

**NI 43-101 TECHNICAL REPORT ON RESOURCES  
SAN FELIPE PROJECT  
Sonora, Mexico**

**PREPARED FOR**



**SANTACRUZ SILVER MINING LTD.**  
Suite 1125-595 Howe Street  
Vancouver, BC  
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**Effective Date: April 5, 2012**

**Report Date: August 30, 2012**

**PREPARED BY**

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**CERTIFICATE of AUTHOR**

I, Donald E. Hulse do hereby certify that:

1. I am currently employed as Vice President and Principal Mining Engineer by Gustavson Associates, LLC at:  
  
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2. I am a graduate of the Colorado School of Mines with a Bachelor of Science in Mining Engineering (1982), and have practiced my profession continuously since 1983.
3. I am a registered Professional Engineer in the State of Colorado (35269), and a registered member in good standing of the Society of Mining Metallurgy & Exploration (1533190RM).
4. I have worked as a mining engineer for a total of 29 years since my graduation from university; as an employee of a major mining company, a major engineering company, and as a consulting engineer. I have worked in resource estimation since 1983, training in geostatistics between 1983 and 1989 estimating resources under supervision and later accepting responsibility for estimates of gold, gold-silver, and polymetallic deposits containing silver. From 1989 to 1994 where I performed estimates for gold-silver deposits in Mexico which successfully were produced as well as Volcanogenic Massive Sulfide deposits in South Africa and Arizona, evaporates in South Africa and copper porphyries in New Mexico. From 1994 to 1999 I worked for both a consulting group and an operating company where I estimated resources on both narrow and massive precious metal vein deposits as well as disseminated gold and silver and developed mine plans for those deposits. During this period I performed modeling and mine planning on gold deposits in Nevada, California, and Chile. As a consultant my projects included resource estimation and mine planning of various gold deposits as well as providing training for my clients in resource estimation and surface and underground mine design. With Gustavson Associates I have worked on both disseminated and structurally controlled gold-silver deposits, polymetallic veins and carbonate replacement systems.

5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am responsible for Sections 1 through 6, 9 through 11, 13 and 15 through 19 of the technical report entitled “NI 43-101 Technical Report on Resources, San Felipe Project, Sonora, Mexico, Santacruz Silver Mining Ltd.”, dated August 30, 2012, with an effective date of April 5, 2012, (the “Technical Report”), and am also responsible for the overall organization and content of the document. I visited the property for one day on December 8, 2011.
7. I have not had prior involvement with the properties that are the subject of the Technical Report.
8. I am independent of Santacruz Silver Mining Ltd. applying all of the tests in Section 1.5 of National Instrument 43-101.
9. I have read National Instrument 43-101 and Form 43-101, and the Technical Report has been prepared in compliance with that instrument and form.
10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
11. 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 this 30<sup>th</sup> day of August, 2012

/s/Donald E. Hulse (Signature)  
Signature of Qualified Person

Donald E. Hulse, P.E., SME-RM

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1. I am currently employed as Geological Engineer by Gustavson Associates, LLC at:  
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2. I am a graduate of the University of Nevada with a Bachelor of Science in Geological Engineering, and have practiced my profession continuously since 2005.
3. I am a registered member of the Society of Mining Metallurgy and Exploration (No. 4156858RM).
4. I have worked as a Geological Engineer/Resource Estimation Geologist for a total of seven years since my graduation from university; as an employee of a major mining company, a major engineering company, and as a consulting engineer. I have estimated numerous mineral resources containing silver and have 7 years of precious and base metals experience.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am responsible for Sections 7, 8, 12 and 14 of the technical report entitled “NI 43-101 Technical Report on Resources, San Felipe Project, Sonora, Mexico, Santacruz Silver Mining Ltd.,” dated August 30, 2012, with an effective date of April 5, 2012, (the “Technical Report”).
7. I have not had prior involvement with the properties that are the subject of the Technical Report.
8. I am independent of Santacruz Mining Ltd. applying all of the tests in Section 1.5 of National Instrument 43-101.
9. I have read National Instrument 43-101 and Form 43-101, and the Technical Report has been prepared in compliance with that instrument and form.

10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
11. 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 this 30<sup>th</sup> day of August, 2012

/s/ Zachary J. Black (Signature)  
Signature of Qualified Person

Zachary J. Black, EIT, SME-RM

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## **1. SUMMARY**

### **1.1 Introduction**

Gustavson Associates, LLC (Gustavson) was commissioned by Santacruz Silver Mining Ltd. (Santacruz or the Company) to prepare an independent Technical Report on Resources for the San Felipe Project in northern Sonora, Mexico. The purpose of this report is to present the mineral resource estimate and describe the geology of the San Felipe property with respect to silver, zinc, lead, and copper mineralization, and to document the results of an independent review of existing geologic data and observations recorded during field reconnaissance.

This report was prepared in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and Canadian Institute of Mining, Metallurgy and Petroleum (CIM) “Best Practices and Reporting Guidelines”, November 27, 2010. The effective date of this report is April 5, 2012.

### **1.2 Property Description and Ownership**

The San Felipe Project is located approximately 6 kilometers west of the small community of San Felipe de Jesus in northern Mexican state of Sonora, Mexico (Figure 4-1). The project area is located in the Sonora River Valley.

Santacruz acquired exploration rights with right to purchase (Contrato de Exploracion con Promesa de Venta) from Hochschild. Santacruz’s rights expire on April 1, 2013. The property includes 15 Mining Concessions totaling about 16,300 Ha, plus the right to acquire an adjacent property “El Gachi”. Surface agreements including the temporary occupation contract with the Community of San Felipe de Jesus and the Los Potreros farm were also transferred from Hochschild to Santacruz.

### **1.3 Geology and Mineralization**

The San Felipe Project is located in the southern portion of the Cordilleran Basin and Range tectonic province, which comprises the southwestern United States and northern Mexico. This region has been affected by extensional tectonics since the end of the Laramide Orogeny. The project area is situated along the western margin of the Sonora River valley, a sedimentary basin filled with Tertiary clastic sediments.

A structurally complex mixture of Paleozoic mafic volcanic rocks, associated sediments, and Cretaceous felsic volcanics are exposed at the San Felipe Project. The package of volcanics and associated sediments has been folded, faulted, and tilted on end to produce a regional east-west strike. The San Felipe property contains a series of ridges oriented nearly east-west. The principal ridges are crowned with sharp outcrops formed by continuous, highly-resistant veins within the volcanic rocks. At depth these veins support the known metal-bearing deposits. Vein zones vary from less than 1 meter to several meters thick, and consist primarily of quartz with

silver, lead, and zinc sulfide minerals. The mineralized veins and dikes are hosted in the andesitic rocks of the lower volcanic group, which may also be altered and mineralized for up to several meters adjacent to the veins.

Five mineralized structures are known to exist within the San Felipe Project area: the Santa Rosa, La Ventana, San Felipe, Artemisa-Cornucopia, and Las Lamas. In most cases, the mineralized structures are silicified and form resistant, high-relief ridges. Current exploration work on the site is continuing to identify and map other structures. The mineralized bodies are vein-like replacement zones formed by metasomatic and associated hydrothermal mineralization along favorable structures and/or reactive host rocks.

#### **1.4 Concept and Status of Exploration**

Santacruz is conducting an exploration program that will involve geologic mapping, and surface and underground geochemical sampling. This program will continue and will include diamond core drilling to more fully define the known mineralized structures and to delineate additional mineralization. The scope and focus of the program is more fully described in the recommendations section of this document. The object of the proposed exploration program is to provide adequate data to support completion of a mineral resource estimate with a high level of confidence.

#### **1.5 Mineral Resource Estimate**

Table 1-1 shows the measured, indicated, and inferred mineral resources estimated within the San Felipe project, with an effective date of April 5, 2012. Mineral resources are reported using a 75 ppm equivalent silver cutoff. A mineral reserves estimate was not prepared. Mineral Resources are not Mineral Reserves and do not demonstrate economic viability. There is no certainty that all or any part of the Mineral Resource will be converted to Mineral Reserves.

Gustavson knows of no existing environmental, permitting, legal, socio-economic, marketing, political, or other factors that might materially affect the mineral resource estimate.

**Table 1-1 Estimated Resource at Selected Cutoff Grades**

San Felipe								
Measured								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	745	1,663	4,969	69.41	207.40	0.09	1.86	3.10
<b>75</b>	<b>392</b>	<b>1,147</b>	<b>3,212</b>	<b>90.90</b>	<b>254.63</b>	<b>0.11</b>	<b>2.18</b>	<b>3.70</b>
100	254	855	2,264	104.73	277.38	0.11	2.32	3.90
150	123	441	1,263	111.58	319.69	0.08	2.91	4.76
Indicated								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	276	495	1,642	55.73	184.98	0.09	1.72	2.93
<b>75</b>	<b>128</b>	<b>295</b>	<b>915</b>	<b>71.43</b>	<b>221.91</b>	<b>0.10</b>	<b>1.98</b>	<b>3.44</b>
100	67	185	559	85.68	259.29	0.10	2.36	3.94
150	22	58	262	84.13	378.48	0.11	4.69	6.18
Measured + Indicated								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	1,021	2,158	6,612	65.71	201.34	0.09	1.82	3.05
<b>75</b>	<b>521</b>	<b>1,441</b>	<b>4,127</b>	<b>86.10</b>	<b>246.57</b>	<b>0.11</b>	<b>2.13</b>	<b>3.64</b>
100	321	1,040	2,823	100.75	273.60	0.11	2.32	3.91
150	144	499	1,525	107.48	328.47	0.09	3.18	4.97
Inferred								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	619	685	3,460	34.40	173.81	0.08	2.05	3.01
<b>75</b>	<b>196</b>	<b>261</b>	<b>1,396</b>	<b>41.30</b>	<b>221.39</b>	<b>0.10</b>	<b>2.72</b>	<b>3.83</b>
100	31	68	362	67.06	358.09	0.13	4.84	5.82
150	16	37	249	74.59	497.93	0.17	7.48	8.07

La Ventana								
Measured								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	3,332	6,476	30,774	60.45	287.23	0.29	2.88	4.78
<b>75</b>	2,584	5,610	26,267	<b>67.53</b>	<b>316.21</b>	<b>0.32</b>	<b>3.08</b>	<b>5.29</b>
100	2,060	4,942	22,717	74.63	343.03	0.35	3.25	5.77
150	1,361	3,914	17,229	89.47	393.87	0.41	3.53	6.68
Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	1,149	1,794	9,088	48.57	246.02	0.23	2.63	4.11
<b>75</b>	728	1,317	6,603	<b>56.28</b>	<b>282.08</b>	<b>0.27</b>	<b>2.91</b>	<b>4.78</b>
100	506	1,047	5,120	64.38	314.75	0.31	3.10	5.40
150	298	762	3,506	79.58	365.93	0.36	3.38	6.30
Measured + Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	4,481	8,271	39,862	57.40	276.66	0.27	2.81	4.61
<b>75</b>	3,312	6,927	32,871	<b>65.06</b>	<b>308.71</b>	<b>0.31</b>	<b>3.04</b>	<b>5.18</b>
100	2,566	5,989	27,837	72.60	337.45	0.34	3.22	5.70
150	1,659	4,676	20,735	87.69	388.85	0.40	3.50	6.61
Inferred								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	2,260	2,890	15,004	39.78	206.49	0.18	2.37	3.35
<b>75</b>	1,277	1,814	9,752	<b>44.17</b>	<b>237.44</b>	<b>0.22</b>	<b>2.71</b>	<b>3.90</b>
100	708	1,175	6,278	51.59	275.75	0.26	2.98	4.67
150	299	601	3,252	62.61	338.73	0.34	3.46	5.89

Las Lamas								
Measured								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	236	779	1,974	102.57	259.83	0.16	0.34	5.19
<b>75</b>	157	556	1,408	<b>110.30</b>	<b>279.06</b>	<b>0.18</b>	<b>0.35</b>	<b>5.57</b>
100	106	396	989	115.76	288.90	0.18	0.36	5.70
150	41	164	421	125.33	321.33	0.20	0.37	6.52
Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	120	374	949	96.53	245.21	0.14	0.34	4.91
<b>75</b>	80	264	669	<b>102.99</b>	<b>261.46</b>	<b>0.15</b>	<b>0.35</b>	<b>5.25</b>
100	48	176	436	113.48	280.92	0.16	0.36	5.56
150	9	39	100	132.46	340.76	0.18	0.37	7.08
Measured + Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	357	1,153	2,923	100.53	254.90	0.16	0.34	5.09
<b>75</b>	237	820	2,077	<b>107.84</b>	<b>273.14</b>	<b>0.17</b>	<b>0.35</b>	<b>5.46</b>
100	155	573	1,425	115.05	286.41	0.18	0.36	5.66
150	50	203	522	126.64	324.89	0.20	0.37	6.62
Inferred								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	205	565	1,449	85.68	219.55	0.12	0.38	4.39
<b>75</b>	21	74	199	<b>107.98</b>	<b>289.85</b>	<b>0.16</b>	<b>0.35</b>	<b>6.14</b>
100	10	39	101	119.32	310.83	0.17	0.34	6.50
150	3	12	32	129.87	342.18	0.19	0.35	7.23

All Veins Total								
Measured								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	4,314	8,919	37,718	64.30	271.94	0.25	2.56	4.51
<b>75</b>	3,133	7,313	30,887	<b>72.60</b>	<b>306.64</b>	<b>0.29</b>	<b>2.83</b>	<b>5.11</b>
100	2,420	6,193	25,970	79.59	333.76	0.32	3.02	5.58
150	1,524	4,519	18,913	92.21	385.95	0.38	3.40	6.52
Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	1,546	2,663	11,679	53.58	235.05	0.20	2.29	3.96
<b>75</b>	936	1,876	8,188	<b>62.33</b>	<b>272.09</b>	<b>0.24</b>	<b>2.56</b>	<b>4.63</b>
100	621	1,408	6,116	70.50	306.13	0.27	2.81	5.26
150	329	860	3,869	81.35	366.05	0.34	3.38	6.32
Measured + Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	5,860	11,582	49,397	61.48	262.21	0.23	2.49	4.37
<b>75</b>	4,069	9,188	39,074	<b>70.24</b>	<b>298.69</b>	<b>0.28</b>	<b>2.77</b>	<b>5.00</b>
100	3,042	7,601	32,086	77.73	328.12	0.31	2.98	5.51
150	1,853	5,378	22,782	90.28	382.42	0.37	3.39	6.49
Inferred								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	3,084	4,140	19,913	41.75	200.80	0.16	2.17	3.35
<b>75</b>	1,495	2,149	11,347	<b>44.70</b>	<b>236.08</b>	<b>0.20</b>	<b>2.68</b>	<b>3.92</b>
100	750	1,281	6,742	53.16	279.68	0.25	3.02	4.74
150	317	651	3,533	63.82	346.58	0.33	3.63	6.01

\*Ag Eq is the silver equivalent used to calculate the cutoff. The silver equivalent was calculated with the following equation:

$$\text{AgEq} = \frac{(\text{Ag} * \text{P}_{\text{ag}} / 31.1035) + (\text{Pb} * \text{P}_{\text{pb}} * 22.05) + (\text{Cu} * \text{P}_{\text{cu}} * 22.05) + (\text{Zn} * \text{P}_{\text{zn}} * 22.05) + (\text{Au} * \text{P}_{\text{au}} / 31.1035)}{(\text{P}_{\text{ag}})}$$

Where:

Metal	Symbol	Grade Units	Price	Price Symbol
Silver Eq	AgEq	g/t		
Silver	Ag	g/t	26.28 \$/tOz	$\text{P}_{\text{ag}}$
Copper	Cu	%	3.491 \$/lb	$\text{P}_{\text{pb}}$
Lead	Pb	%	0.9988 \$/lb	$\text{P}_{\text{cu}}$
Zinc	Zn	%	0.9531 \$/lb	$\text{P}_{\text{zn}}$

\* The calculation assumes equal recoveries in all metals pending further metallurgical work.

- The grades for copper, lead, and zinc are multiplied by each metal's 3 year trailing average price.
- The quantity and grade or quality is an estimate and is rounded to reflect the fact that it is an approximation.

## 1.6 Risks

Sonora is considered a mining state and the local economy has been traditionally based on agriculture and mining. Local social issues are not expected as the Company has an agreement in place with the local Ejido for the surface rights. In addition to this, the Ejido is friendly and looking forward to have the opportunity to be employed once the Company starts operations. Santacruz has acquired from Hochschild the right for water well for its mill and mine operations with enough capacity for Santacruz planned operations.

Resource estimates are based on historical data, and no evidence has been seen of misrepresentation of altering the data to improve the results. A combination of infill drilling and twin holes as well as some underground sampling will identify if this is a significant risk.

Additional drilling will be needed to confirm the local continuity of grade within the mineralized structures.

The metallurgical risks are due to the limited number of samples tested. Recoveries are higher (nearly 10% for both lead and zinc), and work indexes are lower for Composite 2 than for Composite 1. This could be indicative of variable mineral characteristics and that the composites tested are not representative of the entire mineral deposit.

## 1.7 Conclusions and Recommendations

Gustavson is of the opinion that the San Felipe project is viable for further studies leading toward development. The resources are well drilled, and nearly 80% of the mineral resource is currently classified as measured or indicated. Gustavson recommends that Santacruz advance the project to a pre-feasibility level.

There is also potential to increase the resources in the estimated zones as well as in additional zones in the area such as Artemisa, Cornocopia Santa Rosa and Transversales, and the Los Locos area.

The highest risk to be dealt with is the metallurgical risk of only having 2 test samples with differing results. Metallurgical testing and validation of the process flow circuit is essential to the project's feasibility. Permitting timelines are always variable, and this process should be advanced as soon as possible to avoid future delays.

The project also has the potential to increase the mineral resources, and this potential should be better defined during these studies.

The 2012/2013 program would consist of:

**Table 1-2 Proposed Next Steps**

<b>Task</b>	<b>Concept</b>	<b>Amount</b>
Continue surface and underground mapping	24 man months	\$200,000
Additional Drilling in the mineralized zones	5000m	\$150,000
Metallurgical Sampling and Testing		\$120,000
Development of ramps for bulk samples and underground drilling. Las Lamas and San Felipe	800m	\$1,600,000
Drilling in other known zones in the area	6000m	\$180,000
Pre-Feasibility Study		\$350,000
Permitting		\$100,000
<b>Total</b>		<b>\$2,700,000</b>



## **2. INTRODUCTION**

### **2.1 Terms of Reference and Purpose of the Report**

Gustavson Associates, LLC (Gustavson) was commissioned by Santacruz Silver Mining Ltd. (Santacruz) to prepare an independent Technical Report on Resources for the San Felipe Project in northern Sonora, Mexico. The purpose of this report is to present the mineral resource estimate and describe the geology of the San Felipe property with respect to zinc, silver, lead, and copper mineralization, and to document the results of an independent review of existing geologic data and observations recorded during field reconnaissance.

This report was prepared in accordance with National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and Canadian Institute of Mining, Metallurgy and Petroleum (CIM) “Best Practices and Reporting Guidelines”, November 27, 2010. The effective date of this report is April 5, 2012.

Form 43-101F1 Items 15 through 22 (Mineral Reserve Estimates, Mining Methods, Recovery Methods, Project Infrastructure, Market Studies and Contracts, Environmental Studies, Permitting and Social or Community Impact, Capital and Operating Costs, and Economic Analysis, respectively) are not required for a Technical Report on Resources and are not included in this report.

This report describes the geology and mineral resources of the San Felipe Project with respect to silver (Ag), zinc (Zn), lead (Pb) and copper (Cu) mineralization and occurrence.

### **2.2 Qualified Persons**

Mr. Donald Hulse, P.E., V.P. and Principal Mining Engineer for Gustavson, is a Qualified Person as defined by NI 43-101. Mr. Hulse acted as project manager during preparation of this report and is specifically responsible for report Sections 1 through 6, 9 through 11, 13 and 15 through 19.

Mr. Zachary J. Black, EIT, SME-RM, Geological Engineer for Gustavson is a Qualified Person as defined by NI 43-101. Mr. Black acted as geologist during preparation of this report is specifically responsible for report Sections 7, 8, 12 and 14.

### **2.3 Site Visit of Qualified Person**

Mr. Hulse visited the San Felipe Project site on December 8, 2011, accompanied by Dante Rodriguez Montes, Santacruz Exploration Manager, and Miguel Angel Torres Herrera, Site Geologist. While on site, Mr. Hulse verified drill collar locations, inspected underground workings, took structural measurements of altered and mineralized outcrops, examined core, correlated laboratory assay sheets and Santacruz digital database entries with altered and mineralized sections of core, discussed Santacruz’s quality assurance, quality control (QA/QC)

procedures, and reviewed hard copy project documents. Mr. Hulse also conducted general field reconnaissance in order to evaluate existing geologic descriptions and interpretations.

## **2.4 Sources of Information**

The information, opinions, conclusions and estimates presented in this report are based on the following:

- Information and technical data provided by Santacruz;
- Review and assessment of previous investigations;
- Assumptions, conditions, and qualifications as set forth in the report; and
- Review and assessment of data, reports, and conclusions from other consulting organizations and previous property owners.

These sources of information are presented throughout this report and in Section 19 – References. The qualified persons are unaware of any material technical data other than that presented by Santacruz.

## **2.5 Units of Measure**

Units in this report are metric, and tonnage is reported as dry, metric tons (tonnes). Precious metal content is reported in grams of metal per tonne (gpt or g/t) or parts per million (ppm), and reference to base metal content is reported in percent (%). Monetary considerations are reported in US dollars unless otherwise stated.

### **3. RELIANCE ON OTHER EXPERTS**

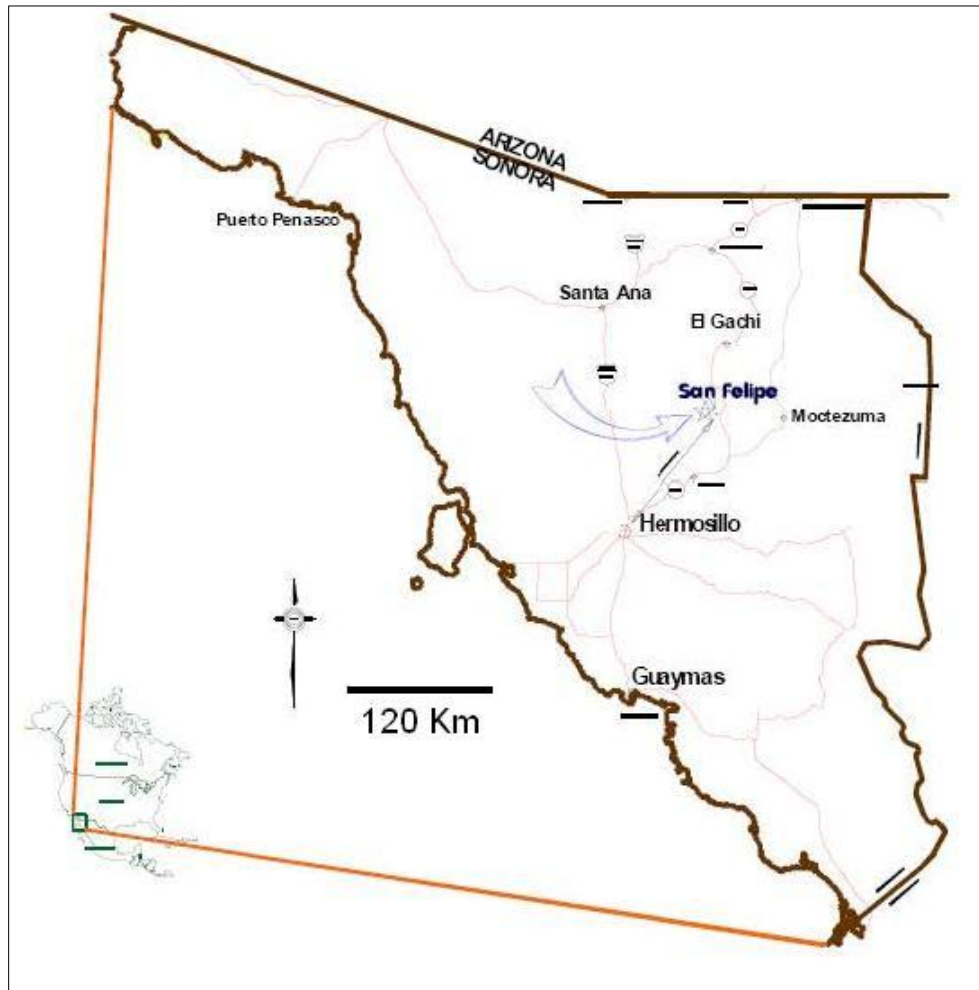
Information was obtained during discussions with Santacruz personnel familiar with the property, including Mr. Arturo Prestamo, President; Mr. Francisco Ramos, Chief Operating Officer; Mr. Dante Rodriguez Montes, Exploration Manager; and Mr. Miguel Torres Herrera, Geologist.

For information regarding property ownership and mineral concessions (Sections 1.2 and 4.2), Gustavson relied on Exploration Contracts (Contrato de Exploracion Minera y de Promesa de Venta) dated August 3 and December 9, 2011, provided by Santacruz. These data were verified by Gustavson by obtaining the cited mineral concession titles from the Mexican government's *Sistema Integral de Administración Minera* (SIAM), queried in July 2012, as described in Section 4.

## 4. PROPERTY DESCRIPTION AND LOCATION

### 4.1 Location

The San Felipe Project is located approximately 6 kilometers west of the small community of San Felipe de Jesus in northern Mexican state of Sonora, Mexico (Figure 4-1). The project area is located in the Sonora River Valley. The geographic center of the project area is at approximately N 29° 52' 52", W 110° 17' 46" based on World Geodetic System of 1984 datum.



Source: MTB, (2009)

Figure 4-1 San Felipe Project Location

### 4.2 Mineral Tenure and Agreements

#### 4.2.1 Mineral Rights

Information on mineral rights as presented in this section was taken from Mexican federal government SIAM database, queried on July 13 and 14, 2012 (SIAM, 2012).

The San Felipe project consists of 15 concessions in two communities, San Felipe de Jesus and Huepac, in the municipality of Hermosillo, Sonora. These 15 concessions are listed in Table 4-1. According to SIAM (2012), these 15 concessions are held by one or a combination of the following parties: Liximin; Minera Hochschild Mexico, SA; Mauricio Hochschild, SA de CV; CIA Minera Serrana, SA; Compañía Minera Serrana, SA de CV; and Ignacio Z Molina. For simplicity, the term “Hochschild” will be used to describe Minera Hochschild Mexico, SA and Mauricio Hochschild, SA de CV; and the term “Serrana” will be used to describe CIA Minera Serrana, SA and Compañía Minera Serrana, SA de CV.

Santacruz acquired exploration rights with right to purchase (Contrato de Exploracion con Promesa de Venta) from Hochschild. Santacruz’s rights expire on April 1, 2013.

**Table 4-1 Summary of Concessions Held by Santacruz (SIAM, 2012)**

<b>Name</b>	<b>Surface Area (hectares)</b>	<b>Title Number</b>	<b>Expiration Date of Concession</b>
<b>Type of Concession: Concession</b>			
Ampliacion Las Lamas	131.7133	214443	Sept 6, 2012
Artemisa	10	173717	Apr 10, 2035
Cerro de Plomo	9	173718	Apr 10, 2035
Cornucopia	37	173714	Apr 10, 2035
Dolores	12	125315	Feb 25, 2081
La Ventana	20	173715	Apr 10, 2035
Las Lamas	5	173713	Apr 10, 2035
San Felipe	18	173716	Apr 10, 2035
Santa Teresa	7.6016	224333	Apr 25, 2055
<b>Type of Concession: Exploration</b>			
San Felipe 2 Fraccion 1	14,256.0509	228603	Dec 11, 2056
San Felipe 2 Fraccion 2	1.2039	228604	Dec 11, 2056
San Felipe 3	39.832	230094	Jul 17, 2057
Santa Elena	500	229986	Jul 3, 2057
El Cuervo	100	230189	Jul 26, 2057
<b>Total</b>	<b>16,364.6864</b>		

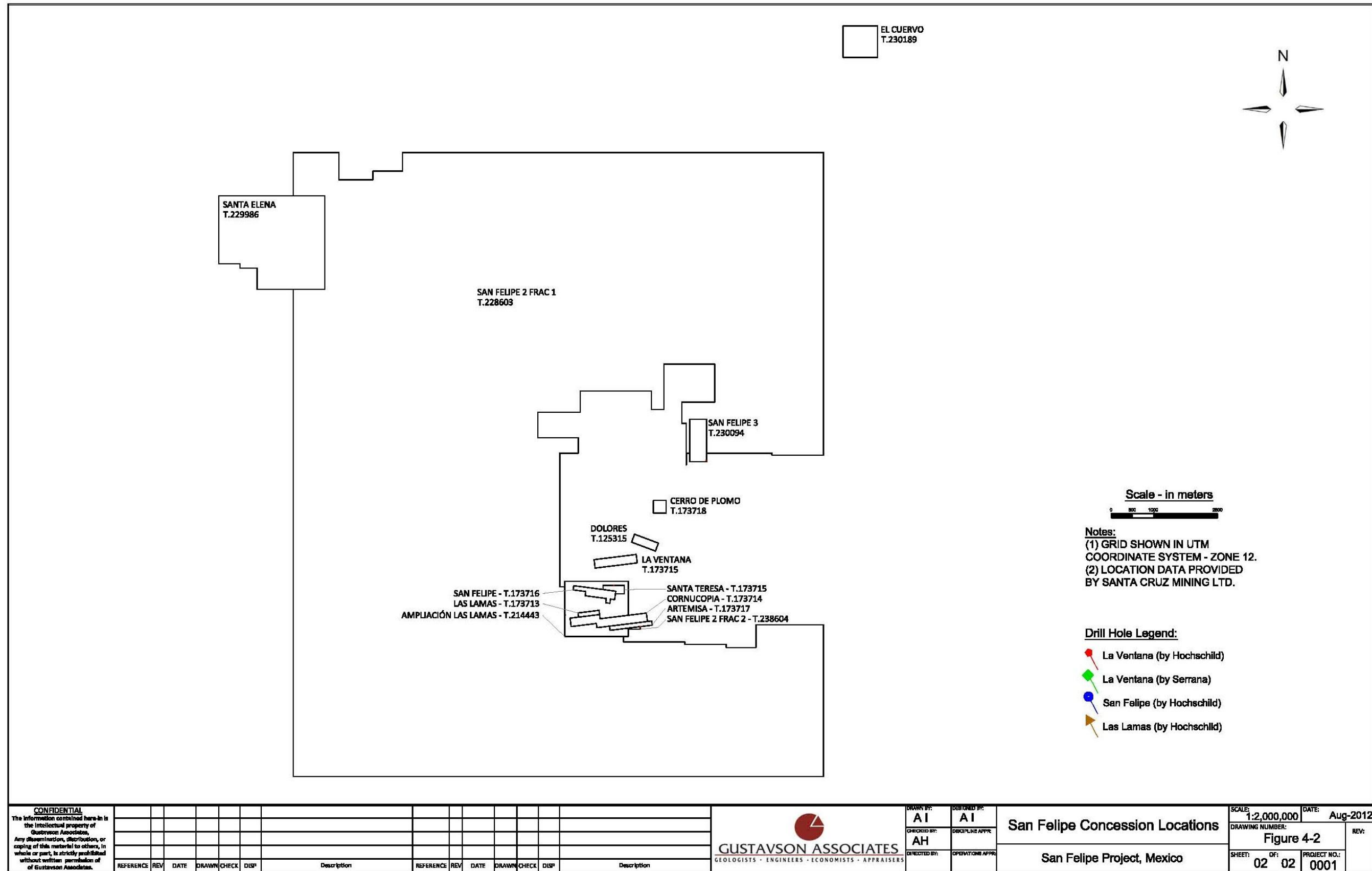


Figure 4-2 San Felipe Concession Locations

According to a letter agreement between Santacruz and Hochschild dated August 3, 2011 (Hochschild, 2011a) and a later modification signed on December 11, 2011 (Hochschild, 2011b), Santacruz acquired exploration rights with right to purchase the concessions listed in Table 4-1. As part of this agreement, Santacruz is obliged to invest US\$ 3 million in exploration on or before April 1, 2013. If Santacruz terminates the agreement the amount left to invest up to \$3 million will be owed to Hochschild. The exploration rights, and the concessions if they are purchased, are acquired by Santacruz “as is where is” understanding that any duty, demand or complaint derived from activity in the concessions from the signature of this agreement on are the responsibility of Santacruz. As part of this agreement, it will be Santacruz’s responsibility to:

- Prepare and submit an annual report of mining operations and construction.
- Pay the semester fee for the mining rights.
- Keep and update permits required for the activities in the concessions.

As of December 2011, Santacruz had paid Hochschild US\$ 2 million dollars for exploration rights. If Santacruz intends to purchase the concessions, Santacruz must notify Hochschild by April 1, 2013. The purchase price for the 15 concessions of the San Felipe project is US\$ 38 million.

The Agreement also includes the purchase of five additional concessions outside the San Felipe project (including El Gachi (Title No. 182543), Tercera Ampliacion al Gachi (Title No. 228333), Gachi 2 Fracc. 1 (Title No. 235256), Gachi 2 Fracc. 2 (Title No. 235257), and Gachi 2 Fracc. 3 (Title No. 235258). Total purchase price of the 15 concessions within the San Felipe project plus the five additional concessions is US\$ 43 million, plus a 1% net smelter return royalty on production from the San Felipe Project.

If Santacruz decides to terminate this agreement, the planned payments will be cancelled from the moment in which Hochschild receives notification of the agreement termination.

#### **4.2.2 Other Agreements**

Pursuant to a separate agreement signed in August 3, 2011 between Hochschild and Santacruz, Hochschild transferred to Santacruz the temporary occupation agreement with the community of San Felipe de Jesus to provide access to the concessions. Santacruz is required to pay 520,000 pesos to the community on September 2012 for this temporary occupation agreement. The water concessions 1SON104134/09AMGF97 and 1SON104139/09APGR97 for a volume of 215,000 annual cubic meters each (total of 430,000 cubic meters) are transferred to Santacruz.

The farmland “Los Potreros” consisting of 28.42 hectares (with the corresponding constructions and water well) and the house at Avenida Libertad N2 in San Felipe de Jesus are transferred from Hochschild to Santacruz.

### **4.3 Environmental Liabilities and Permitting**

#### **4.3.1 Environmental Liabilities**

On behalf of Hochschild, VC&S Legal completed an environmental assessment of the San Felipe project culminating in a report dated May 2008 (VC&S, 2008). A summary of environmental impacts identified in Vera Morales (2008) is summarized here.

At the El Molino mining plant, the following observations were made:

- Stained soils were identified – VC&S recommended removal of stained soil.
- VC&S recommended establishing an inventory of petroleum products and a location for waste storage.
- VC&S recommended stabilizing slopes and reducing potential for erosion with installation of rip rap on steep slopes and perimeter collection systems to mitigate impacts from potential landslides. The mining tailings should be further evaluated. In situ sampling of soil, water, and air should be done.
- Removal of metallic wastes from soil is recommended.

At the El Lavadero mining plant, the following observations were made:

- Sampling of tailings ponds is recommended, and methods to mitigate slope erosion are recommended.
- Use best management practices on platforms and terraces to reduce potential for slope erosion
- Stained soils were identified – VC&S recommended removal of stained soil.
- On-site sampling of soil and water are recommended.

Slopes near the San Felipe and Artemisa mine structures should be stabilized. No soil contamination is observed in the working areas.

At Las Lamas structure there are industrial residues in the entry to the mine. A residue collection program should take place. No soil contamination is observed in the area.

The impacts identified by VC&S do not require action from Santacruz.

#### **4.3.2 Permitting**

A list of applicable permits for mining operations is summarized below in Table 4-2. All permits are applicable for the current exploration and no significant difficulties are expected in expanding these permits for a mining operation.



**Table 4-2 Key Permits**

Permit	Mining stage	Agency	Status
Environmental Impact Statement (MIA) <sup>1</sup>	Construction/ operation/ abandonment	Secretary of Environment and natural Resources (SEMARNAT)-State offices	In Place
Land use change study <sup>1</sup> (CUS)	Construction/ operation	SEMARNAT-General Department of Permitting for Forestry and Soils (DGGFS)- State offices	In Place
Land use license <sup>1</sup>	Construction	San Felipe de Jesus municipality	In Place
Explosive handling and storage permits	Construction/ Operation	National Secretary of Defense (SEDENA). Need approval from state and municipal authorities)	Require update as to the volume of explosives to be used
Archaeological release letter <sup>1</sup>	Construction	Nation Institute of Archaeology and History (INAH)	In Place
Water use concession title	Construction/ Operation/ Prior to utilization of water	National Commission of Water (CAN)-State offices	In Place
Water discharge permit	Operation	CAN- (State offices)	In Place
Construction Permit	Construction	Municipality of San Felipe	In Place

In the acquisition Santacruz gained the rights to two existing groundwater concessions totaling 300,000m<sup>3</sup>/year. Is a plant water balance has not been calculated, it is not currently known if this is sufficient.

#### **4.4 Significant Factors and Risk**

The following are potential, significant factors and risks

- The resource is estimated on historical drilling. The data available has been reviewed and there is no evidence of misrepresentation, however additional drill sampling and underground sampling will mitigate this risk.
- Definition of project water requirements
- Delineation of geologic constraints to continue upgrading indicated and inferred resource
- Unknown permitting issues
- Only two metallurgical composites have been tested and the recoveries and process flow sheets are not yet defined. This will be addressed during the next phase of work

Sonora is considered a mining state and the local economy has been traditionally based on agriculture and mining. No local social issues are anticipated. Water needs have not been defined.

## **5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

### **5.1 Accessibility**

The San Felipe Project is located approximately 6 kilometers (km) northwest of the village of San Felipe de Jesús with a population of approximately 400. San Felipe de Jesús is predominantly a farming and ranching community.

San Felipe de Jesus is located approximately 150 km northeast of the municipality of Hermosillo, or approximately 2 hours by car. The route from Hermosillo to San Felipe de Jesus consists of travel along Carretera Federal 15 for 10 km, then Carretera Federal 14 for approximately 115 kilometers, then along a the Mazocahui-Cananea road of 25 km. Hermosillo is the capital of Sonora and has a population of 700,000 residents. An international airport with regularly scheduled flights throughout North America is located in Hermosillo.

### **5.2 Topography, Elevation, Vegetation, and Climate**

The San Felipe Project is located in semi-arid terrain typical of the Sonoran Desert. Regional topography is rugged and dominated by the steeply sloping foothills of the northern slope of the Sierra de Aconchi, a large mountain range which rises to elevations of 1900 meters above sea level.

The elevation within the San Felipe Project area ranges from 650 to 1,000 meters above sea level. The climate is classified as temperate sub-humid and is typically dry except during the short summer rainy season (i.e., May through July), with annual precipitation of approximately 470 mm. Drainage from the project flows to Rio Lavadero, which runs in an easterly direction across the southern end of the San Felipe Project area property and drains to the Sonora River. Average annual temperature is approximately 21°C. Mining activities may be carried out year-round on the San Felipe property.

Vegetation in the area consists of Mezquital and subtropical shrubs at lower elevations and oak and pine forest at higher elevations.

### **5.3 Local Resources and Infrastructure**

No services are available in San Felipe de Jesus. National grid power is available at 2.5 kilometers from the property, just on the main highway. Water sources are currently being investigated.

The existing Mazocahui-Cananea road from Mazocahui to the turnoff for San Felipe de Jesus will require minor improvements in order to allow the passage of large equipment and vehicles.

The city of Hermosillo is the nearest source of skilled workers, specialized services, and products, and has the industrial infrastructure to supply an active regional mining industry.

## **6. HISTORY**

### **6.1 Ownership History**

Ownership history as described in this section is taken from SIAM (2012).

As stated in Section 4.2, the San Felipe project consists of 15 concessions. Of these, the Dolores concession was registered most historically in 1956. From 1956 to 1974, the Dolores Concession was held by private individuals (Ignacio Z. Molina and J. Pedro Trujillo); Industrias Peñoles, S.A. de C.V., and Compañía Minera San Felipe, S.A. de C.V.

In 1974, Serrana bought the Dolores Concessions, and then in 1985, registered six additional concessions (the Artemisa, Cerro de Plomo, Cornucopia, La Ventana, Las Lamas, and San Felipe Concessions). In 1997, Liximin, S.A. de C.V. (Liximin) entered into a contract for exploration and mining (*Contrato de Exploracion y en Su Caso Explotacion*) with Serrana for four concessions (the Artemisa, Dolores, La Ventana, and Las Lamas Concessions). In 2001, Liximin registered the Ampliacion Las Lamas Concession.

Between 2005 and 2007, Serrana registered five additional concessions (Santa Teresa, San Felipe 2 Fracc. I, San Felipe 2 Fracc. II, San Felipe 3, and Santa Elena).

In 2006, Hochschild entered into a contract to explore eight concessions (the Ampliacion Las Lamas, Artemisa, Cerro de Plomo, Dolores, La Ventana, Las Lamas, San Felipe, and Santa Teresa Concessions). In 2008, Hochschild wholly or partially purchased the 15 concessions that comprise of the San Felipe project. The 15 concessions are owned by Hochschild.

In August 2011, Santacruz entered into a contract with Hochschild to explore with the option to purchase (*Contrato de Exploracion con Promesa de Venta*) the 15 concessions of the San Felipe project.

### **6.2 Exploration History**

Historical exploration activities at the San Felipe project were taken from Hochschild (2008a) and M3 (2008), and summarized in this section.

From 1997 through 2000, based on information from Appendix H of M3 (2008), Serrana and Liximin, in an agreement with Boliden of Sweden conducted geophysical surveys. Summary of this exploration work is provided below for completeness. Gustavson did not use the geophysics, stream, or soil samples as part of this resource estimate. A map showing the locations of the exploration described below was not available at the time of this report.

- In 1997, David A. Smith completed a very low frequency (VLF) electromagnetic survey of the Artemisa (five transects), Las Lamas (one transect), and Santa Rosa (three transects) mineral structures. A conductive anomaly corresponding to mineralized

structure was identified at Artemisa. No conductive anomalies were identified at Las Lamas and Santa Rosa. An airborne VLF electromagnetic survey was conducted over a three square kilometer area – no results were available.

- In 1998, Lloyd Geophysics, Inc. completed a ground magnetometer (MAG) and induced polarization (IP) survey over the Santa Rosa, La Ventana, San Felipe, Las Lamas, and Artemisa mineral structures.
  - At the Santa Rosa mineral structure, small geophysical anomalies were identified.
  - At the La Ventana mineral structure, two areas of strong anomalous chargeability were identified, and magnetic response was weak.
  - At the San Felipe and Las Lamas mineral structures, high chargeability was identified in the northeast corner of the portion of the structure, at the extent of the quartz feldspar porphyry body. No significant magnetic responses were identified.
  - At the Artemisa mineral structure, no significant chargeability or magnetic response was identified.
- In 1998, 52 stream sediment samples were collected from various locations in the immediate vicinity of the San Felipe project. Samples were analyzed for gold, silver, copper, lead, and zinc. Metals concentrations varied within the stream sediment samples. No map showing sampling locations was provided in M3 (2008).
- In 1998 and 1999, a total of 763 soil samples were taken from areas overlying the Santa Rosa, La Ventana, San Felipe, Las Lamas, and Artemisa mineral structures. Samples were analyzed by Chemex Laboratories in North Vancouver, British Columbia for gold by Fire Assay, and for 24 other metals by the ICP-AES method. As stated in Appendix H of M3 (2008), “soil sample data appears to show...large-scale northeast-southwest patterns which are suggestive of metal zoning.”

In 2006, Serrana and Hochschild completed reconnaissance geologic mapping of 360 Ha at a scale of 1:5000, and additional mapping of 80 Ha at a scale of 1:1,000. In 2007, Hochschild added 1,330 additional Ha to the reconnaissance mapping at 1:5000 and 13 Ha to the mapping at 1:1000. Historically produced geologic maps were provided to Gustavson. As part of the resource estimate, Gustavson utilized the maps for general references but did not rely solely on information in the geologic maps.

According to Hochschild (2008a), a mineralogy study was done by L. Meinert. L. Meinert reported that the San Felipe system is a distal skarn with strong lithologic and structural controls that are temporally and spatially associated with intermediate intrusives emplaced in the Late Cretaceous. Information presented in Hochschild (2008a) is questionable as this document is in draft form. Hochschild (2008a) was not substantiated by Gustavson and is presented for historical completeness only. Gustavson did not obtain nor review results of Meinert’s study.

A structural study by Erik Nelson of the Colorado School of Mines was completed on behalf of Hochschild. Mr. Nelson conducted a two-day site visit on June 20 and 21, 2007 and during this time, he inspected lithology at the Artemisa<sup>1</sup>, Cornucopia, La Ventana, Las Lamas, and San Felipe areas. Based on his field observations, Mr. Nelson concluded, “The San Felipe district exposes steeply dipping, E-W [east to west] striking replacement veins (Ag-Zn-Pb) in a conjugate *en echelon* array.”

### **6.3 Historical Resource Estimates**

Hochschild evaluated the mineral resources in 2008, and presented the preliminary conclusions in a draft, internal report (2008b). However, a finalized report has not been provided to Gustavson at the time of this Technical Report and the results are not considered to be a reliable resource estimation, and therefore are not included in this report.

### **6.4 Historical Mine Production**

According to Hochschild (2008a), the San Felipe property was reportedly mined from 1920 to 1944 by Artemisia mining and Pachuca mining. The fall of metal prices in 1944 led to the stop of activity. No records showing mine productions were identified by Gustavson. Hochschild (2008a) is presented in draft format, and historical operations by Artemesia and Pachuca were not substantiated by other reports, and further, neither Artemesia nor Pachuca was identified in the historical records from SIAM (2012). According to Hochschild (2008a), from 1963 to 1968, Compañía Minera San Felipe extracted 100,000 tonnes of mineral. Information from Hochschild (2008a) may be questionable as this report was provided to Gustavson in draft form. These historical mine production records are provided here for historical completeness.

According to M3 (2008), from 1974 to 1991, Serrana mined and milled a combined 210,000 tons from the San Felipe Project plus two properties outside of the San Felipe property (El Gachi and Moctezuma) with combined ore grades of 9.0% Zn, 5.5% Pb, 0.05% Cu, and 298 g/t Ag. Mining activities were shut down in 1991. No further production has occurred on the property since.

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<sup>1</sup> Nelson (2007) describes observations at “Artesima” which is interpreted to be the Artemisa Concession.

## **7. GEOLOGICAL SETTING AND MINERALIZATION**

### **7.1 Regional Geology**

Information presented in this section is adapted from Appendix H of M3 (2008). The San Felipe Project is located in the southern portion of the Cordilleran Basin and Range tectonic province, which comprises the southwestern United States and northern Mexico. This region has been affected by extensional tectonics since the end of the Laramide Orogeny. The project area is situated along the western margin of the Sonora River valley, a sedimentary basin filled with Tertiary clastic sediments. Adjacent mountain ranges are composed of early Tertiary volcanic and intrusive rocks.

The oldest rocks in the State of Sonora are Early to Middle Proterozoic rocks of strongly metamorphosed sedimentary units intruded by the tertiary volcanics (Anderson et al, 1978). Late Proterozoic sedimentary rocks unconformably overlie the older metamorphic rocks and are conformable with overlying Paleozoic strata (Arellano, 1956). The Proterozoic rocks tend to occur in the northwestern part of Sonora, though several small areas of Proterozoic rocks reportedly occur on the western flank of the Aconchi Batholith southwest of San Felipe and north of Ures.

Regional Paleozoic rocks represent a transgressive sequence of carbonate and clastic sediments associated with the Cordilleran Geosyncline. These units, which occur primarily in the central and northern regions of the state, define distinctive carbonate-dominated plateau formal facies and clastic dominated basin facies.

Three distinct periods of deposition separated by periods of uplift and erosion are recorded in the Mesozoic lithology of northern Mexico. The first period of deposition occurred during the late Triassic and early Jurassic, and is represented by mainly clastic sedimentary rocks and minor carbonates. The second period of deposition occurred during the late Jurassic and early Cretaceous, and deposits from this period are a mixture of conglomerates, sandstones, limestones, and volcanic tuffs and flows. The third period of deposition took place during the late Cretaceous and is characterized by marine sediments with a minor volcanic component near its end. Granitic intrusions associated with the Laramide Orogeny were emplaced throughout the state of Sonora during this period.

The regional geology is dominated by the Cretaceous-Tertiary Aconchi Batholith, which occurs just to the south of the San Felipe project. Numerous porphyritic intrusions, primarily porphyritic granite and leucocratic quartz-rich feldspar porphyry, have extensively intruded the volcanic rocks. The porphyries are presumed to be the late phases of the Aconchi Batholith.



## 7.2 **Local and Property Geology**

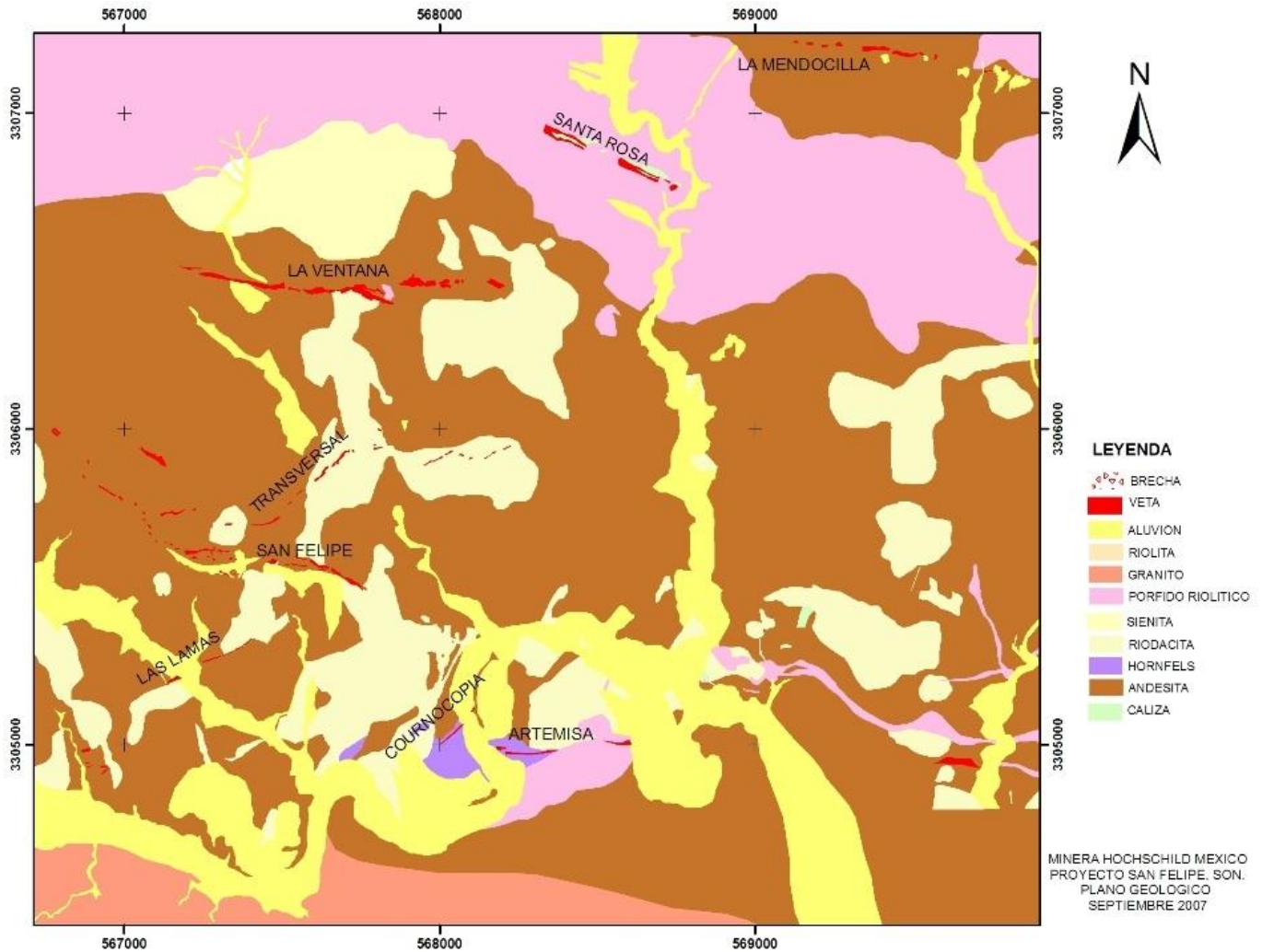
A structurally complex mixture of Paleozoic mafic volcanic rocks, associated sediments, and Cretaceous felsic volcanics are exposed at the San Felipe Project. The package of volcanics and associated sediments has been folded, faulted, and tilted on end to produce a regional east-west strike. The regional strike is inferred from lithologic trends, as recognizable true bedding orientations are extremely rare in outcrop.

The San Felipe property contains a series of ridges oriented nearly east-west. The principal ridges are crowned with sharp outcrops formed by continuous, highly-resistant veins within the volcanic rocks. At depth these veins support the known metal-bearing deposits. Vein zones vary from less than 1 meter to several meters thick, and consist primarily of quartz with silver, lead, and zinc sulfide minerals. The veins occupy faults and fractures typically paralleling the east-west ridges they comprise. A photograph of the La Ventana vein outcrop is presented as Figure 7-1.



**Figure 7-1 La Ventana Outcrop**

The mineralized veins and dikes are hosted in the andesitic rocks of the lower volcanic group, which may also be altered and mineralized for up to several meters adjacent to the veins. Surface geology and major vein systems at San Felipe are shown below in Figure 7-2.



(Source: Internal Geological Map Generated by Hochschild)

Figure 7-2 Geologic Map

Faults have been mapped on the property trending north-south, northwest-southeast, and southwest-northeast. Veins cross-cut the faults, but do not appear to be offset by them.

### 7.3 Mineralization

Five mineralized structures are known to exist within the San Felipe Project area: the Santa Rosa, La Ventana, San Felipe, Artemisa-Cornucopia, and Las Lamas. In most cases, the mineralized structures are silicified and form resistant, high-relief ridges. Current exploration work on the site is continuing to identify and map other structures. The mineralized bodies are vein-like replacement zones formed by metasomatic and associated hydrothermal mineralization along favorable structures and/or reactive host rocks. Most of the mineralized structures in San Felipe are hosted in Late Cretaceous rhyodacite and andesite. The dominant gangue mineral is quartz and strong Fe- and Mn-oxide supergene alteration is apparent in some veins.



### **7.3.1 Santa Rosa**

The Santa Rosa mineralized structure represents a classic stratiform metamorphic mineralized system. A near -vertical calcareous shale unit striking approximately 120° extends approximately 500 m along the top of the ridge northwest from the Santa Rosa workings. The shale unit exhibits roof pendant morphology with respect to the underlying quartz feldspar porphyry. The mineralized structure is 16 m wide with a dip of 70° to 90°. Drill holes indicate that mineralization extends at least 30 m below historic workings. There is moderate sericitic alteration that intensifies close to the mineralized zone. The mineralization consists of an association of sphalerite with subordinate galena and chalcopyrite with quartz, calcite, and epidote gangue located between the rhyolitic porphyry and the calcareous sediment.

### **7.3.2 La Ventana**

The La Ventana structure is characterized by a prominent spire of dark red to black siliceous breccia, which strikes roughly east-west for about 3 km. The spire ranges from 5 m to 30 m thick and forms near-vertical cliffs up to 30 m high. The structure is sub-parallel to a contact between a series of mafic volcanics and fine sediments and the same large quartz feldspar porphyry that hosts the Santa Rosa mineralized structure. No calcareous sediments have been observed in the immediate area of the La Ventana structure. The mafic volcanic rocks observed in outcrop are feldspar-phyric and aphyric, massive, andesitic flows and tuffs. In general, La Ventana is highly brecciated with disseminated pyrite, galena, sphalerite and chalcopyrite. Lesser sections of massive mineralization are typically accompanied by calcosilicates such as garnets, rhodonite, and quartz.

### **7.3.3 San Felipe**

The San Felipe structure is similar to the La Ventana structure, though it is less prominent and slightly smaller. This deposit dips 70° to the southwest and ranges from 5 m to 30 m in width, with an average width of about 10 m. Historic workings extend for 170 m along the structure, and surface outcrops of oxidized ore that have not been exploited extend beyond the workings for more than 500 m.

Hornfelsed, mafic volcanic rocks and associated fine sediments lie in contact with an irregular quartz feldspar intrusion at San Felipe, similar to La Ventana. The porphyritic intrusions range from small, several meter-scale quartz-rich dike bodies to larger and more equigranular feldspar-rich bodies. A 300 m by 400 m occurrence of quartz feldspar porphyry is located along most of the north side of the highest relief portion of the San Felipe structure. Quartz feldspar porphyry also forms a prominent hill on the south side of the structure, and it is presumed that the two intrusive bodies are continuous with the mineralized structure cross-cutting the intrusion.

Several high-relief silica spires are located in the central portion of the San Felipe structure. These outcrops consist of massive silica and silica breccia with red and black Fe and

Mn oxide staining. The unsilicified volcanic rocks surrounding these outcrops are intensely altered and oxidized. A 10 to 20 m wide zone of gossanous, highly altered and oxidized mafic volcanic rocks with little to no silicification extends for several hundred meters to the west of the western extent of the San Felipe structure.

Mineralization at San Felipe consists mostly of primary disseminated or massive argentiferous galena, sphalerite, chalcopyrite, pyrite, and the secondary minerals malachite, azurite, chrysocolla and cerussite. According to the production data, at the levels previously mined of San Felipe, the assays for Pb were higher than the Zn (although this trend may change with depth).

#### **7.3.4 Las Lamas**

Las Lamas is a small, high-grade, silver, zinc-rich replacement body located on the south side of the arroyo south of San Felipe. The structure dips steeply to the south and strikes east-northeast. At ground surface, the structure can be traced for about 900 m. Mineralization remaining in the wall of the Las Lamas adit is massive black sphalerite with fine to very coarse disseminations of pyrite, and minor galena and chalcopyrite, similar to mineralization observed at Santa Rosa. The sulfide body sits at the contact between a quartz feldspar porphyry and silicified and epidote-altered sediments and volcanic rocks. The quartz feldspar porphyry lies along the northwest side of the Las Lamas structure, extending to the northeast for several hundred meters. At its northernmost extent, the porphyry forms a prominent hill that abuts the southwest end of the San Felipe structure.

#### **7.3.5 Artemisa-Cornucopia**

The Artemisa-Cornucopia structure is located at the contact between a 200-m thick quartz porphyry body to the south and a thin wedge of fine-grained sediments and volcanic rocks to the north. The structure strikes east-west and dips steeply to the south. To the north of the mineralized structure, the volcanic-sedimentary series lies in contact with felsic intrusive rocks that are well exposed along the Rio El Lavadero. Gossanous, rust-colored to dark green and black fine-grained sediments and massive volcanic rocks are exposed along ridges south of the quartz feldspar porphyry. Artemisa is a mineralized vein structure with intense silicification and with replacement of base metal sulphides.

## **8. DEPOSIT TYPES**

Abundant magmatism in the Hermosillo region led to the formation of several deposit types, including skarn and polymetallic vein type deposits (Peña Leal et al., 1999). A wide variety of deposit types and metal associations are grouped into the classification of a skarn, and include W, Sn, Mo, Cu, Fe, Pb-Zn, and Au mineralization. Skarns are typically the product of contact metamorphism and metasomatism associated with the magmatic intrusion of chemically-reactive rocks and associated, albeit comparatively minor, hydrothermal fluid circulation. In the Hermosillo area, skarn deposits include tungsten skarns, where scheelite is the mineral of interest, and polymetallic skarns where mineralization is represented by Zn, Pb, Ag, Cu and, in the particular case of the Fe-Cu skarns, occasionally Au.

Vein type deposits are widespread in the Hermosillo area and are frequently associated with skarn, brecciated structures, and stockwork zones. The veins and vein-like structures associated with skarn zones are polymetallic.

Several different styles of mineralization are represented at San Felipe: open-space filling along fractures and brecciated contacts, vein-like (in morphology) replacement where fluids were able to percolate along lithologic contacts, and massive replacement within more coherent rock bodies. Silicification affects mineralization by closing off fluid pathways and forming more resistant units, and other alteration types such as sericitization and the generation of calc-silicate minerals affect the chemical reaction paths responsible for mineralization.

At San Felipe, mineralization consists of Pb, Zn, and copper sulfide minerals including galena, sphalerite, and chalcopyrite. Pyrite is common, and the dominant gangue minerals include quartz, calcite with some rhodonite, bustamite, and garnet.

Both the mineralization mechanisms and metal associations resemble those of skarn deposits, though the San Felipe deposit may have a more significant vein component.

## **9. EXPLORATION**

### **9.1 Santacruz Exploration**

Santacruz conducted a detailed geophysical survey in January 2012 in order to follow up anomalous indications from the geochemical sampling and mapping, with encouraging results. Since February 2012, geologists have been mapping and collecting rock samples from underground at the Las Lamas, Artemisa-Cornucopia, Santa Rosa, La Ventana and San Felipe mineral structures, and from other previously developed underground areas of the San Felipe project. Ten kilometers of grid lines have been established where a systematic soil geochemical sampling program was completed, including in the Transversales area.

Santacruz is conducting an exploration program that will involve geologic mapping, and surface and underground geochemical sampling. This program will continue and will include diamond core drilling to more fully define the known mineralized structures and to delineate additional mineralization. The scope and focus of the program is more fully described in the recommendations section of this document. The object of the proposed exploration program is to provide adequate data to support completion of a mineral resource estimate with a high level of confidence.

## 10. DRILLING

Drilling has been completed historically as a joint venture between Serrana, Liximin, and Boliden (referred to in this section as Serrana et al) between 1998 and 2000; and Hochschild in 2006 and 2007. To date, no drilling has been completed by Santacruz. Historical accounts of drilling were taken from Appendix H of M3 (2008) and in good faith on descriptive narrative regarding drilling as provided in historical exploration reports.

For preparation of this report, Gustavson validated a drill hole database provided to us by Santacruz. In summary, the drilling database contained data for 117 drill holes. A summary of drill hole ID, along with its coordinates and depth are provided in Table 10-1 below. A figure showing drill hole locations is provided in Figure 10-1.

**Table 10-1 Summary of Data in Drill Hole Database**

Drill Hole ID	X (meters)	Y (meters)	Z (meters)	DEPTH (meters)
<b>Drill Hole Data from La Ventana</b>				
HFLV-01	567594.2	3306396	597.3699	285.6
HFLV-02	567712.5	3306286	783.8401	121.01
HFLV-03	567693.4	3306384	616.9274	276.01
HFLV-04	567704.1	3306440	779.769	142.34
HFLV-05	567552	3306470	737.8562	162.03
HFLV-06	567552	3306452	712.7687	167.23
HFLV-07	567463	3306312	563.2893	249.2
HFLV-08	567601.5	3306480	773.3577	157.58
HFLV-09	567601.5	3306456	707.9799	185.01
HFLV-10	567601.5	3306430	680.4449	227.69
HFLV-11	567641.8	3306447	808.0056	111.86
HFLV-12	567641.8	3306453	730.5384	175.87
HFLV-13	567706.2	3306438	850.9225	98.62
HFLV-14	567554.2	3306347	523.1167	350.52
HFLV-15	567695.4	3306429	712.214	200.25
HFLV-16	567787.8	3306439	695.6171	215.49
HFLV-17	567494.2	3306349	515.6052	307.7
HFLV-18	567554.2	3306323	480.4152	382.52
HFLV-19	567788.3	3306470	757.468	166.73
HFLV-20	567889.5	3306462	738.391	172.82
HFLV-21	567554.2	3306278	512.9202	393.19
HFLV-22	567889.5	3306396	732.0986	142.34
HFLV-23	567792.8	3306417	620.0373	273.3
HFLV-24	567438.5	3306370	544.2721	281.94
HFLV-25	567635	3306327	561.7596	317.65

Drill Hole ID	X (meters)	Y (meters)	Z (meters)	DEPTH (meters)
HFLV-26	567443.6	3306348	594.0146	223
HFLV-29	567437.8	3306395	589.0919	245.36
HFLV-30	567387.9	3306398	672.3901	186.35
HFLV-31	567596.7	3306317	548.4191	306.15
HFLV-32	567489	3306407	529.7509	329.18
HFLV-33	567388	3306377	592.3739	223.95
HFLV-34	567641.6	3306451	772.2174	149.75
HFLV-35	567485.6	3306384	621.969	220.98
HFLV-36	567692.9	3306444	723.9975	204.35
HFLV-37	567496.7	3306399	716.8324	131.7
HFLV-38	567696.5	3306405	662.0419	241.4
HFLV-39	567496.8	3306383	663.2589	162.05
HFLV-40	567689.4	3306360	600.5457	298.1
HFLV-41	567378.9	3306353	507.2623	312.5
HFLV-42	567995.6	3306430	698.0291	230.75
HFLV-43	568120.2	3306439	764.9341	172.35
HFLV-44	567850.1	3306418	642.7343	261.85
HFLV-45	567337.2	3306410	587.5452	248.25
HFLV-46	567746.4	3306398	608.0784	330.25
HFLV-47	567405.6	3306502	719.7929	152.5
HFLV-48	567394.3	3306439	699.8969	149
HFLV-49	567714.5	3306327	663.9944	222.5
HFLV-50	567400.9	3306391	639.2346	217.7
HFLV-51	567753.5	3306433	653.1969	287.7
HFLV-52	567571.8	3306436	644.8512	231.7
HFLV-54	567345.5	3306422	665.9539	203.65
HFLV-55	567659.4	3306383	577.6428	318.35
HFLV-56	567814.9	3306441	694.692	220.75
HFLV-58	567712.2	3306393	556.0695	338
HFLV-59	567818.1	3306426	790.1113	131.35
HFLV-60	567531.5	3306389	602.8601	249.85
HFLV-61	567902.3	3306381	680.7934	251.6
HFLV-63	567848.6	3306390	793.1775	193.35
HFLV-64	567613.1	3306366	615.5212	306.1
SF-00-22RL	567637.5	3306449	693.9889	211.5
SF-00-23RL	567637.5	3306419	593.7164	293.5
SF98-01	567756.8	3306455	789.9466	138.99
SF98-02	568139	3306438	740.7938	180.4
SF98-03	567939	3306496	829.4375	84.73
SF98-04	567841.7	3306463	756.912	159.72

Drill Hole ID	X (meters)	Y (meters)	Z (meters)	DEPTH (meters)
SF98-05	567464.1	3306418	748.3636	69.5
SF99-08	567848.4	3306431	641.7942	242
SF99-09	567750.2	3306442	662.8805	240.74
SF99-10	567531.3	3306466	650.5109	230.73
SF-99-10RL	567524.6	3306468	651.2815	230.73
SF99-11	567939	3306425	754.7839	121.01
SF99-12	567531.3	3306424	605.1033	241.79
SF-99-12RL	567524.6	3306426	605.1202	241.79
SF99-13	567449.9	3306507	629.9751	217.9
SF99-14	567449.9	3306441	593.8156	216.2
SF99-15	567531.3	3306373	553.4004	270.36
<b>Drill Hole Data from San Felipe</b>				
HFSF-01	567477.2	3305522	640.1692	329.75
HFSF-02	567231.5	3305600	548.2206	260.7
HFSF-03	567554.4	3305588	640.3165	222.1
HFSF-04	567499.8	3305480	595.3739	225
HFSF-05	567547.5	3305624	395.9667	459.6
HFSF-06	567717.8	3305464	711.4278	170.65
HFSF-07	567248.6	3305613	564.6158	237.7
HFSF-08	567456.4	3305603	583.4826	291.45
HFSF-09	567641.3	3305514	714.6269	160.1
HFSF-10	567355.1	3305612	678.1229	179.3
HFSF-11	567142.2	3305639	744.1677	103.1
HFSF-12	567459.9	3305624	627.0355	289.55
HFSF-13	567247	3305626	743.2737	90.3
HFSF-14	567143.8	3305648	623.0772	218.6
HFSF-15	567248.6	3305605	677.9162	143.8
HFSF-16	567637.6	3305486	672.5964	145.85
HFSF-17	567296.9	3305601	684.7432	172.3
HFSF-18	567208.3	3305624	645.3597	183.7
HFSF-19	567107.8	3305628	668.0389	187.2
HFSF-20	567399.8	3305585	602.5889	275.5
HFSF-21	567211.8	3305644	713.2152	127.9
HFSF-22	567577.5	3305457	753.7273	50.25
HFSF-23	567101.5	3305592	650.9097	148.9
HFSF-24	567177.9	3305512	644.2117	762
HFSF-25	567594.8	3305571	609.3501	219.35
HFSF-26	567068.2	3305670	600.3539	272
HFSF-28	567236.7	3305518	524.2424	313.2
HFSF-29	567145.4	3305525	649.2943	353

Drill Hole ID	X (meters)	Y (meters)	Z (meters)	DEPTH (meters)
HFSF-30	567106.9	3305508	549.2393	409.5
<b>Drill Hole Data from Las Lamas</b>				
HFLL-01	567277.8	3305262	603.9332	144.2
HFLL-02	567349.4	3305289	644.2993	139.37
HFLL-03	567077.6	3305156	559.6013	214.01
HFLL-04	567113.7	3305179	608.5316	137.85
HFLL-05	567110.2	3305199	548.5356	188.4
HFLL-06	567081.9	3305161	600.1867	147
HFLL-08	567018.5	3305099	631.8352	213.5
HFLL-09	567051.4	3305158	619.2667	218.85
<b>Drill Hole Not Used for Resource Estimate</b>				
HFA-01	568583.8	3305036	431.999	287.05
HFCP-01	568042.7	3305042	499.0859	233.05
SF98-06	568451.3	3306867	612.5682	209
SF98-07	568688.7	3306813	637.5914	152.4

Drill holes that were not assayed may not be shown in Table 10-1. Rationale for assaying is not known to Gustavson. Database provided to Gustavson showed assay data for silver, gold, copper, lead, and zinc. As noted below, more assay are believed to be available for the project (i.e., samples were assayed for 25 metals), but the database provided to Gustavson only contained data for 5 metals.



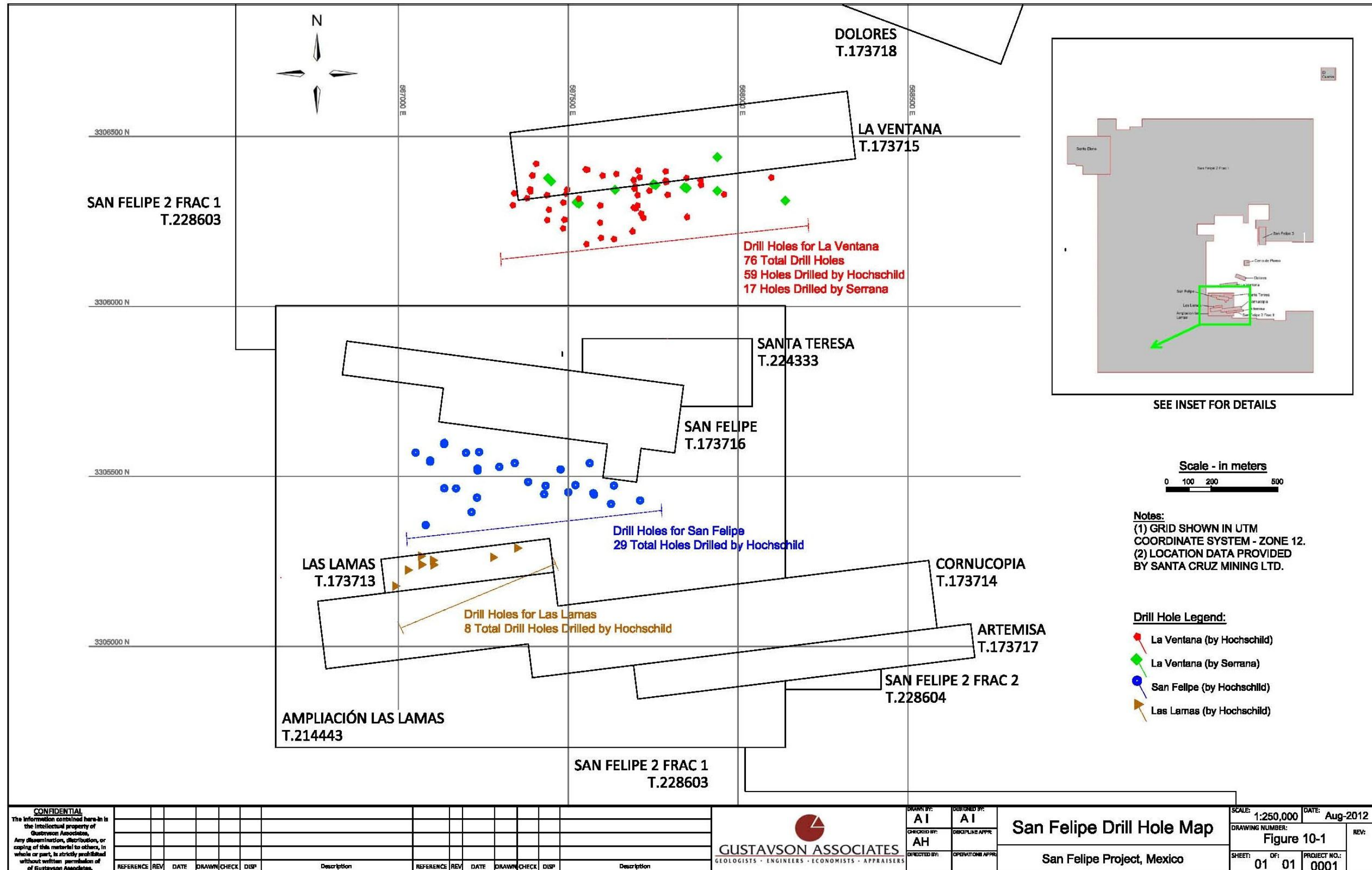


Figure 10-1 San Felipe Drill Hole Map

A description of historical drilling activities by sampling event is provided in this section.

### **10.1 Drilling by Serrana et al**

Serrana et al conducted a drilling program consisting of 23 diamond drill NQ-size holes with a cumulative length of 4,200 meters.

As stated in Appendix H of M3 (2008), “a number of potential drill targets corresponding to geochemical and geophysical anomalies coincident with the mapped extents of silicified/mineralized structures... A total of 969 core samples have been removed for geochemical analysis. The split core samples were prepared for analysis in Hermosillo and pulps were shipped to North Vancouver, [British Columbia] where analysis subsequently conducted by Chemex Laboratories. All samples were analyzed for gold by Fire Assay with an AA finish and for 24 other elements by the ICP-AES method.”

Drill hole locations and assay rationale are not known.

**Table 10-2 Drill Hole Summary for Drilling Completed by Serrana et al**

HOLE ID	AZIMUTH	DIP	DEPTH (m)
<b>SF98-01</b>	<b>0</b>	<b>-45</b>	<b>139.0</b>
<b>SF98-02</b>	<b>0</b>	<b>-45</b>	<b>180.4</b>
<b>SF98-03</b>	<b>0</b>	<b>-45</b>	<b>84.7</b>
<b>SF98-04</b>	<b>0</b>	<b>-45</b>	<b>159.7</b>
<b>SF98-05</b>	<b>30</b>	<b>-45</b>	<b>73.8</b>
SF98-06	210	-45	209.1
SF98-07	30	-45	152.4
<b>SF99-08</b>	<b>0</b>	<b>-70</b>	<b>242.0</b>
<b>SF99-09</b>	<b>0</b>	<b>-70</b>	<b>224.6</b>
<b>SF99-10</b>	<b>0</b>	<b>-45</b>	<b>230.7</b>
<b>SF99-11</b>	<b>0</b>	<b>-45</b>	<b>121.0</b>
<b>SF99-12</b>	<b>0</b>	<b>-60</b>	<b>241.7</b>
<b>SF99-13</b>	<b>0</b>	<b>-50</b>	<b>217.9</b>
<b>SF99-14</b>	<b>0</b>	<b>-70</b>	<b>218.5</b>
<b>SF99-15</b>	<b>0</b>	<b>-75</b>	<b>270.4</b>
SF00-16	0	-50	139
SF00-17	30	-50	123
SF00-18	0	-50	285.3
SF00-19	0	-50	235.6
SF00-20	165	-50	54.9
SF00-21	180	-50	91.4
<b>SF00-22</b>	<b>0</b>	<b>-60</b>	<b>211.5</b>
<b>SF00-23</b>	<b>0</b>	<b>-75</b>	<b>293.5</b>
<b>TOTAL:</b>			<b>4200.3</b>

Source: Appendix H to M3 (2008)

**Note:** Drill holes used in Gustavson's resource estimate are shown in bold font. Data for the remaining drill holes were not provided to Gustavson and therefore not used in the resource estimate

## **10.2 Drilling by Hochschild**

In 2006, Hochschild a total of 36 holes totaling 8043 m were drilled. Drill hole details are summarized in Table 10-3. The first drill hole of this campaign (HFLV-1) confirmed the information from drill holes SF-00-22 and 23 from the previous exploration campaign. Drill hole location and assay rationale for drilling by Hochschild is not known.

A total of 1,892 core samples were collected and 84 samples were sent for density analyses.

**Table 10-3 Drill Hole Summary for Drilling Completed by Hochschild in 2006**

HOLE ID	AZIMUTH	DIP	DEPTH (m)
<b>HFLV-01</b>	<b>0</b>	<b>-55</b>	<b>285.6</b>
<b>HFLV-02</b>	<b>349</b>	<b>-45</b>	<b>121.01</b>
<b>HFLV-03</b>	<b>349</b>	<b>-55</b>	<b>276.01</b>
<b>HFLV-04</b>	<b>354</b>	<b>-65</b>	<b>142.34</b>
<b>HFLV-05</b>	<b>0</b>	<b>-60</b>	<b>162.03</b>
<b>HFLV-06</b>	<b>0</b>	<b>-70</b>	<b>167.23</b>
<b>HFLV-07</b>	<b>345</b>	<b>-61</b>	<b>249.2</b>
<b>HFLV-08</b>	<b>0</b>	<b>-45</b>	<b>157.58</b>
<b>HFLV-09</b>	<b>0</b>	<b>-65</b>	<b>185.01</b>
<b>HFLV-10</b>	<b>0</b>	<b>-75</b>	<b>227.69</b>
<b>HFLV-11</b>	<b>0</b>	<b>-50</b>	<b>111.86</b>
<b>HFLV-12</b>	<b>0</b>	<b>-65</b>	<b>175.87</b>
<b>HFLV-13</b>	<b>0</b>	<b>-45</b>	<b>98.62</b>
<b>HFLV-14</b>	<b>0</b>	<b>-58</b>	<b>350.52</b>
<b>HFLV-15</b>	<b>0</b>	<b>-60</b>	<b>200.25</b>
<b>HFLV-16</b>	<b>1</b>	<b>-68</b>	<b>215.49</b>
<b>HFLV-17</b>	<b>0</b>	<b>-60</b>	<b>307.7</b>
<b>HFLV-18</b>	<b>0</b>	<b>-65</b>	<b>382.52</b>
<b>HFLV-19</b>	<b>1</b>	<b>-50</b>	<b>166.73</b>
<b>HFLV-20</b>	<b>0</b>	<b>-50</b>	<b>172.82</b>
<b>HFLV-21</b>	<b>0</b>	<b>-70</b>	<b>393.19</b>
<b>HFLV-22</b>	<b>0</b>	<b>-73</b>	<b>142.34</b>
<b>HFLV-23</b>	<b>0</b>	<b>-63</b>	<b>273.3</b>
<b>HFLV-24</b>	<b>0</b>	<b>-60</b>	<b>281.94</b>
<b>HFLV-25</b>	<b>0</b>	<b>-62</b>	<b>317.65</b>
<b>HFLV-26</b>	<b>0</b>	<b>-65</b>	<b>223</b>
HFLV-28	0		
<b>HFLV-29</b>	<b>0</b>	<b>-64</b>	<b>245.36</b>
<b>HFLV-30</b>	<b>0</b>	<b>-62</b>	<b>186.35</b>
<b>HFLV-31</b>	<b>0</b>	<b>-65</b>	<b>306.15</b>
<b>HFLV-32</b>	<b>0</b>	<b>-51</b>	<b>329.18</b>
<b>HFLV-33</b>	<b>0</b>	<b>-77</b>	<b>223.95</b>
<b>HFLV-34</b>	<b>0</b>	<b>-45</b>	<b>149.75</b>
<b>HFLV-35</b>	<b>0</b>	<b>-54</b>	<b>220.98</b>
<b>HFLV-36</b>	<b>0</b>	<b>-54</b>	<b>204.35</b>
<b>HFSF-01</b>	<b>0</b>	<b>-55</b>	<b>329.75</b>

Source: Hochschild, 2008b

**Note:** Drill holes used in Gustavson's resource estimate are shown in bold font. Data for the remaining drill holes were not provided to Gustavson and therefore not used in the resource estimate

In 2007, 47 additional diamond core holes with a total length of 10,804 m were drilled. Drillhole details are summarized in Table 10-4. The drill hole at Cornucopia was expected to cut a structure at 140 m depth but the result was negative and it only intercepted a 20 cm structure with 1.4% Pb and 2.7% Zn. Six drill holes were done in Las Lamas below the projections of older mining operations four of which were positive and two negative. The drilling in La Ventana consisted of 38 drill holes. Two additional drill holes were done in San Felipe. These drilling constituted a 10% of the planned infill drilling.

**Table 10-4 Drill Hole Summary for Drilling Completed by Hochschild in 2007**

<b>Drill Hole</b>	<b>X (m)</b>	<b>Y (m)</b>	<b>Z (m)</b>	<b>Depth (m)</b>
HFCP-01	568043	3305207	664	233.05
<b>HFLL-01</b>	<b>567277.8</b>	<b>3305262</b>	<b>603.9332</b>	<b>144.2</b>
<b>HFLL-02</b>	<b>567349.4</b>	<b>3305289</b>	<b>644.2993</b>	<b>139.37</b>
<b>HFLL-03</b>	<b>567077.6</b>	<b>3305156</b>	<b>559.6013</b>	<b>214.01</b>
<b>HFLL-04</b>	<b>567113.7</b>	<b>3305179</b>	<b>608.5316</b>	<b>137.85</b>
<b>HFLL-05</b>	<b>567110.2</b>	<b>3305199</b>	<b>548.5356</b>	<b>188.4</b>
<b>HFLL-06</b>	<b>567081.9</b>	<b>3305161</b>	<b>600.1867</b>	<b>147</b>
<b>HFLV-37</b>	<b>567496.7</b>	<b>3306399</b>	<b>716.8324</b>	<b>131.7</b>
<b>HFLV-38</b>	<b>567696.5</b>	<b>3306405</b>	<b>662.0419</b>	<b>241.4</b>
<b>HFLV-39</b>	<b>567496.8</b>	<b>3306383</b>	<b>663.2589</b>	<b>162.05</b>
<b>HFLV-40</b>	<b>567689.4</b>	<b>3306360</b>	<b>600.5457</b>	<b>298.1</b>
<b>HFLV-41</b>	<b>567378.9</b>	<b>3306353</b>	<b>507.2623</b>	<b>312.5</b>
<b>HFLV-42</b>	<b>567995.6</b>	<b>3306430</b>	<b>698.0291</b>	<b>230.75</b>
<b>HFLV-43</b>	<b>568120.2</b>	<b>3306439</b>	<b>764.9341</b>	<b>172.35</b>
<b>HFLV-44</b>	<b>567850.1</b>	<b>3306418</b>	<b>642.7343</b>	<b>261.85</b>
<b>HFLV-45</b>	<b>567337.2</b>	<b>3306410</b>	<b>587.5452</b>	<b>248.25</b>
<b>HFLV-46</b>	<b>567746.4</b>	<b>3306398</b>	<b>608.0784</b>	<b>330.25</b>
<b>HFLV-47</b>	<b>567405.6</b>	<b>3306502</b>	<b>719.7929</b>	<b>152.5</b>
<b>HFLV-48</b>	<b>567394.3</b>	<b>3306439</b>	<b>699.8969</b>	<b>149</b>
<b>HFLV-49</b>	<b>567714.5</b>	<b>3306327</b>	<b>663.9944</b>	<b>222.5</b>
<b>HFLV-50</b>	<b>567400.9</b>	<b>3306391</b>	<b>639.2346</b>	<b>217.7</b>
<b>HFLV-51</b>	<b>567753.5</b>	<b>3306433</b>	<b>653.1969</b>	<b>287.7</b>
<b>HFLV-52</b>	<b>567571.8</b>	<b>3306436</b>	<b>644.8512</b>	<b>231.7</b>
HFLV-53	567496	3306195	781	16
<b>HFLV-54</b>	<b>567345.5</b>	<b>3306422</b>	<b>665.9539</b>	<b>203.65</b>
<b>HFLV-55</b>	<b>567659.4</b>	<b>3306383</b>	<b>577.6428</b>	<b>318.35</b>
<b>HFLV-56</b>	<b>567814.9</b>	<b>3306441</b>	<b>694.692</b>	<b>220.75</b>
HFLV-57	567442	3306151	786	70.85
<b>HFLV-58</b>	<b>567712.2</b>	<b>3306393</b>	<b>556.0695</b>	<b>338</b>
<b>HFLV-59</b>	<b>567818.1</b>	<b>3306426</b>	<b>790.1113</b>	<b>131.35</b>
<b>HFLV-60</b>	<b>567531.5</b>	<b>3306389</b>	<b>602.8601</b>	<b>249.85</b>
<b>HFLV-61</b>	<b>567902.3</b>	<b>3306381</b>	<b>680.7934</b>	<b>251.6</b>
<b>HFLV-63</b>	<b>567848.6</b>	<b>3306390</b>	<b>793.1775</b>	<b>193.35</b>
<b>HFLV-64</b>	<b>567613.1</b>	<b>3306366</b>	<b>615.5212</b>	<b>306.1</b>
HFLV-65	567442	3306150	786	383.5
HFLV-66	567642	3306379	889	158.7
HFLV-67	567379	3306238	796	362.35
HFLV-68	567592	3306236	826	309.15

Drill Hole	X (m)	Y (m)	Z (m)	Depth (m)
HFLV-69	567598	3306188	820	351.45
HFLV-70	567380	3306238	794	369.55
HFLV-71	567496	3306315	810	208
HFLV-72	567758	3306358	889	201.15
HFLV-73	567379	3306238	794	334.95
HFLV-74	567343	3306397	831	251.2
<b>HFSF-02</b>	<b>567231.5</b>	<b>3305600</b>	<b>548.2206</b>	<b>260.7</b>
<b>HFSF-03</b>	<b>567554.4</b>	<b>3305588</b>	<b>640.3165</b>	<b>222.1</b>

Source: Hochschild, 2008b

**Note:** Drill holes used in Gustavson's resource estimate are shown in bold font with coordinates from the database provided to Gustavson from Santacruz. Data for the remaining drill holes were not provided to Gustavson and therefore not used in the resource estimate.

During 2008, Hochschild drilled 54 holes, as listed in Table 10-5.

**Table 10-5 Drill Hole Summary for Drilling Completed by Hochschild in 2008**

Drill Hole	X (m)	Y (m)	Z (m)	Depth (m)
<b>HFA-01</b>	<b>568583.8</b>	<b>3305036</b>	<b>431.999</b>	<b>287.05</b>
HFL-07	567065	3304965	752	323.6
<b>HFL-08</b>	<b>567018.5</b>	<b>3305099</b>	<b>631.8352</b>	<b>213.5</b>
<b>HFL-09</b>	<b>567051.4</b>	<b>3305158</b>	<b>619.2667</b>	<b>218.85</b>
HFL-10	566917	3305205	776	276.95
HFL-11	566922	3304997	726	165.6
HFL-12	566842	3305029	720	189.5
HFL-13	566972	3305217	767	204
HFL-14	566957	3305262	744	236.8
HFL-15	567004	3305313	711	200
HFL-16	567349	3305380	766	200
<b>HFSF-04</b>	<b>567499.8</b>	<b>3305480</b>	<b>595.3739</b>	<b>225</b>
<b>HFSF-05</b>	<b>567547.5</b>	<b>3305624</b>	<b>395.9667</b>	<b>459.6</b>
<b>HFSF-06</b>	<b>567717.8</b>	<b>3305464</b>	<b>711.4278</b>	<b>170.65</b>
<b>HFSF-07</b>	<b>567248.6</b>	<b>3305613</b>	<b>564.6158</b>	<b>237.7</b>
<b>HFSF-08</b>	<b>567456.4</b>	<b>3305603</b>	<b>583.4826</b>	<b>291.45</b>
<b>HFSF-09</b>	<b>567641.3</b>	<b>3305514</b>	<b>714.6269</b>	<b>160.1</b>
<b>HFSF-10</b>	<b>567355.1</b>	<b>3305612</b>	<b>678.1229</b>	<b>179.3</b>
<b>HFSF-11</b>	<b>567142.2</b>	<b>3305639</b>	<b>744.1677</b>	<b>103.1</b>
<b>HFSF-12</b>	<b>567459.9</b>	<b>3305624</b>	<b>627.0355</b>	<b>289.55</b>
<b>HFSF-13</b>	<b>567247</b>	<b>3305626</b>	<b>743.2737</b>	<b>90.3</b>

Drill Hole	X (m)	Y (m)	Z (m)	Depth (m)
<b>HFSF-14</b>	<b>567143.8</b>	<b>3305648</b>	<b>623.0772</b>	<b>218.6</b>
<b>HFSF-15</b>	<b>567248.6</b>	<b>3305605</b>	<b>677.9162</b>	<b>143.8</b>
<b>HFSF-16</b>	<b>567637.6</b>	<b>3305486</b>	<b>672.5964</b>	<b>145.85</b>
<b>HFSF-17</b>	<b>567296.9</b>	<b>3305601</b>	<b>684.7432</b>	<b>172.3</b>
<b>HFSF-18</b>	<b>567208.3</b>	<b>3305624</b>	<b>645.3597</b>	<b>183.7</b>
<b>HFSF-19</b>	<b>567107.8</b>	<b>3305628</b>	<b>668.0389</b>	<b>187.2</b>
<b>HFSF-20</b>	<b>567399.8</b>	<b>3305585</b>	<b>602.5889</b>	<b>275.5</b>
<b>HFSF-21</b>	<b>567211.8</b>	<b>3305644</b>	<b>713.2152</b>	<b>127.9</b>
<b>HFSF-22</b>	<b>567577.5</b>	<b>3305457</b>	<b>753.7273</b>	<b>50.25</b>
<b>HFSF-23</b>	<b>567101.5</b>	<b>3305592</b>	<b>650.9097</b>	<b>148.9</b>
<b>HFSF-24</b>	<b>567177.9</b>	<b>3305512</b>	<b>644.2117</b>	<b>762</b>
<b>HFSF-25</b>	<b>567594.8</b>	<b>3305571</b>	<b>609.3501</b>	<b>219.35</b>
<b>HFSF-26</b>	<b>567068.2</b>	<b>3305670</b>	<b>600.3539</b>	<b>272</b>
HFSF-27	567375	3305445	798	204.05
<b>HFSF-28</b>	<b>567236.7</b>	<b>3305518</b>	<b>524.2424</b>	<b>313.2</b>
<b>HFSF-29</b>	<b>567145.4</b>	<b>3305525</b>	<b>649.2943</b>	<b>353</b>
<b>HFSF-30</b>	<b>567106.9</b>	<b>3305508</b>	<b>549.2393</b>	<b>409.5</b>
HFSF-31	567362	3305361	775	424
HFSF-32	567519	3305443	772	309.15
HFSF-33	567052	3305661	792	225.9
HFSF-34	567149	3305322	710	398
HFSF-35	566987	3305473	715	315.4
HFSF-36	567048	3305402	710	360
HFSF-37	567154	3305368	709	343.5
HFSF-38	567083	3305467	752	236.5
HFSF-39	567010	3305557	772	218.4
HFSF-40	567057	3305576	780	183.4
HFSF-41	567086	3305473	756	194.6
HFSF-42	567038	3305530	754	279
HFSF-43	566930	3305501	726	252
HFSF-44	566931	3305562	765	395.75
HFSF-45	566899	3305577	769	156.2
HFSF-46	567016	3305597	786	111

Source: Hochschild, 2008b

**Note:** Drill holes used in Gustavson's resource estimate are shown in bold font with coordinates from the database provided to Gustavson from Santacruz. Data for the remaining drill holes were not provided to Gustavson and therefore not used in the resource estimate.



### **10.3 Third Party Audit of Historical Drilling**

A third party audit of the San Felipe project drill hole database was conducted by and reported in MTB (2009), which identified the following issues.

- The mineralized zone of drill core is fractured such that conventional hydraulic splitting or core sawing cannot be employed. In the fractured mineralized zones, samples for assay were taken from 50% of the available recovered materials by hand.
- The analytical laboratory runs standard samples with known metals concentrations along with assay samples for quality assurance/quality control purposes. Results of standard samples analyses indicated positive and negative bias on metals detections, and detections of metals above the acceptable limits of known concentrations. The batch of assay samples associated with the over-the-limit standard samples should be re-analyzed to verify results; however, this was not done by the laboratory.
- Check assays consisting of triplicate pulp samples prepared from the same core are analyzed to verify repeatability of sample results. As stated in MTB (2009), “These checks indicate significant sample preparation problems with the original drill hole samples, as 40% to 67% of the new sample checks show more than 30% difference from the original assay. This is an indication that the current assay data is likely not reliable enough to define a mineral resource locally within reasonable limits of accuracy, but global definition may be reasonable.”
- Of the drill holes completed by Hochschild presumably in 2006 and 2007, nine drill holes have sample recoveries of less than 70%, sometimes for multiple zones within one sample.
- For the La Ventana samples, MTB (2009) states, “the material is extremely fractured; resulting in ‘core’ that is made up of very small chips on probably 40% of La Ventana samples. Some material has been lost from core in this fractured material. The material lost is likely the softer material that will wash from the sample during drilling and is more likely biased than representative of the average grade.”
- MTB (2009) states, “The sample data indicates there are a number of mineralized intervals coded as volcanic or intrusive. This material should be checked to see if it is more logically coded vein, breccia, or mineral.”



## **11. SAMPLE PREPARATION, ANALYSIS, AND SECURITY**

From review of available historical reports, sampling methods and quality control methods prior to dispatch to laboratory (including detailed drilling methodology in addition to what is provided in Section 10 and assay protocol) have not been identified.

Method and process of sample splitting and reduction are described in MTB (2009), that is, for core drilled by Hochschild, for those cores where fractured materials were recovered, samples for assay were selected by hand for laboratory analysis.

Core is stored in a locked steel building on the San Felipe property. Security is common for mines in northwestern Mexico. Core is well organized and easy to locate. The facility is clean, well maintained and well lit with adequate space for logging as well as space for close to double the current quantity of core.

Per MTB (see Section 10) core in the mineralized areas is highly fractured and was divided by hand into equal parts to maintain half and assay half. Preparation was done by ALS Chemex in Hermosillo, Sonora, Mexico. As new drilling was not underway, active sample handling and preparation could not be reviewed. Future sample handling will follow Santacruz's standard procedures.

In Gustavson's opinion the historical sample preparation, analysis and security meets industry norms and is adequate for purposes of this study.

## 12. DATA VERIFICATION

Don Hulse conducted an on-site visit to the San Felipe property on December 8, 2011, and reviewed available digital records both on-site and off-site. The on-site visit included examination of surface and underground historical workings, outcrops, drill hole collar locations, and drill core. The results of field reconnaissance of bedrock lithologies and orientation measurements with regard to structures exposed in bedrock outcrops is generally conformable in structure, gross geometry, and apparent map units to figures presented by Santacruz. Some drill hole collar locations were verified in the field by comparing to drillhole maps.

### 12.1 Review of Assay Certificates

#### 12.1.1 Summary of Verified Data

Assay certificates for analytical data used in the resource estimate were provided to Gustavson in July and August 2012, following San Felipe resource estimate Press Release on SEDAR on July 16, 2012.

As part of data verification, Gustavson conducted a spot check of database provided by Santacruz and used for resource estimation using the assay certificates provided by Santacruz. The database for resource estimate contained assay data from a total of 5,785 samples. Of these, Gustavson verified data from 39 drill holes for a total of 951 samples, equating to 16% of the data that were used in the resource estimate database. Data verified included those data points with the highest 2% of detected silver concentrations. Table 12-1 shows a summary of data used for modeling, and data that were spot checked.

**Table 12-1 Summary of Spot Checked Data**

Vein	No. of Drill Holes for Modeling	No. of Assay Samples for Modeling	No. of Drill Holes Spot Checked	No. of Assay Data Spot Checked	Percentage of Data Spot Checked
La Ventana	76	3,799	34	906	24%
San Felipe	29	1,724	0	0	0%
Las Lamas	8	262	6	45	17%
<b>Total</b>	113	5,785	40	951	16%

Discrepancies were identified between data used for resource model. Gustavson evaluated the magnitude of differences, spatial distribution of points containing data discrepancies, and cross sections showing resource estimate results. Gustavson concludes that these identified discrepancies between assay certificates and inputs for resource estimate are not material to this study, but recommends that the full database be reviewed and corrected in the future.

### **13. MINERAL PROCESSING AND METALLURGICAL TESTING**

Metallurgical testing has historically been conducted by Hochschild as reported in Appendix F of M3 (2008) and by MTB (2009). Results of metallurgical as presented in M3 (2008) and MTB (2009) are summarized here.

#### **13.1 Mineral Processing and Metallurgical Testing Results**

Historical mineral processing and metallurgical testing has been completed by Hochschild. This work was reported in M3 (2008) and MTB (2009). Samples used for metallurgical testing as reported by M3 (2008) and MTB (2009) were not well documented. For the samples reported in M3 (2008), mineral processing and metallurgical testing was conducted on two composite samples consisting of exploration drilling. One of the two composites (identified in this report as “C1”) weighed approximately 100 kg and consisted of drill cuttings from 12 drilling locations in the La Ventana vein. The second composite sample (identified in this report as “C2”) weighed 15 kg and was taken from 7 drill hole locations also from the La Ventana vein. It is not clear from M3 (2008) exactly which drill holes and depth intervals were used to create the two composite samples for metallurgical testing.

In the testing reported by MTB (2009), samples for metallurgical testing were taken from 51 individual samples which were combined into 17 composite samples. Origins for the 51 individual sample locations were not provided.

As the locations and depth intervals of composite samples are not known, it is unknown whether these samples are representative of mineral processing characteristics for the entire mineral deposit. And as such, Gustavson is not able to assess whether samples are representative of mineral characteristics of the entire deposit, and therefore, whether metallurgical testing results are representative of conditions that will be encountered during mining activities. In summary, Gustavson recommends that Santacruz conduct their own metallurgical testing as part of next steps. As part of this report, Gustavson has summarized the mineral processing and metallurgical testing results for completeness.

As reported in M3 (2008), the presumed methods for processing include producing lead/silver and zinc floatation concentrates to then be shipped off for further processing. Mineral processes included grinding the mined ore, then processing using a combination of flotation rougher and scavenger methodologies to recover minerals. A summary of mineral processing is provided below.

- Grinding was conducted on the Composite 2 sample. Results suggest Composite 2 consists of “fairly hard ore (M3, 2008).”
- Silver, copper, lead, and zinc grades were successfully concentrated using flotation methods, however, quantities of reagents used for flotation and reactor times were not reported for all tests.

- As reported by MTB (2009), the cores used to produce the composite samples were reportedly been “stored for up to two years and showed signs of secondary copper mineralization.” Such a description potentially suggests the core may not be representative of in situ mineral characteristics or characteristics expected to be encountered during mining operations. Nevertheless, the results as reported by MTB (2009) are summarized below. Bond Work Index tests were conducted on composites representing oxide, mixed, and sulfide ore types. To attain closing size of 150 microns, results ranged from 13.9 to 16.1 kWh/metric ton for the three ore types. Rod Work Index tests were conducted on composites representing mixed and sulfide ore types. Closing size was not reported.
- Flotation results showed zinc activation leading to its inclusion in the lead flotation product. MTB (2009) recommended three flotation products from the ore including (1) float ore flotation to produce a bulk lead concentrate, (2) float lead tailings to produce a zinc concentration, (3) regrind the bulk lead concentrate to produce a lead concentrate and copper concentrate, and (4) grind and refloat the lead concentrate and copper concentrate.

### **13.2 Gustavson Review of Metallurgical Testing**

Gustavson believes that the metallurgical testing is generally indicative of the deposits and typical for similar deposits in the Mexican cordillera. Prior to advancing this project further to the definition of mineral reserves updated metallurgical work must be done on well-defined samples selected according to mineralogy and location.

The metallurgical risks are due to the limited number of samples tested, and rock samples that had potentially oxidized such that may not be representative of in situ conditions. This could be indicative of variable mineral characteristics and that the composites tested are not representative of the entire mineral deposit.

## 14. MINERAL RESOURCE ESTIMATE

The mineral resource statement for the San Felipe Project is effective as of April 5, 2012 and was completed by Kelsey J. Zabrusky, M.Sc., Gustavson Geologist under the supervision of Zachary J. Black, E.I.T, Gustavson Geological Engineer and QP. This mineral resource estimate is NI 43-101 and CIM compliant.

### 14.1 Data Used in Resource Estimation

Gustavson Associates created a 3-Dimensional (3D) block model for estimating mineral resources at the San Felipe Project. The block model is split into three pieces, one for each main vein: Las Lamas, San Felipe, and La Ventana (black boxes, Figure 14-1). Drill hole data, including collar coordinates, down hole surveys, and sample assay intervals, were provided by Santacruz as Microsoft Excel files. The San Felipe Project drill hole database contains assay data with gold and silver grades in ppm, and copper, lead, and zinc grades in percent for 117 drill holes. Historical drill data collected by Hochschild was provided to Gustavson by Santacruz. Santacruz also provided Gustavson with PDF cross sections of the drill holes and interpreted mineralization and geology. These were used by Gustavson for reference only but not relied upon for resource estimating. Gustavson believes that the data provided is adequate for the preparation of a resource estimate.

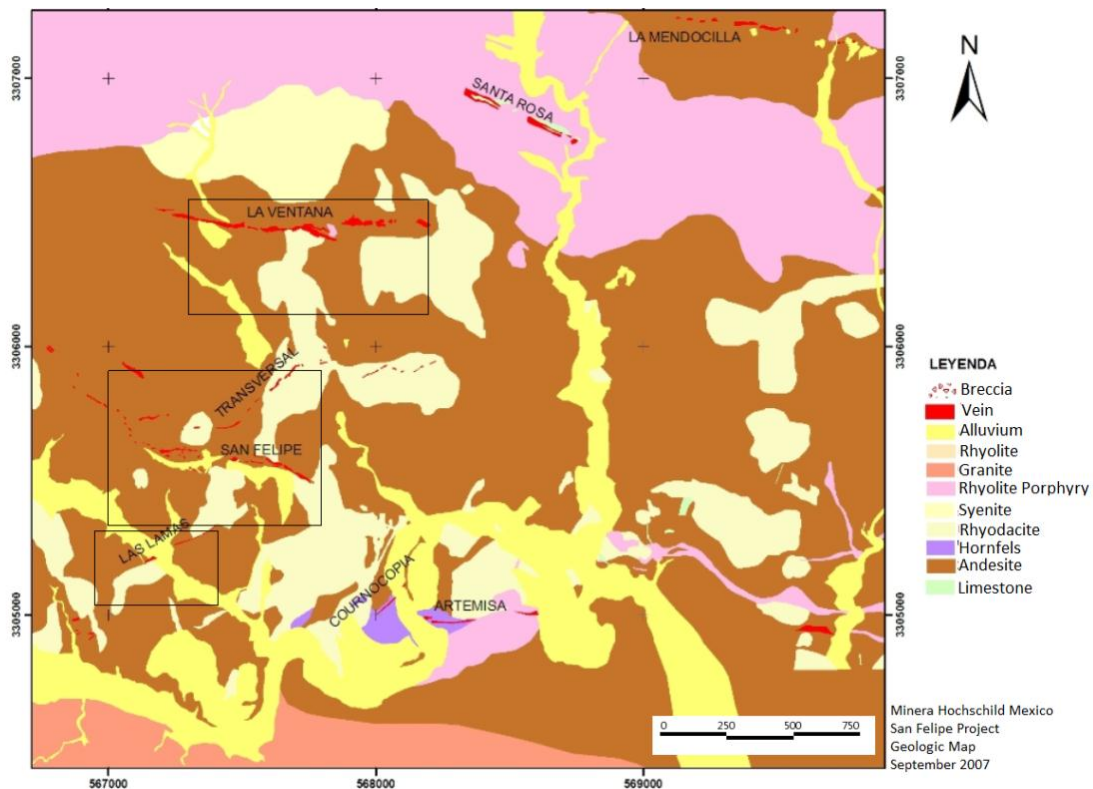


Figure 14-1 San Felipe Block Model Outlines

## 14.2 Estimation Methodology

Gustavson chose to employ a single indicator estimation (sometimes called discriminator) method in order to estimate resources for the San Felipe project. Silver was chosen as the basis for an indicator model, given that it is the main metal of interest. A cutoff value of 10 ppm silver was chosen as the indicator value. Sample intervals were then assigned an indicator value of 1 if the silver was 10 ppm or above or an indicator value of 0 if the silver value was below that.

### 14.2.1 Statistical Data

Gustavson statistically analyzed 5 metals (silver, gold, copper, lead, and zinc) within each vein above and below the indicator cutoff. The indicator 1 samples were compared between veins, utilizing La Ventana as the basis for testing the model as it has the most data. Gustavson compared the sample populations using a t-test on the means. Samples with an indicator value of 1 were found to represent the same population between veins, i.e. the samples not statistically significantly different. Basic descriptive statistics for the indicator 1 samples from each vein are presented in Table 14-1.

**Table 14-1 Descriptive Statistics for Vein Indicator Samples**

Vein	Metal	# of Samples	Min	Max	Mean	Standard Deviation
<b>La Ventana</b>	Au (ppm)	660	0.0025	20.09	0.077	0.806
	Ag (ppm)	832	10.0000	911.00	55.690	84.354
	Cu (%)	832	0.0008	4.72	0.301	0.517
	Pb (%)	832	0.0081	24.60	2.987	4.001
	Zn (%)	832	0.0035	39.20	4.847	6.562
<b>San Felipe</b>	Au (ppm)	154	0.0025	9.57	0.170	0.839
	Ag (ppm)	158	10.0000	844.00	62.440	114.185
	Cu (%)	158	0.0004	2.57	0.092	0.231
	Pb (%)	158	0.0000	20.00	1.664	3.542
	Zn (%)	158	0.0068	38.20	3.096	5.671
<b>Las Lamas</b>	Au (ppm)	65	0.0050	0.177	0.037	0.041
	Ag (ppm)	67	10.1000	442	87.327	82.568
	Cu (%)	67	0.0030	0.519	0.148	0.146
	Pb (%)	67	0.0203	1.64	0.301	0.306
	Zn (%)	67	0.0131	22.2	4.521	5.215

### 14.2.2 Geologic Modeling

The lithologies within the San Felipe Project were not modeled, as the volcanic country rocks were found to have no bearing on the vein material or metal distribution. The three main veins, Las Lamas, La Ventana, and San Felipe, were modeled in Leapfrog 3D geologic modeling software. Gustavson utilized surface maps with outcrop and structural data and the assay data to define the vein hanging walls and footwalls. These boundaries were then used to create trend

surfaces for each of the three veins that were later used in the Dynamic Anisotropic modeling process.

### 14.2.3 Compositing

Gustavson used down hole compositing to standardize the data set. Gustavson considered the sampling interval, average vein width, and proposed mining method when selecting the composite length. A down hole composite length of 1 m was selected, with the caveat that a composite contain samples of the same indicator value (either all 1s or all 0s). Thus, some composites are slightly longer or shorter to accommodate breaks between indicator values. This short composite length allows for the delineation of two indicator zones within the modeled veins. The basic descriptive statistics of the composited intervals are given in Table 14-2.

**Table 14-2 Descriptive Statistics for Vein Indicator Composited Intervals**

Vein		# of Samples	Min	Max	Mean	Standard Deviation
La Ventana	Au (ppm)	790	0.0025	20.09	0.626	3.376
	Ag (ppm)	940	10.0000	821.87	65.937	113.785
	Cu (%)	940	0.0008	4.70	0.267	0.452
	Pb (%)	940	0.0081	24.00	2.867	3.662
	Zn (%)	940	0.0350	34.00	4.567	5.701
San Felipe	Au (ppm)	149	0.0025	9.57	0.233	0.958
	Ag (ppm)	153	10.0000	819.73	59.130	102.921
	Cu (%)	153	0.0004	1.47	0.076	0.157
	Pb (%)	153	0.0000	14.39	1.369	2.660
	Zn (%)	153	0.0068	20.50	2.405	4.050
Las Lamas	Au (ppm)	44	0.0050	0.11	0.032	0.030
	Ag (ppm)	45	10.1000	378.70	83.948	74.140
	Cu (%)	45	0.0030	0.50	0.144	0.136
	Pb (%)	45	0.0212	1.24	0.293	0.248
	Zn (%)	45	0.0707	14.78	4.487	4.626

### 14.2.4 Bulk Density

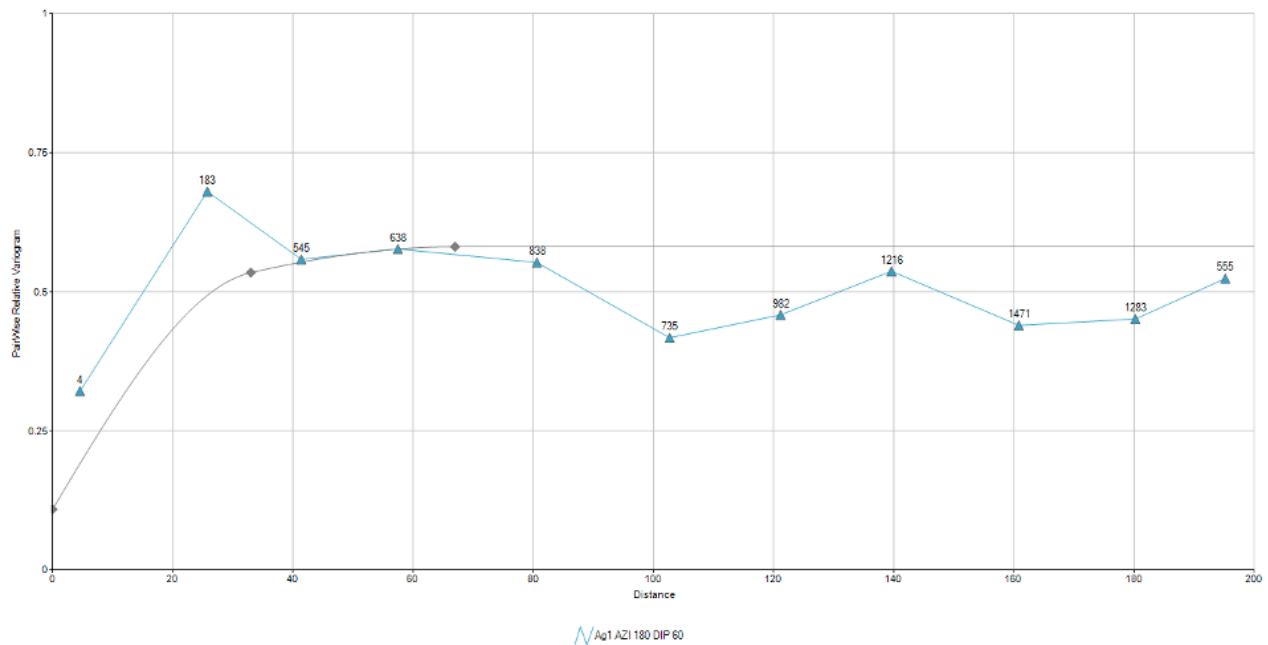
Density tests were performed by Hochschild. Bulk density was calculated for 16 samples in the San Felipe vein mineralized zone and 2 samples in the Las Lamas vein mineralized zone. The average bulk density for the mineralized zones is 2.84 g/cm<sup>3</sup>. Specific gravity tests were performed on numerous samples from the La Ventana vein, including samples outside the mineralized zone. The bulk density for unmineralized zones is 2.5 g/cm<sup>3</sup> based on these data and the site knowledge of the QP.

### 14.2.5 Variography

Experimental variogram values were computed for each of the indicator values for each metal in



each vein. A spherical variogram was then fitted to the computed experimental variogram values for each metal. The spherical variogram is Gustavson’s interpretation of the spatial variability of the assay data, and is used to filter noise resulting from imperfect measurements or lack of data. The nugget, sill, and range defined by the spherical variogram for each element are used in the kriging algorithm during the modeling process. Only the La Ventana vein had sufficient samples to produce a suitable variogram; however, the statistical analysis showed that the vein sample populations are probably related, and therefore the variograms calculated for silver, gold, copper, lead, and zinc in La Ventana have been applied to the other two veins. An example of a spherical, pairwise relative variogram applied by Gustavson is presented in Figure 14-2, and the resulting variogram parameters for all metals are shown in Table 14-3.



**Figure 14-2 Example of Spherical, Pairwise Relative Variogram**



**Table 14-3 Variograms for All Metals**

Metal	Ag Indicator	Nugget	C1	C2	Sill	Range1	Range2
Ag	1	0.109	0.327	0.145	0.581	33 m	67 m
Cu	1	0.089	0.552	0.149	0.790	41 m	79 m
Pb	1	0.127	0.384	0.064	0.605	34 m	92 m
Zn	1	0.219	0.285	0.155	0.659	30 m	75 m
Au	1	0.100	0.281	0.237	0.618	32 m	95 m
Ag	0	0.192	0.327	0.079	0.598	31m	70 m
Cu	0	0.127	0.435	0.140	0.702	42 m	81 m
Pb	0	0.284	0.438	0.165	0.887	31 m	74 m
Zn	0	0.397	0.301	0.161	0.859	59 m	101 m
Au	0	0.089	0.262	0.149	0.500	29 m	79 m

### 14.2.6 Methodology

The San Felipe deposit is characterized by relatively high grade silver, lead, zinc, copper, and gold bearing veins, with a partial halo of relatively lower grade mineralization surrounding the veins. Gustavson chose an indicator approach to model the portion of high grade vein material within each block and the surrounding halo of disseminated mineralization. This type of estimate limits the extrapolation of high grade mineralization into lower grade hanging wall and footwall units. Because all lithologic units showed similar grade distributions, Gustavson chose to group all units together and treat them as a single entity for modeling purposes. Gold was not estimated due to a lack of assay data. Three block models were created, one for each vein.

#### 14.2.6.1 *Indicator Estimation*

A single indicator (or discriminator) model was used to help to define the vein location and volume. Intervals with composite values greater than 10 ppm silver were assumed to be vein material for this estimate, and were assigned an indicator value of 1. The silver indicator was estimated from 1 meter downhole composites using an Inverse Distance Squared method. Also, dynamic anisotropic dips and dip directions were calculated for each block based off of the structural trend of each vein. The dynamic anisotropy method allows each individual block to have its own search ellipse orientation, thus the results are more in tune with the trend of the vein than can be achieved by using a static search ellipse. Composites were assigned a 0 or 1 vein code, where a value of 1 means the composite is vein, 0 meaning it was not vein (wallrock). The estimate of vein percentage within each block (the indicator value) was calculated from the 0 and 1 composite codes for all lithologic units. Thus, the resulting estimation indicates what percentage of the block is vein material.

#### 14.2.6.2 *Grade Estimation*

The grade of the vein portion of each block was estimated from the composites that had been coded with a 1 (vein). The wallrock portion of the block was estimated in a similar fashion, using only wallrock composites. Each metal was estimated separately for in-vein and out-of-

vein, but all based off of the silver indicator. Ordinary Kriging was used for all estimations. Each vein and each indicator used the same set of search criteria, listed in Table 14-XX. All veins used the variograms from La Ventana, which were calculated for indicator 1 and 0 material (i.e. the in-vein copper in Las Lamas used the in-vein copper variogram from La Ventana). The average grade of each block was then calculated using the percentage of the block that is vein, times the grade of the vein portion of the block, plus the percentage of the block that is wallrock, times the grade of the wallrock portion of the block.

**Table 14-4 Summary Statistics for Grade Estimation**

	All Veins and Indicators		
	1st Pass	2nd Pass	3rd Pass
Min # Samples	5	5	5
Max # Samples	15	15	15
Max # per Hole	3	3	3
Search Ellipsoid Distances			
Primary	100	200	300
Secondary	100	200	300
Tertiary	10	20	30

The resource was placed into measured, indicated and inferred categories based on the transformed distance to the nearest composite. The transformed distance is calculated by rotating the composite data into the coordinate system of the search ellipse, placing the center of the search ellipse on the center of the block being estimated, and using the following formula:

**Equation 14-1 Equation for Transformed Distance**

$$D = \sqrt{\left[\left(\frac{X}{Axis1}\right)^2 + \left(\frac{Y}{Axis2}\right)^2 + \left(\frac{Z}{Axis3}\right)^2\right]}$$

Where D is the transformed distance, X, Y, and Z are the rotated distances from the block centroid to the composite centroid, and Axis 1, Axis 2, and Axis 3 are the lengths of the axes of the search ellipse.

Observing the histograms of the transformed distance for each vein, there were two distinct breaks at the 10th and 25th percentiles for each metal. All metals were similar to silver, so the ranges determined from silver were used to assign classifications to all blocks. The 10th percentile distance was chosen as the limit for measured, while the 25th percentile break was used to delineate indicated and inferred material. The distances, in meters, used to assign classifications are listed in Table 14-5. These classifications were confirmed by overlaying the classified blocks over the drill hole sections to review that the criteria were appropriate.

**Table 14-5 Distances (in meters) Used to Assign Resource Classifications**

<b>Vein</b>	<b>Measured</b>	<b>Indicated</b>	<b>Inferred</b>
San Felipe	59	90	297
La Ventana	42	69	299
Las Lamas	61	95	299

### **14.2.7 Estimation Validation**

The model was validated by examining the blocks with actual drill hole assay data to determine if the estimated blocks fit the grade of the various domains of the deposit. Three sections, one from each vein, are presented in Figure 14-3 through Figure 14-5. Composite grades match well with estimated average block grades, indicating the modeling method is appropriate.

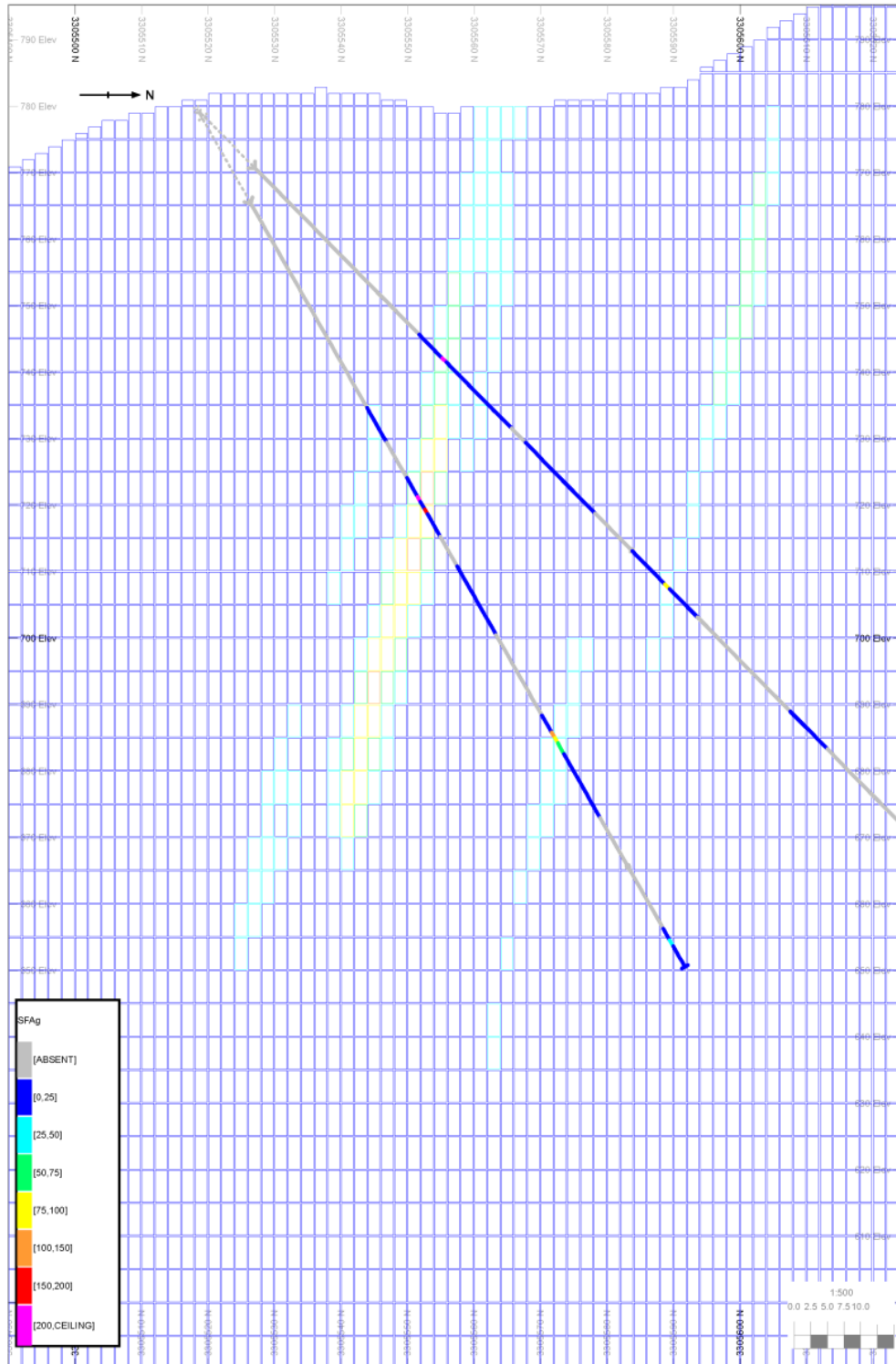


Figure 14-3 San Felipe Block Model Validation

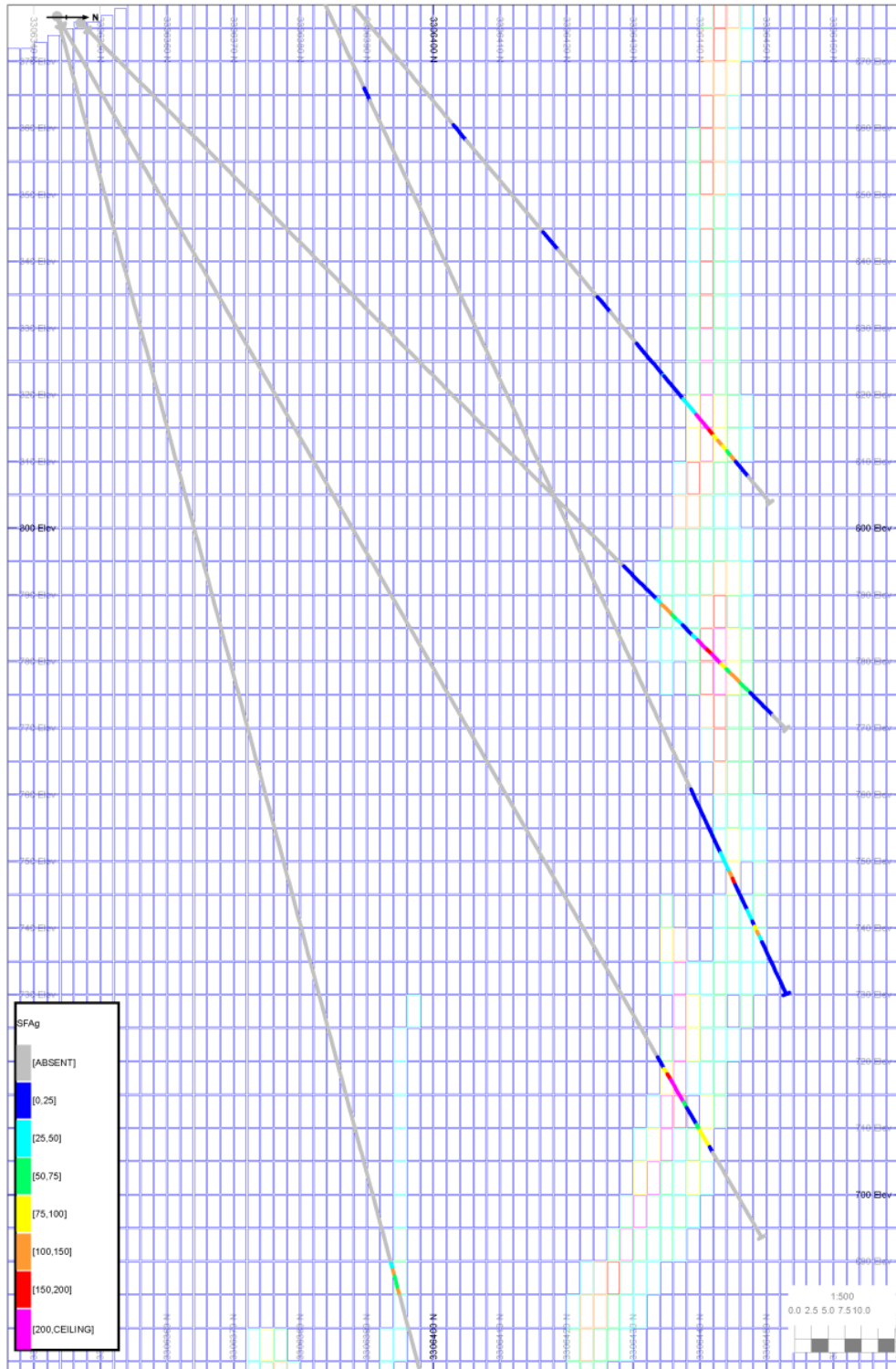


Figure 14-4 La Ventana Block Model Validation

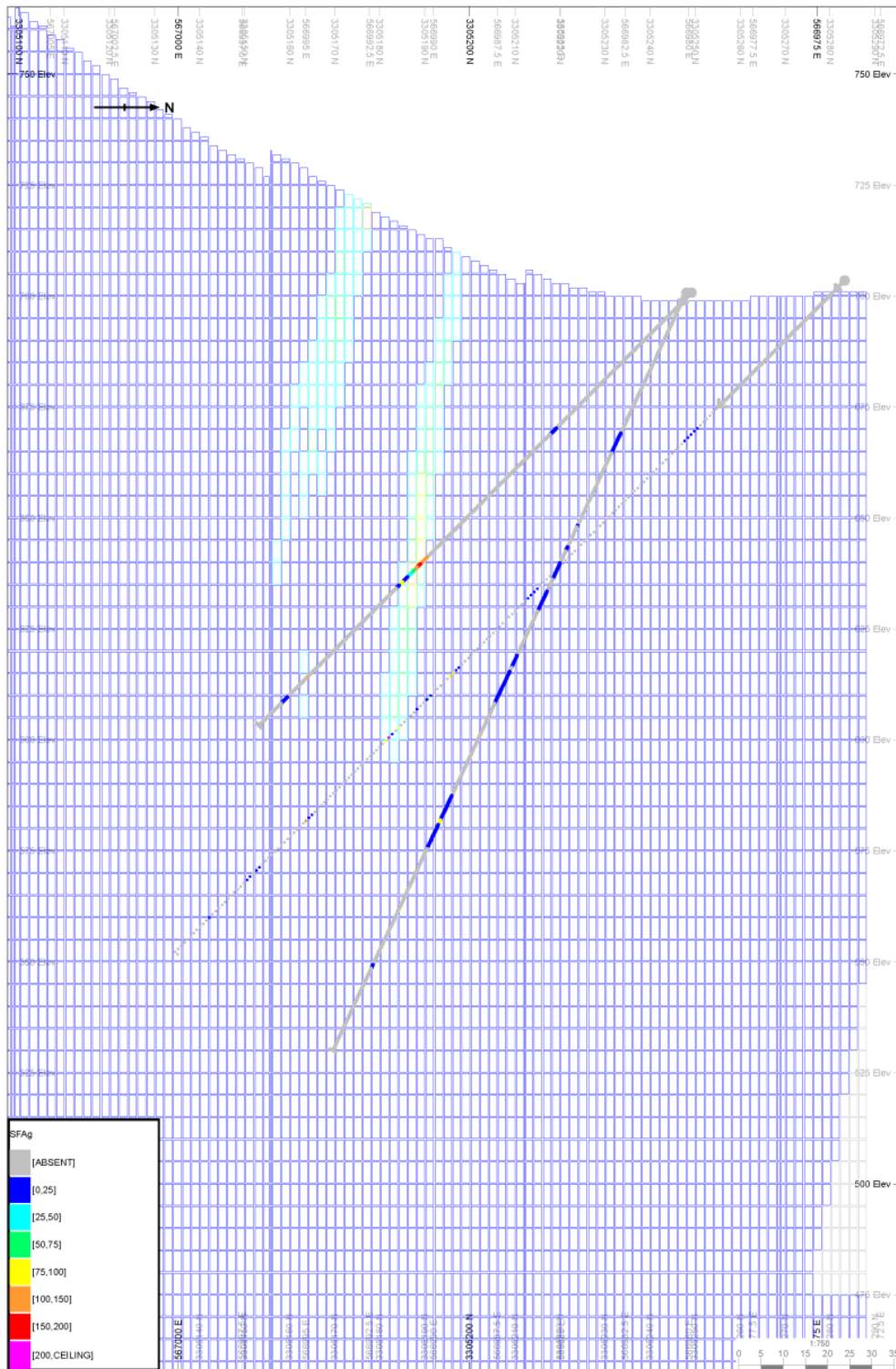


Figure 14-5 Las Lamas Block Model Validation

As an additional method of model validation, Gustavson created Inverse Distance power 2 (ID) and Nearest Neighbor (NN) models of the San Felipe Project and compared the resources from those models to the Ordinary Kriging (OK) results. Table 14-x shows the zero cutoff totals and percent differences of the OK, ID, and NN model results. At a zero cutoff, the NN model represents an unbiased estimate, and the similarity between the ID, NN, and OK models is a positive validation.

**Table 14-6 Comparison of ID, NN and OK Models per Vein**

<b>San Felipe</b>				
<b>Measured + Indicated</b>				
Model	Cutoff	Tons	Grams Ag	Ag gpt
ID	0	2,628,790	153,058,550	58.224
NN	0	2,628,790	148,244,389	56.393
OK	0	2,628,790	130,636,895	49.695
% Difference OK-ID	0	0%	-15%	-15%
% Difference OK-NN	0	0%	-12%	-12%
<b>La Ventana</b>				
<b>Measured + Indicated</b>				
Model	Cutoff	Tons	Grams Ag	Ag gpt
ID	0	6,767,309	368,773,508	54.493
NN	0	6,767,309	379,573,599	56.089
OK	0	6,767,309	327,160,033	48.344
% Difference OK-ID	0	0%	-11%	-11%
% Difference OK-NN	0	0%	-14%	-14%
<b>Las Lamas</b>				
<b>Measured + Indicated</b>				
Model	Cutoff	Tons	Grams Ag	Ag gpt
ID	0	641,512	58,901,527	91.817
NN	0	641,512	53,778,620	83.831
OK	0	641,512	56,234,326	87.659
% Difference OK-ID	0	0%	-5%	-5%
% Difference OK-NN	0	0%	5%	5%
<b>All Veins Total</b>				
<b>Measured + Indicated</b>				
Model	Cutoff	Tons	Grams Ag	Ag gpt
ID	0	10,037,610	580,733,585	57.856
NN	0	10,037,610	581,596,608	57.942
OK	0	10,037,610	514,031,253	51.211
% Difference OK-ID	0	0%	-11%	-11%
% Difference OK-NN	0	0%	-12%	-12%

Finally, Gustavson created grade-tonnage curves to compare the OK and ID models at all cutoffs. Grade tonnage curves for each vein are shown in Figures 14-6 to 14-8. The smoothing and declustering effects inherent to Kriging are seen in the Las Lamas graph, and this natural declustering was one of the reasons an Ordinary Kriging method was chosen.



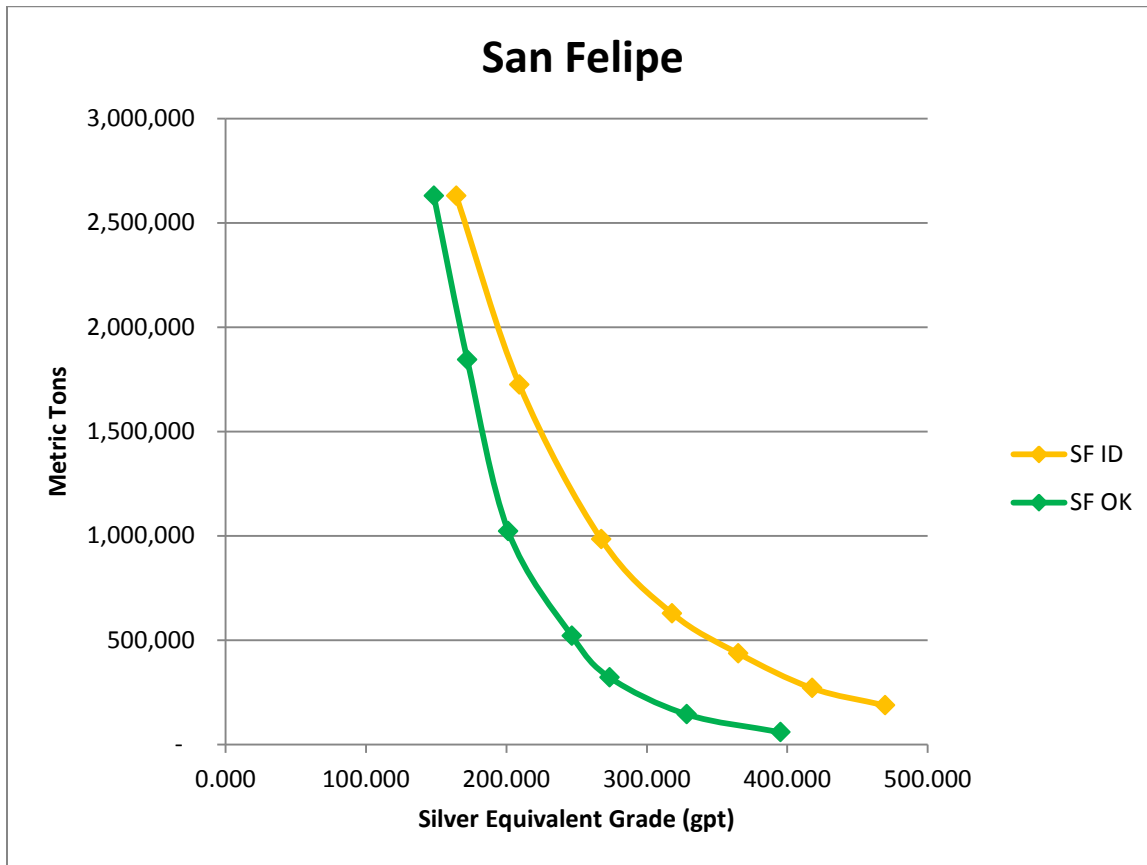


Figure 14-6 San Felipe ID and OK Grade Tonnage Curves

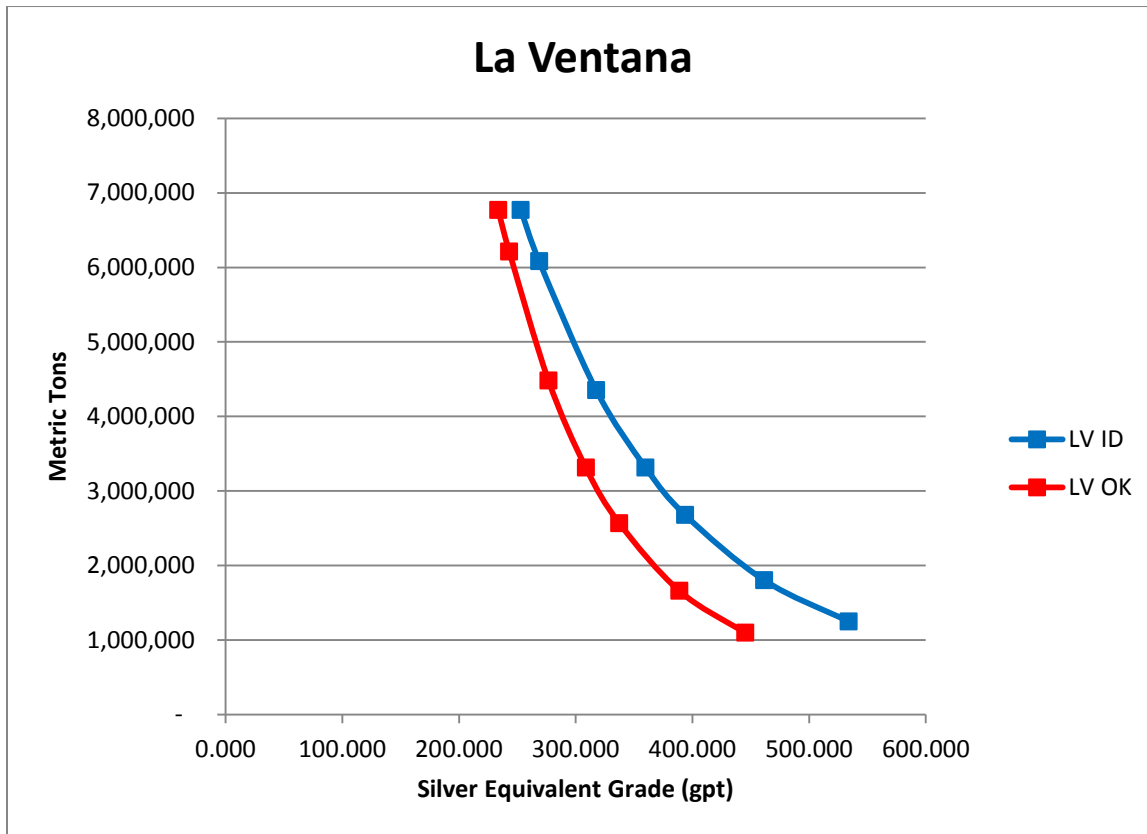


Figure 14-7 La Ventana ID and OK Grade Tonnage Curves

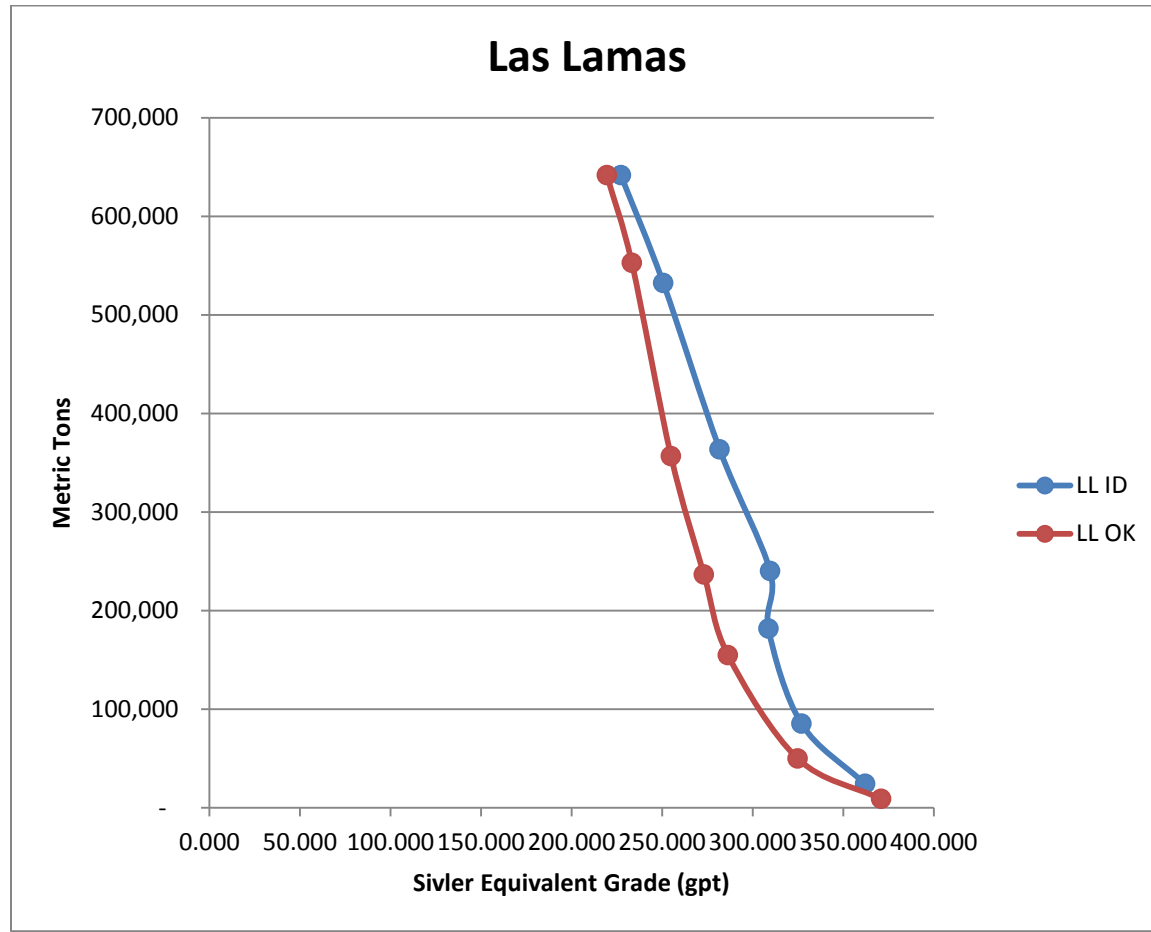


Figure 14-8 Las Lamas ID and OK Grade Tonnage Curves

### 14.3 Mineral Resource Classification

The mineral resources at San Felipe are classified as measured, indicated, and inferred in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves.

### 14.4 Mineral Resource Estimate

Table 14-7 shows the measured, indicated, and inferred mineral resources estimated within the San Felipe project, with an effective date of April 5, 2012. Mineral resources are reported using a 75ppm equivalent silver cutoff. A mineral reserves estimate was not prepared. Mineral Resources are not Mineral Reserves and do not demonstrate economic viability. There is no certainty that all or any part of the Mineral Resource will be converted to Mineral Reserves.

Gustavson knows of no existing environmental, permitting, legal, socio-economic, marketing, political, or other factors that might materially affect the mineral resource estimate.

**Table 14-7 Estimated Resource at Selected Cutoff Grades**

San Felipe								
Measured								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	745	1,663	4,969	69.41	207.40	0.09	1.86	3.10
<b>75</b>	<b>392</b>	<b>1,147</b>	<b>3,212</b>	<b>90.90</b>	<b>254.63</b>	<b>0.11</b>	<b>2.18</b>	<b>3.70</b>
100	254	855	2,264	104.73	277.38	0.11	2.32	3.90
150	123	441	1,263	111.58	319.69	0.08	2.91	4.76
Indicated								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	276	495	1,642	55.73	184.98	0.09	1.72	2.93
<b>75</b>	<b>128</b>	<b>295</b>	<b>915</b>	<b>71.43</b>	<b>221.91</b>	<b>0.10</b>	<b>1.98</b>	<b>3.44</b>
100	67	185	559	85.68	259.29	0.10	2.36	3.94
150	22	58	262	84.13	378.48	0.11	4.69	6.18
Measured + Indicated								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	1,021	2,158	6,612	65.71	201.34	0.09	1.82	3.05
<b>75</b>	<b>521</b>	<b>1,441</b>	<b>4,127</b>	<b>86.10</b>	<b>246.57</b>	<b>0.11</b>	<b>2.13</b>	<b>3.64</b>
100	321	1,040	2,823	100.75	273.60	0.11	2.32	3.91
150	144	499	1,525	107.48	328.47	0.09	3.18	4.97
Inferred								
Ag Eq Cutoff* (ppm)	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	619	685	3,460	34.40	173.81	0.08	2.05	3.01
<b>75</b>	<b>196</b>	<b>261</b>	<b>1,396</b>	<b>41.30</b>	<b>221.39</b>	<b>0.10</b>	<b>2.72</b>	<b>3.83</b>
100	31	68	362	67.06	358.09	0.13	4.84	5.82
150	16	37	249	74.59	497.93	0.17	7.48	8.07

La Ventana								
Measured								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	3,332	6,476	30,774	60.45	287.23	0.29	2.88	4.78
<b>75</b>	2,584	5,610	26,267	<b>67.53</b>	<b>316.21</b>	<b>0.32</b>	<b>3.08</b>	<b>5.29</b>
100	2,060	4,942	22,717	74.63	343.03	0.35	3.25	5.77
150	1,361	3,914	17,229	89.47	393.87	0.41	3.53	6.68
Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	1,149	1,794	9,088	48.57	246.02	0.23	2.63	4.11
<b>75</b>	728	1,317	6,603	<b>56.28</b>	<b>282.08</b>	<b>0.27</b>	<b>2.91</b>	<b>4.78</b>
100	506	1,047	5,120	64.38	314.75	0.31	3.10	5.40
150	298	762	3,506	79.58	365.93	0.36	3.38	6.30
Measured + Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	4,481	8,271	39,862	57.40	276.66	0.27	2.81	4.61
<b>75</b>	3,312	6,927	32,871	<b>65.06</b>	<b>308.71</b>	<b>0.31</b>	<b>3.04</b>	<b>5.18</b>
100	2,566	5,989	27,837	72.60	337.45	0.34	3.22	5.70
150	1,659	4,676	20,735	87.69	388.85	0.40	3.50	6.61
Inferred								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	2,260	2,890	15,004	39.78	206.49	0.18	2.37	3.35
<b>75</b>	1,277	1,814	9,752	<b>44.17</b>	<b>237.44</b>	<b>0.22</b>	<b>2.71</b>	<b>3.90</b>
100	708	1,175	6,278	51.59	275.75	0.26	2.98	4.67
150	299	601	3,252	62.61	338.73	0.34	3.46	5.89

Las Lamas								
Measured								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	236	779	1,974	102.57	259.83	0.16	0.34	5.19
<b>75</b>	157	556	1,408	<b>110.30</b>	<b>279.06</b>	<b>0.18</b>	<b>0.35</b>	<b>5.57</b>
100	106	396	989	115.76	288.90	0.18	0.36	5.70
150	41	164	421	125.33	321.33	0.20	0.37	6.52
Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	120	374	949	96.53	245.21	0.14	0.34	4.91
<b>75</b>	80	264	669	<b>102.99</b>	<b>261.46</b>	<b>0.15</b>	<b>0.35</b>	<b>5.25</b>
100	48	176	436	113.48	280.92	0.16	0.36	5.56
150	9	39	100	132.46	340.76	0.18	0.37	7.08
Measured + Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	357	1,153	2,923	100.53	254.90	0.16	0.34	5.09
<b>75</b>	237	820	2,077	<b>107.84</b>	<b>273.14</b>	<b>0.17</b>	<b>0.35</b>	<b>5.46</b>
100	155	573	1,425	115.05	286.41	0.18	0.36	5.66
150	50	203	522	126.64	324.89	0.20	0.37	6.62
Inferred								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	205	565	1,449	85.68	219.55	0.12	0.38	4.39
<b>75</b>	21	74	199	<b>107.98</b>	<b>289.85</b>	<b>0.16</b>	<b>0.35</b>	<b>6.14</b>
100	10	39	101	119.32	310.83	0.17	0.34	6.50
150	3	12	32	129.87	342.18	0.19	0.35	7.23

All Veins Total								
Measured								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	4,314	8,919	37,718	64.30	271.94	0.25	2.56	4.51
<b>75</b>	<b>3,133</b>	<b>7,313</b>	<b>30,887</b>	<b>72.60</b>	<b>306.64</b>	<b>0.29</b>	<b>2.83</b>	<b>5.11</b>
100	2,420	6,193	25,970	79.59	333.76	0.32	3.02	5.58
150	1,524	4,519	18,913	92.21	385.95	0.38	3.40	6.52
Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	1,546	2,663	11,679	53.58	235.05	0.20	2.29	3.96
<b>75</b>	<b>936</b>	<b>1,876</b>	<b>8,188</b>	<b>62.33</b>	<b>272.09</b>	<b>0.24</b>	<b>2.56</b>	<b>4.63</b>
100	621	1,408	6,116	70.50	306.13	0.27	2.81	5.26
150	329	860	3,869	81.35	366.05	0.34	3.38	6.32
Measured + Indicated								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	5,860	11,582	49,397	61.48	262.21	0.23	2.49	4.37
<b>75</b>	<b>4,069</b>	<b>9,188</b>	<b>39,074</b>	<b>70.24</b>	<b>298.69</b>	<b>0.28</b>	<b>2.77</b>	<b>5.00</b>
100	3,042	7,601	32,086	77.73	328.12	0.31	2.98	5.51
150	1,853	5,378	22,782	90.28	382.42	0.37	3.39	6.49
Inferred								
Ag Eq Cutoff	Tonnes (x1000)	Ounces Ag (x1000)	Equivalent Ounces Ag (x1000)	Ag gpt	Equivalent Ag gpt	Cu %	Pb %	Zn %
50	3,084	4,140	19,913	41.75	200.80	0.16	2.17	3.35
<b>75</b>	<b>1,495</b>	<b>2,149</b>	<b>11,347</b>	<b>44.70</b>	<b>236.08</b>	<b>0.20</b>	<b>2.68</b>	<b>3.92</b>
100	750	1,281	6,742	53.16	279.68	0.25	3.02	4.74
150	317	651	3,533	63.82	346.58	0.33	3.63	6.01

\*AgEq is the silver equivalent in ppm used to calculate the cutoff. The silver equivalent was calculated with the following equation:

$$\text{AgEq} = \frac{(\text{Ag} * \text{P}_{\text{ag}} / 31.1035) + (\text{Pb} * \text{P}_{\text{pb}} * 22.05) + (\text{Cu} * \text{P}_{\text{cu}} * 22.05) + (\text{Zn} * \text{P}_{\text{zn}} * 22.05) + (\text{Au} * \text{P}_{\text{au}} / 31.1035)}{(\text{P}_{\text{ag}})}$$

Where:

Metal	Symbol	Grade Units	Price	Price Symbol
Silver Eq	AgEq	g/t		
Silver	Ag	g/t	26.28 \$/tOz	$\text{P}_{\text{ag}}$
Copper	Cu	%	3.491 \$/lb	$\text{P}_{\text{pb}}$
Lead	Pb	%	0.9988 \$/lb	$\text{P}_{\text{cu}}$
Zinc	Zn	%	0.9531 \$/lb	$\text{P}_{\text{zn}}$

\* The calculation assumes equal recoveries in all metals pending further metallurgical work.

- The grades for copper, lead, and zinc are multiplied by each metal's 3 year trailing average price.
- The quantity and grade or quality is an estimate and is rounded to reflect the fact that it is an approximation.



## 15. **ADJACENT PROPERTIES**

At the time of this report, Gustavson knows of no adjacent properties that might materially affect the current exploration program on the San Felipe Property.

## **16. OTHER RELEVANT DATA AND INFORMATION**

There is no other additional material information that is not already contained in this report.

## **17. INTERPRETATIONS AND CONCLUSIONS**

Gustavson believes that the San Felipe project is viable for further studies leading toward development. The resources are well drilled, and nearly 80% of the mineral resource is currently classified as measured or indicated. This could permit the project to proceed directly to a pre-feasibility level.

Resource estimates are based on historical data, and no evidence has been seen of misrepresentation of altering the data to improve the results. A combination of infill drilling and twin holes as well as some underground sampling will identify if this is a significant risk.

Additional drilling will be needed to confirm the local continuity of grade within the mineralized structures.

The metallurgical risks are due to the limited number of samples tested. Recoveries are higher (nearly 10% for both lead and zinc), and work indexes are lower for Composite 2 than for Composite 1. This could be indicative of variable mineral characteristics and that the composites tested are not representative of the entire mineral deposit.

There is also potential to increase the resources in the estimated zones as well as in additional zones in the area such as Artemisa, Santa Rosa and Transversales.

## 18. RECOMMENDATIONS

### 18.1 Pending finalizing the report

Gustavson recommends that the San Felipe project be moved forward. Due to the high percentage of measured and indicated resource, this could be carried directly to a pre-feasibility level.

The highest risk to be dealt with is the metallurgical risk of only having 2 test samples with differing results. Metallurgical testing and validation of the process flow circuit is essential to the project's feasibility. Permitting timelines are always variable, and this process should be advanced as soon as possible to avoid future delays.

The project also has the potential to increase the mineral resources, and this potential should be better defined during these studies.

The 2012/2013 program would consist of:

**Table 18-1 Proposed Next Steps**

<b>Task</b>	<b>Concept</b>	<b>Amount</b>
Continue surface and underground mapping	24 man months	\$200,000
Additional Drilling in the mineralized zones	5000m	\$150,000
Metallurgical Sampling and Testing		\$120,000
Development of ramps for bulk samples and underground drilling. Las Lamas and San Felipe	800m	\$1,600,000
Drilling in other known zones in the area	6000m	\$180,000
Pre-Feasibility Study		\$350,000
Permitting		\$100,000
<b>Total</b>		<b>\$2,700,000</b>

## 19. **REFERENCES**

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