PROJECT EXECUTION PLAN – FSU BASE CASE**  
**Bear Creek Mining Corporation – Santa Ana Project**

Item/Period	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2010	2011	2011	2011	2011	2012	2012	2012	2012
ESIA Review									
Detailed Engineering									
Permitting									
Off-site Infrastructure Construction									
Site Development									
Production									

### RPA OBSERVATIONS AND CONCLUSIONS

The PEP appears reasonable and RPA has made no revisions to the FSU Base Case.

## 14 EXTENDED LIFE CASE

In order to further understand the potential value of the Project, RPA prepared a life of mine scenario that included the assumption that some of the Mineral Resources, including Inferred material would be converted into Indicated Resources with further drilling.

### OPEN PIT OPTIMIZATION

An open pit optimization was carried out by RPA incorporating Measured, Indicated, and Inferred Resources using updated parameters. Whittle software was used to evaluate the resource blocks incorporating the parameters shown in Table 14-1.

**TABLE 14-1 WHITTLE OPTIMIZATION PARAMETERS – EXTENDED LIFE CASE**

**Bear Creek Mining Corporation – Santa Ana Project**

Parameter	Unit	Input
Pit Slopes	degrees	40
Mining Waste Cost	\$/tonne	2.10
Mining Ore Cost	\$/tonne	2.81
Process Cost	\$/tonne	3.49
G&A Cost	\$/tonne	1.45
Process and G&A Cost	\$/tonne	4.94
Mining Extraction	%	95
Mining Dilution	%	5
Ag Price	\$/oz Ag	16.50
Met. Recovery	%	75
TC/RC	\$/oz Ag	0.63
Royalties	\$/oz Ag	0.23
Total Charges	\$/oz Ag	0.86
COG	g/t	14.0

The results from the Whittle optimization are shown relative to the FSU Base Case pit design in Figure 14-1.



Looking East

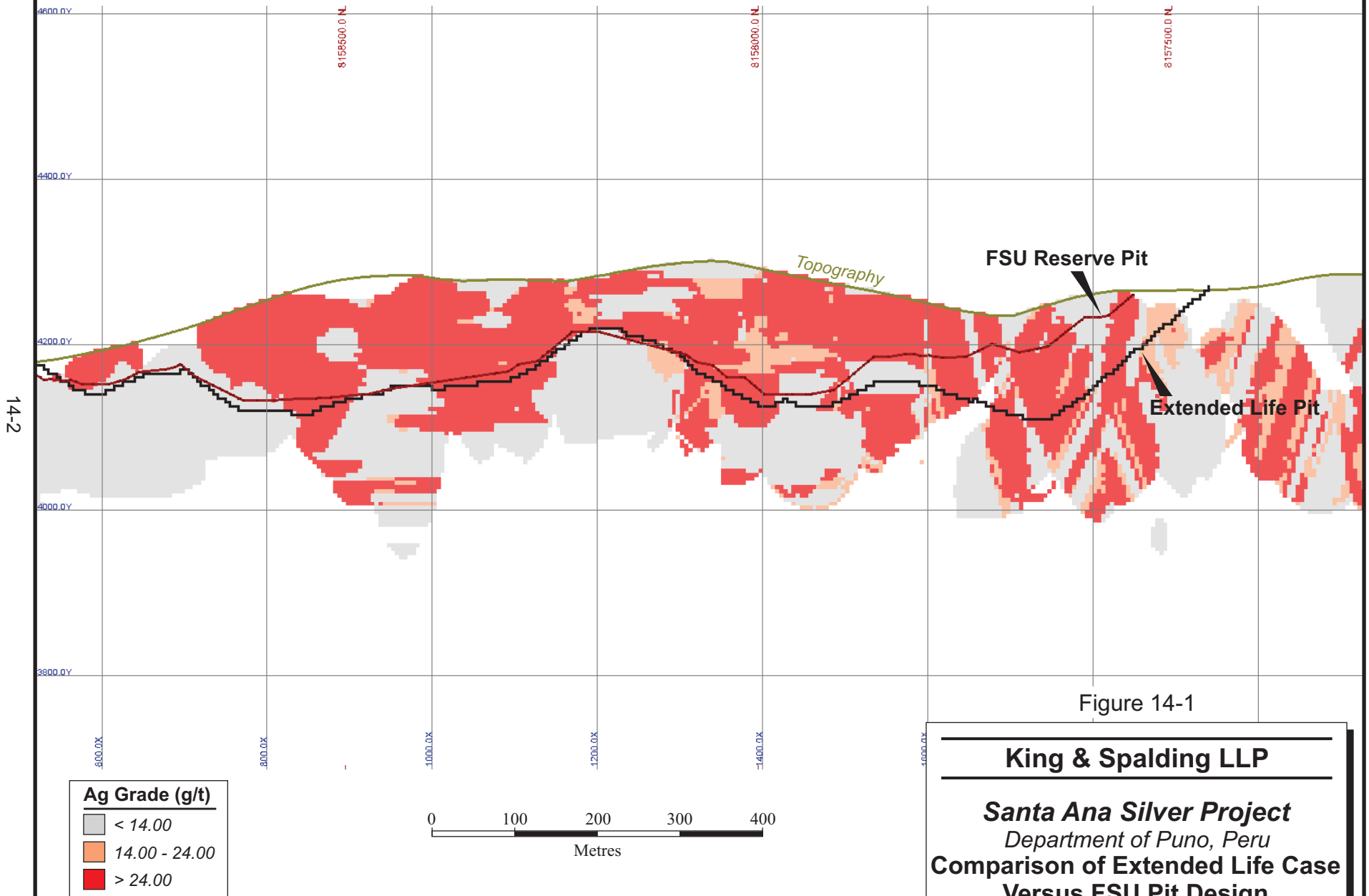


Figure 14-1

**King & Spalding LLP**

**Santa Ana Silver Project**  
 Department of Puno, Peru  
**Comparison of Extended Life Case  
 Versus FSU Pit Design**

May 2015

The total Mineral Resources reported out of the RPA Extended Life Case are presented in Table 14-2.

**TABLE 14-2 RPA EXTENDED LIFE MINERAL RESOURCES**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Tonnes kt	Silver g/t	Contained Silver Moz
Measured	19,111	44.2	27.2
Indicated	62,073	41.7	83.2
Inferred	12,080	43.7	17.0
<b>M, I, &amp; I</b>	<b>93,264</b>	<b>42.5</b>	<b>127.3</b>

1. CIM definitions were followed for Mineral Resources.
2. No lead and zinc will be recovered.
3. Cut-off grade of 14 g/t Ag.

Dilution and extraction factors were applied to the Mineral Resources and the additional Extended Life material was reduced by 25% to account for the uncertainty of future conversion to Mineral Reserves. The results indicate the potential for 81.3 Mt at a grade of 41.1 g/t Ag for a total of 107.3 Moz Ag and are presented in Table 14-3.

**TABLE 14-3 RPA EXTENDED LIFE MINERAL POTENTIAL**  
**Bear Creek Mining Corporation - Santa Ana Project**

Category	Tonnes kt	Silver g/t	Contained Silver Moz
RPA Revised Base Case	45,944	44.9	66.3
Additional Extended Life*	35,315	36.1	41.0
<b>RPA Extended Life Case</b>	<b>81,259</b>	<b>41.1</b>	<b>107.3</b>

1. CIM definitions were followed for Mineral Resources.
2. No lead and zinc will be recovered.
3. Cut-off grade of 14 g/t Ag.
4. Mining Factors: Dilution = 5% and Mining Extraction = 95%.
5. \*All M, I, & I material outside RPA Revised Base Case plus additional Inferred Resources within RPA Revised Base Case with 75% factor applied to account for non-convertible resources.

## OPERATING COSTS

The Extended Life Case operating costs are summarized in Table 14-4. The overall stripping ratio was reduced from 1.96 to 1.18 (waste:ore) from the FSU Base Case to the Extended Life Case, mainly as a result of including Inferred Resources which were previously classified as waste in the case of the former.

Total operating costs for the Extended Life Case are \$9.93/t milled.

**TABLE 14-4 OPERATING COSTS – EXTENDED LIFE CASE**

**Bear Creek Mining Corporation – Santa Ana Project**

Area	Units	Cost
Mine to Crusher	\$/t moved	2.10
Crusher to Leach Pad	\$/t milled	0.71
Mine	\$/t milled	4.99
Process	\$/t milled	3.49
General & Administration	\$/t milled	1.45
<b>Total</b>	<b>\$/t milled</b>	<b>9.93</b>

### ONGOING CAPITAL COSTS

The estimated sustaining capital costs and reclamation costs were changed to reflect the longer mine life. All other initial capital costs remain unchanged from the RPA Revised Base Case.

Based on the additional material mined, it was determined that two additional heap leach pads were required in Year 11 and Year 15 at the cost of \$5 M each. Sustaining capital of \$0.3 M per year was considered based on similar costs used in the RPA Revised Base Case. The differences in ongoing capital costs between the RPA Revised Base Case and Extended Life Case is presented in Table 14-5.

**TABLE 14-5 CAPITAL COST DIFFERENCES BETWEEN RPA REVISED BASE CASE AND EXTENDED LIFE CASE**

**Bear Creek Mining Corporation – Santa Ana Project**

Area	Units	RPA Revised Base Case	Extended Life Case
Sustaining Capital	\$ '000	15,008	28,308
Reclamation and Closure	\$ '000	10,662	18,512
<b>Total</b>	<b>\$ '000</b>	<b>25,669</b>	<b>46,819</b>

## 15 PROJECT CASH FLOW

A pre-tax Cash Flow Projection has been generated from the Life of Mine production schedule and capital and operating cost estimates. A summary of the key criteria is provided below in Table 16-1 for each scenario: FSU Base Case, RPA Revised Base Case, and RPA Extended Life Case. The RPA Revised Base Case and Extended Life Case are shown in Appendix A and Appendix B, respectively.

**TABLE 16-1 PROJECT CASH FLOW PARAMETERS SUMMARY**  
**Bear Creek Mining Corporation – Santa Ana Project**

Parameter	Units	FSU Base Case	RPA Revised Base Case	RPA Extended Life Case
Production Rate	Mtpa	3.6	3.6	3.6
Mine Life	years	11	13	24
Total Ore Production	Mt	37.1	45.9	81.3
LOM Metal Price	\$/oz Ag	14.50	24.71	23.76
Heap Leach Recovery	%	75.0	75.0	75.0
Payable Silver	%	99.8	99.8	99.8
TC/RC & Transport	\$/oz Ag	0.63	0.63	0.63
Net Revenue	\$M	653	1,185	1,845
Operating Cost	\$/t leached	10.26	10.41	9.93
Capital Cost	\$M	97	98	119
Undiscounted Pre-Tax Cash Flow	\$M	178	598	908

The metal prices used in the cash flow are provided by FTI and are based on a mix of futures, spot, and consensus forecasts.

RPA's assumption of using \$16.50 per ounce silver for cut-off grade calculation for Mineral Resource and Mineral Reserve estimation is not intended to be used as a basis for establishing the Fair Market Value or Net Present Value of the Project. It is considered best practice for cut-off grade estimation to use a long term price that applies to the potential life of the Mineral Resources and Mineral Reserves.

## 16 CORANI PROJECT

RPA was requested to prepare a high level technical review of the information used as a basis for the Corani Project Feasibility Study (Corani FS), which is scheduled to be published June 2015. The Corani FS is being developed by M3 Engineering & Technology Corporation (M3) with the assistance of Global Resource Engineering (GRE).

Corani is 100% owned by Bear Creek Mining. The Project will comprise an open pit mine producing 7.8 million tonnes of silver/lead/zinc ore over 18 years. A conventional flotation plant will produce lead and zinc concentrates containing silver. The primary revenue mineral is silver.

Based on the review of the available documentation RPA considers the Corani FS to be a reasonable representation of the Project as planned. RPA is of the opinion that an appropriate economic analysis of the Project can be made using the cash flow model along with available data provided. RPA held a discussion with GRE to review the various Corani FS inputs and methods used to develop the geology, metallurgy, and mining for the project. RPA is of the opinion that the Corani FS work was carried out in thorough and diligent manner.

### PROJECT LOCATION

The Project site is located in the Andes Mountains of south-eastern Peru at elevations of 4,800 masl to 5,100 masl, specifically within the Cordillera Vilcanota of the Eastern Cordillera. The site is located in the Region of Puno immediately east of the continental divide separating the Pacific and Atlantic drainages.

The site location is approximately 160 km in a direct line to the southeast of the major city of Cusco, with Universal Transverse Mercator (UTM) coordinate ranges of 312,000E to 322,000E and 8,443,000N to 8,451,000N, using UTM, Zone 19S, Provisional South American datum, PSAD 56.

## **GEOLOGY AND MINERAL RESOURCES**

In general, economic mineralization at Corani are comprised of freibergite (silver-bearing tetrahedrite), non- argentiferous galena, sphalerite, pyrite, marcasite, other silver sulphosalts (myrargyrite, pyrrargyrite-proustite), boulangerite, acanthite, and minor native silver.

The Corani deposit is comprised of low sulphidation epithermal silver, lead, and zinc mineralization within stock works, veins, and breccias, and hosted in pre-mineral tuffs and andesite flows.

There are three main zones of mineralization in the Corani deposit: Main (zone 1), Minas (zone 2), and Este (zone 3). Mineralization is generally continuous between the Minas and Main zones. Vein structures are typically associated with the Main and Minas zones, and the Este zone appears to be a broader zone of veinlets and stock works.

The Main, Minas, and Este areas are generally structurally controlled along a predominant north-northwest strike. The Este area is limited by the overlying post mineral tuff. Mineralization in surface outcrops, and drill core is generally associated with iron and manganese oxides, barite, and silica. Silicification is both pervasive and structurally controlled in veins.

The resource database includes collar locations, down hole survey data, assay, and composite data from 470 drill holes, 25 surface trenches totalling 85,198 m of drilling, and 2,924 m of trenching. The resource database includes data available as of May 2015. RPA understands that no additional drilling was completed on the Corani deposit after 2011.

A total of 34,649 assay samples and 8,872 composite samples were included in the database. Each of the sampled intervals was assayed for Ag, Pb, Zn, Cu, and some for Au.

Assays were composited by GRE to nominal eight metre length composites respecting rock type lengths starting from the collar of each drill hole. GRE utilized a technique that changed the composite length slightly within each rock type in order to have composites of equal length that respected the lithological boundaries. As a result, composite length as small as 0.4 m and as long as 10.65 m were included in the composite table. These composite values were used to interpolate grade into the resource blocks. RPA understands that neither assay nor composite were capped to limit the influence of high grade samples.

A 3D block model comprising blocks that were 15 m by 15 m by 8 m in the X, Y, and Z directions was created by GRE. The model was intersected with the topographic DTM to exclude whole blocks that extended above the surface.

BCM collected data for density determinations on a regular basis. In total, 964 density measurements were documented within the assay table.

RPA was not provided with information on block grade estimation procedures, or Mineral Resource classification methodology. RPA completed a visual review on vertical and plan sections throughout the Corani deposit, and is of the opinion that the classification is driven by detailed block-by-block attributes generated by geostatistical estimation methods and not by the continuity of geology and mineralization. The result is an output in which individual drill holes are surrounded by halos of Measured, Indicated, and Inferred Resource blocks, and isolated small “islands” of one classification embedded in another.

RPA further examined the continuity of Measured and Indicated blocks within the resource pit shell. Measured blocks regularly occurred in isolation, or in small groups surrounding a drill hole imbedded in continuous areas of Indicated blocks. Several isolated blocks of Inferred were also noted. It is RPA’s opinion that these blocks should be manually reclassified to Indicated to smooth out the classification and provide a more continuous domain for mine designs and Mineral Reserve estimation. This will likely result in a material decrease in the tonnage and contained metals within the Measured Mineral Resources in the Corani deposit, but would be accompanied by an increase in tonnage and grade of Indicated Mineral Resources. The reclassification of Inferred Mineral Resources is limited to a few blocks, and in RPA’s opinion would not have a material impact on the Mineral Resource estimate.

The Mineral Resources used, reported exclusive of Mineral Reserves, are presented in Table 17-1.



**TABLE 17-1 CORANI MINERAL RESOURCES (MAY 2015, EXCLUSIVE OF RESERVES)**  
**Bear Creek Mining Corporation - Corani Project**

Category	Tonnes kt	Silver g/t	Lead %	Zinc %	Contained Silver Moz	Contained Lead Mlb	Contained Zinc Mlb
Measured	9,353	28.8	0.53	0.30	8.7	108.4	61.6
Indicated	64,059	26.1	0.48	0.36	53.7	682.2	512.8
<b>Measured + Indicated</b>	<b>73,413</b>	<b>26.4</b>	<b>0.49</b>	<b>0.35</b>	<b>62</b>	<b>791</b>	<b>574</b>
Inferred	31,231	40.6	0.74	0.51	40.8	510.6	352.4

1. CIM definitions were followed for Mineral Resources.
2. The Mineral Resource is the tonnage contained within the 30\$/oz silver, 1.425 \$/lb lead, and 1.50 \$/lb zinc prices Whittle pit using a 20 \$/oz silver, 0.95 \$/lb lead, and 1.00 \$/lb zinc prices at a cut-off of 11 \$/tonne NSR.

The current Corani Mineral Resource estimate is based on an updated resource estimation by GRE in 2015.

RPA completed a check estimate on the Corani Mineral Resources to validate the tonnage and grade reported in Table 17-1. There was excellent agreement between RPA's tabulated tonnes and grade for each metal and GRE's reported figures.

#### **RPA OBSERVATIONS AND CONCLUSIONS**

It is RPA's opinion that the drill hole database is adequate to support a Mineral Resource estimate. The composite lengths are appropriate. Assay, composite, and block model statistics were not provided to RPA, and search parameters used for metal grade interpolation into the block models are not known. RPA was able to confirm the grades and tonnages of the Corani Mineral Resource estimate as reported by GRE.

## MINING AND MINERAL RESERVES

### MINERAL RESERVES

The Mineral Reserves used as a basis for the life of mine plan are presented in Table 17-2.

**TABLE 17-2 CORANI MINERAL RESERVES (MAY 2015)**  
**Bear Creek Mining Corporation - Corani Project**

Category	Tonnes kt	Silver g/t	Lead %	Zinc %	Contained Silver Moz	Contained Lead Mlb	Contained Zinc Mlb
Proven	19,855	69.1	1.09	0.72	44.1	478.7	313.4
Probable	117,843	48.6	0.88	0.57	184.3	2,289.2	1,470.7
<b>Proven + Probable</b>	<b>137,698</b>	<b>51.6</b>	<b>0.91</b>	<b>0.59</b>	<b>228</b>	<b>2,768</b>	<b>1,784</b>

1. CIM definitions were followed for Mineral Reserves
2. Mineral Reserve is contained within the \$20/oz Ag designed pit and utilizes variable NSR cut-off grades to maximize early cash flows.

Mining extraction and dilution factors were not applied to convert the Mineral Resources to Mineral Reserves. The Mineral Reserve contains Measured and Indicated Resources within the designed pit, using various elevated cut-offs for different time periods and mill feed needs. RPA is of the opinion that some consideration for dilution and mining extraction should be applied to the Mineral Reserves.

Low grade ore was not stockpiled due to the likelihood of the mineralization oxidizing over time. In RPA's opinion, low grade ore, which is above the economic cut-off but not included in the LOM, should be stockpiled separately from waste for potential future processing.

### MINING

Mining is planned to be carried out at a rate of 7.8 Mt over a mine life of 18 years. The mine plan includes the entire Mineral Reserves shown in Table 17-2 and the movement of 232 Mt of waste for a stripping ratio of 1.68 (waste:ore) and total material mined of 369 Mt over the LOM.

Mining will be carried out using front end loaders (FELs) and 136 tonne capacity haul trucks and standard support equipment. Equipment requirements over the LOM are based on detailed haul routes, equipment manufacturer's ratings, and assumed equipment utilizations and availabilities. Appropriate considerations were made for working in altitude. In RPA's opinion, the work carried out by GRE was done to industry standards.

**RPA OBSERVATIONS AND CONCLUSIONS**

- No dilution and extraction factors were incorporated in the Mineral Reserve estimate. RPA recommends the use of 5% and 95% for dilution and mining extraction factors respectively.
- Low grade material should be stockpiled separately from waste.
- In RPA's opinion, the design of the open pits, production schedule, and equipment selected to carry out the operation is reasonable.

**METALLURGICAL TESTWORK AND MINERAL PROCESSING**

RPA reviewed the metallurgical information presented in the 2011 Corani Feasibility Study (2011 Corani FS) (M3, 2011). From 2005 to 2011, metallurgical testing was undertaken to understand the mineral deposit as a whole and the composite samples used in testing appeared to span the mineralogical range of the Corani ores (mixed sulphide and transitional). Testing evaluated grindability, grind size, lead and zinc flotation (ore variability and optimization), flotation reagents, and locked cycle flotation performance. Metallurgical testwork results were used for process flowsheet design and metal recoveries were used in mine design calculations.

To update the Corani FS, GRE applied a geometallurgical approach to improve lead, zinc, and silver recoveries (GRE, 2015a–c). Metallurgical data from 2005 to 2011 was assembled into a single database for evaluation. Mineralogical drivers of recovery were identified and validated and a statistical model for predicting lead and zinc recovery from geologic log observations was developed and silver recovery was predicted from information related to lead. Model equations were applied to each block in the block model to produce recovery predictions for every block. The updated model for lead, zinc and silver recovery more closely matches metallurgical test results.

**RPA OBSERVATIONS AND CONCLUSIONS**

- In RPA's opinion, the metallurgical testing carried out is appropriate for the level of study and supports the process design.
- RPA is in agreement with the geometallurgical approach to modelling lead, zinc, and silver recoveries and the concentrate grades and recoveries achieved are reasonable.

## **INFRASTRUCTURE**

The mine is located 30 km from a new high-voltage power line with abundant capacity to meet the Project needs. The project has technically and environmentally favorable sites for tailing and waste rock storage. Additionally the mine plan is amenable to sequenced backfilling of the pit, reducing operating costs, and eliminating environmental pit lake liability at closure.

Access to the mining operations will be via a new 63 km road to be built over generally flat and gently sloping topography. The new mine access road will connect at the town of Macusani to the Interoceanic Highway; a two-lane, paved highway connecting to the Peruvian highway system and to the Port of Matarani.

### **RPA OBSERVATIONS AND CONCLUSIONS**

- In RPA's opinion the Corani Project has favorable infrastructure to support the mining operation.

## **ENVIRONMENTAL AND SOCIAL ASPECTS**

RPA reviewed the information on environmental studies, permitting and social or community impact presented in the 2011 Corani FS (M3, 2011). Key areas of consideration included:

- Environmental baseline studies (air, noise, groundwater, surface water, biological, and geochemical, and groundwater characterization).
- Permits required to execute the Corani Project.
- Reclamation and Closure (includes general site conditions, project components such as open pit areas, waste rock facilities, surface water management, water collection pond systems, plant facilities and related infrastructure, fresh water dam, and the tailings storage facility (TSF), monitoring and maintenance, and closure schedule).
- Socioeconomics and Community (to continue with community relations activities and to develop methods to address any identified community impacts and enhance the economic and social development opportunities).

### **RPA OBSERVATIONS AND CONCLUSIONS**

- RPA's review of available data suggests that BCM was in compliance and intended to comply with the Peruvian permitting process and to demonstrate corporate social responsibility.

## CAPITAL COSTS

Capital costs over the LOM total \$751 M comprising \$628 M initial capital, \$71 M sustaining capital, and \$53 M reclamation and closure. Capital costs are presented in Table 17-3.

**TABLE 17-3 CAPITAL COST SUMMARY**  
**Bear Creek Mining Corporation – Corani Project**

Area	Units	Cost
<b>Direct Cost</b>		
Mining	\$ '000	55,010
Processing & Infrastructure	\$ '000	401,431
<b>Total Direct Cost</b>	<b>\$ '000</b>	<b>456,441</b>
Indirects and Owner's Costs	\$ '000	89,721
<b>Subtotal Costs</b>	<b>\$ '000</b>	<b>546,163</b>
Contingency (15%)	\$ '000	81,924
<b>Initial Capital Cost</b>	<b>\$ '000</b>	<b>628,087</b>
Sustaining Capital	\$ '000	71,163
Reclamation and Closure	\$ '000	52,710
<b>Total Capital Cost</b>	<b>\$ '000</b>	<b>751,959</b>

### RPA OBSERVATIONS AND CONCLUSIONS

- Contingency of 15%, applied to total contracted costs, is reasonable.
- In RPA's opinion, capital cost estimates were carried out to a level of detail appropriate for this level of study.

## OPERATING COSTS

The operating costs used in the Corani FS are presented in Table 17-4.

**TABLE 17-4 OPERATING COSTS – FSU BASE CASE**  
**Bear Creek Mining Corporation – Santa Ana Project**

Area	Units	Cost
Mine	\$/t milled	5.19
Process	\$/t milled	8.77
General & Administration	\$/t milled	1.55
<b>Total</b>	<b>\$/t milled</b>	<b>15.50</b>

A summary of the key criteria is provided below in Table 17-5 for the Corani FS.

**TABLE 17-5 PROJECT CASH FLOW PARAMETERS SUMMARY**  
**Bear Creek Mining Corporation – Corani Project**

Parameter	Units	Corani FS
Production Rate	Mtpa	7.8
Mine Life	years	18
Total Ore Production	Mt	138
Silver Price	\$/oz Ag	20.00
Lead Price	\$/lb Pb	0.95
Zinc Price	\$/lb Zn	1.00
Silver Recovery	%	73.0
Lead Recovery	%	64.0
Zinc Recovery	%	55.0
Silver Recovered	koz	164
Lead Recovered	kt	789
Zinc Recovered	kt	486
Lead Concentrate	kt	1,394
Payable Silver	koz	146
Payable Lead	kt	747
Zinc Concentrate	kt	919.2
Payable Silver	koz	5.5
Payable Zinc	kt	413
TC/RC & Transport	\$M	831
Net Revenue	\$M	4,663
Operating Cost	\$/t milled	15.50
Capital Cost	\$M	752
Undiscounted Pre-Tax Cash Flow	\$M	1,776

#### **RPA OBSERVATIONS AND CONCLUSIONS**

- In RPA's opinion, operating cost estimates were carried out to a level of detail appropriate for this level of study.

## 17 SIGNATURE PAGE

This report titled "Technical Review of the Santa Ana Project and Corani Project, Puno, Peru" and dated May 29, 2015 was prepared and signed by the following authors:



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## **19 APPENDIX A**

### **RPA REVISED FSU BASE CASE CASH FLOW**

RPA – Cash Flow Summary - Revised FSU Base Case																								
		K&S - Santa Ana																						
Date:		Santa Ana	RPA	UNITS	TOTAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Year 14-18		
Year -3	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	
MINING																								
Open Pit Mining																								
Operating Days		4,050	4,410	days	4,410			90	360	360	360	360	360	360	360	360	360	360	360	360	360	-		
Tonnes milled per day		9,155	10,418	tonnes / day	10,418			6,644	11,389	10,914	11,372	12,647	10,250	10,000	10,000	10,000	10,000	10,000	10,000	10,000	9,389	-		
Tonnes moved per day		27,087	24,876	tonnes / day	24,876			35,664	31,246	31,246	31,822	32,366	32,521	28,844	28,422	24,256	21,480	14,364	10,000	10,000	9,389	-		
Production		37,077	45,944	'000 tonnes	45,944			598	4,100	3,929	4,094	4,553	3,690	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,380	-		
Au		0.01	0.01	g/t	0.01			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-		
Ag		53.00	44.90	g/t	44.90			39.10	46.85	50.51	45.870	50.65	48.25	46.11	43.16	40.81	38.90	38.90	38.90	38.90	38.90	-		
Waste		63,760	63,760	'000 tonnes	63,760			2,612	7,148	7,527	7,558	7,155	7,509	6,784	6,632	5,132	4,133	1,571	1,571	1,571	-			
Total Moved		109,704	109,704	'000 tonnes	109,704			3,210	11,248	11,652	11,708	11,652	11,199	10,384	10,232	8,732	7,733	3,600	3,600	3,600	3,380	-		
Stripping Ratio		1.39	1.39	w/o	1.39			4.37	1.39	1.92	1.85	1.97	2.03	1.84	1.84	1.15	0.44	0.44	0.44	0.44	-			
Contained Ounces		63,180	66,325	koz	66,325			752	6,190	6,381	6,410	6,708	6,009	5,588	5,337	4,995	4,724	4,502	4,502	4,502	4,227	-		
Crusher Feed																								
Production		34,113	42,980	'000 tonnes	42,980			415	3,185	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,380	-		
Au		0.01	0.01	g/t	0.01			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-		
Ag		55.01	45.94	g/t	45.94			42.94	51.68	52.53	51.32	50.02	48.28	43.11	40.81	38.90	38.90	38.90	38.90	38.90	38.90	-		
Waste		72,627	63,760	'000 tonnes	63,760			2,612	7,148	7,527	7,558	7,155	7,509	6,784	6,632	5,132	4,133	1,571	1,571	1,571	-			
Total Moved		106,740	106,740	'000 tonnes	106,740			3,027	11,127	11,127	11,127	11,109	10,384	10,232	8,732	7,733	3,600	3,600	3,600	3,600	3,380	-		
Stripping Ratio		1.96	1.48	w/o	1.48			6.29	2.24	2.09	2.10	1.99	2.09	1.88	1.84	1.15	0.44	0.44	0.44	0.44	-			
Contained Ounces		57,317	63,478	koz	63,478			573	5,292	6,080	6,080	5,789	5,930	5,588	5,337	4,995	4,724	4,502	4,502	4,502	4,227	-		
Stockpile																								
Opening				'000 tonnes	-			-	183	1,098	1,427	1,921	2,874	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,744		
Tonnes				g/t	-			-	30.39	30.51	30.03	29.92	29.94	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87		
Ag Grade				g/t	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Au Grade				g/t	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Addition				'000 tonnes	2,964			183	915	329	494	953	90	-	-	-	-	-	-	-	-	-		
Tonnes		2,964	2,964	g/t	2,964			30.39	30.54	28.40	29.60	30.00	27.50	-	-	-	-	-	-	-	-	-		
Ag Grade		29.87	29.87	g/t	29.87			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Au Grade		29.87	29.87	g/t	29.87			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Deduction				'000 tonnes	2,964			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Tonnes		2,964	2,964	g/t	2,964			30.39	30.54	30.51	30.03	29.92	29.94	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87		
Ag Grade		29.87	29.87	g/t	29.87			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Au Grade		29.87	29.87	g/t	29.87			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Closing				'000 tonnes	-			-	183	1,098	1,427	1,921	2,874	2,964	2,964	2,964	2,964	2,964	2,964	2,964	2,744	-		
Tonnes				g/t	-			-	30.39	30.51	30.03	29.92	29.94	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87	29.87	-	
Ag Grade				g/t	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Au Grade				g/t	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
PROCESSING																								
Mill Feed		37,077	45,944	'000 tonnes	45,944			-	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	2,744		
Au		0.01	0.01	g/t	0.01			-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
Ag		53.00	44.90	g/t	44.90			-	50.67	52.53	51.32	50.02	51.23	48.28	46.11	43.16	40.81	38.90	38.90	38.90	38.90	38.90		
Contained Au		7,152	7,508	oz	7,508			-	588	588	588	588	588	588	588	588	588	588	588	588	588	588		
Contained Ag		63,179,803	66,324,692	oz	66,324,692			-	5,864,712	6,080,324	5,939,622	5,788,870	5,929,572	5,587,868	5,336,615	4,994,910	4,723,557	4,502,455	4,502,455	4,502,455	4,438,578	2,635,155		
Current Year Recovery				%				-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Au		100.0%	100.0%	%	100%			-	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%		
Ag		65.8%	65.8%	%	66%			-	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%		
Previous Year Residual Recovery				%				-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Au		0.0%	0.0%	%	0%			-	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%		
Ag		9.2%	9.2%	%	9%			-	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%		
Net Recovery				%				-	67%	61%	62%	63%	62%	64%	66%	68%	70%	71%	71%	71%	72%	76%		
Au		67%	67%	%	67%			-	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%		
Ag		75%	75%	%	75%			-	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%		
Total Average Recovery		75%	75%	%	75%			-	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%		
Current Year Recovery				oz				-	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509	7,509		
Au		6,930	7,509	oz	7,509			-	588	588	588	588	588	588	588	588	588	588	588	588	588	448		
Ag		41,577,170	43,646,749	oz	43,646,749			-	3,859,432	4,001,321	3,908,728	3,809,522	3,902,114	3,677,247	3,511,903	3,287,035	3,108,464	2,962,961	2,962,961	2,962,961	2,920,926	1,734,135		
Previous Year Residual Recovery				oz				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Au		5,807,682	6,096,770	oz	6,096,770			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Ag		5,807,682	6,096,770	oz	6,096,770			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total Recovered				oz				-	395	361	365	371	367	377	387	399	410	418	419	422	422	341		
Au		4,788	5,033	oz	5,033			-	3,859,432	4,540,423	4,467,650	4,355,510	4,434,245	4,222,311	4,025,557	3,777,593	3,567,612	3,397,165	3,376,841	3,334,805	2,142,143	242,232		
Ag		47,384,852	49,743,519	oz	49,743,519			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
REVENUE																								
Metal Prices				Input Units																				
Au				US\$/oz Au	\$				\$	1,375	\$	1,505	\$	1,515	\$	1,539	\$	1,316	\$	1,316	\$	1,316	\$	
Ag				US\$/oz Ag	\$				\$	24.71	\$	33.20	\$	31.83	\$	30.78	\$	22.21	\$	22.21	\$	22.21	\$	
Exchange Rate				US\$/US	\$				\$	1.00	\$	1.00	\$	1.00	\$	1.00	\$	1.00	\$	1.00	\$	1.00	\$	
Au Payable Percentage				US\$/oz Au	\$				\$	95%	\$	95%	\$	95%	\$	95%	\$	95%	\$	95%	\$	95%	\$	
Ag Payable Percentage				US\$/oz Ag	\$				\$	99.75%	\$	99.75%	\$	99.75%	\$	99.75%	\$	99.75%	\$	99.75%	\$	99.75%	\$	
Au Payable				US\$/oz Au	\$				\$	4,781	\$	376	\$	343	\$	348	\$	358	\$	368	\$	379	\$	
Ag Payable				US\$/oz Ag	\$				\$	49,619,100	\$	3,849,783	\$	4,529,072	\$	4,456,481	\$	4,344,621	\$	4,232,159	\$	4,211,755	\$	
Au Gross Revenue				US\$/oz Au	\$				\$	6,574	\$	565	\$	516	\$	525	\$	542	\$	458	\$	471	\$	
Ag Gross Revenue				US\$/oz Ag	\$				\$	1,226,112	\$	127,813	\$	144,160	\$	137,170	\$	98,494	\$	98,238	\$	93,543	\$	
Total Gross Revenue				US\$/oz Au	\$				\$	1,232,686														

## **20 APPENDIX B**

### **RPA EXTENDED LIFE CASE CASH FLOW**

[illegible]