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# SUMMARY OF METALLURGICAL TESTS PERFORMED ON HAND COBBED SAMPLES FROM THE BEAVER SILVER MINE, COBALT CAMP

February 14, 2013 - Gold Bullion Development Corp. (TSXV:GBB) (OTCPINK:GBBFF) (the "Company" or "Gold Bullion") is pleased to announce the results of a high definition mineralogy study and some scoping level flotation and gravity separation tests done at SGS Lakefield on samples from its Beaver Silver Property, located 15 kilometres east of the historic silver camp in Cobalt, Ontario.

The Company's geological consultant hand cobbed 400 kilograms of cobalt-nickel sulfide material from the historic waste pile at the Beaver Silver Mine. The 20 kilogram sample used in this test program, has an average calculated assay of 7.98 percent Cobalt, 3.98 percent Nickel and 1246 grams per tonne silver. Combined gravity-flotation recoveries from the limited test program yielded 64.2 percent for Cobalt, 61.2 percent for Nickel and 92.0 percent for Silver. No real effort was made to produce a sellable concentrate.

The Company is encouraged by these test results and is extending the test program by doing further gravity concentration of the material followed by pressure leaching. The Company plans, at this stage, to produce a bulk metal hydroxide cake with the long-term objective of producing a Cobalt product for the Lithium-Ion battery market. The present test program will examine Silver and Cobalt-Nickel sulfides only.

The drill program undertaken at the Company's Castle Silver Mine in 2011 indicated, in addition to high silver assays, the presence of sulfide metals, gold and platinum group metals. A 43-101 Technical Report dated August 15, 2011 for Castle Silver Mines Inc., the Company's wholly owned subsidiary, on the Castle Silver Property is available for viewing on SEDAR.

The Company plans to release an update on the work undertaken at the Castle Silver Mine, located 85 kilometres northwest of the historic silver camp in Cobalt, Ontario. The historic silver camp of Cobalt, Ontario, which includes Gowganda and Silver Centre, has produced over 660 million ounces of silver since the early 1900s.

# 1.- HIGH DEFINITION MINERALOGY STUDY

Three hand specimens from the Beaver Silver Property, Cobalt, Ontario, were submitted by Mr. Gilbert Rousseau of SGS Geostat on behalf of Gold Bullion for a high definition mineralogical examination.

# XRD Analysis

The sample consists of major amounts of nickeline (NiAs), moderate skutterudite  $(Co,Ni)As_3$  and rammelsbergite (NiAs<sub>2</sub>), minor quartz (SiO<sub>2</sub>), calcite (CaCO<sub>3</sub>), dolomite [CaMg(CO<sub>3</sub>)<sub>2</sub>], safflorite [(Co,Fe)As<sub>2</sub>], gersdorffite (NiAsS), arsenopyrite (FeAsS), and tentatively identified chlorite, amphibole and analcime.

#### SEM-EDS Analysis

The samples were also investigated with a Scanning Electron microscope (SEM) equipped with an Energy Dispersive Spectrometer (EDS). The investigation also identified a REE epidote, annabergites, Bismuthinite, native Bi, and tentatively identified borodaevite.

## Mineral Chemistry

Electron Microprobe analyses were conducted to determine the chemistry of Co-Ni-Fe sulfarsenides and arsenides. The average elemental values (in wt%) are given in Table 1.

Average Chemistry of Co-Ni-Fe Sulfarsenides and Arsenides

Mineral/Element	S	Ag	Fe	Co	Ni	As	Total
Safflorite/Skutterudite	0.52	0.02	5.40	16.36	4.49	73.82	100.62
Nickeline	0.01	0.01	0.05	0.16	45.36	55.50	101.12
Alloclasite	16.11	0.02	2.07	17.92	15.09	49.64	100.86
Arsenopyrite	19.03	0.01	33.51	0.77	0.65	45.58	99.55
Detection Limts (%)	0.02	0.04	0.08	0.11	0.13	0.05	

On the basis of the electron microprobe data, presented below, four mineral groups have been identified and include:

- (a) arsenopyrite (FeAsS);
- (b) nickeline (NiAs) and rammelsbergite (NiAs<sub>2</sub>);
- (c) safflorite [(Co,Fe)As<sub>2</sub>] and skutterudite (Co,Ni)As<sub>3</sub>; and
- (d) alloclasite referring to a varied in composition phase (Fe,Co,Ni)<sub>3</sub>As<sub>4</sub>S<sub>3</sub>.

#### As Received Sample

The calculated modal mineralogy from the three mounts shows that the sample consists of nickeline 32.7%, safflorite/skutterudite 28.0%, alloclasite 13.3%, carbonates (calcite and dolomite) 20.9%, and minor quartz (2.2%) and chlorite (1.2%), while other minerals are in trace amounts.

## Size By Size QEMSCAN<sup>TM</sup> Analysis

The sample consists mainly of nickeline (28.3%), alloclasite (26.7%), safflorite/skutterudite (20.3%), arsenopyrite (3.1%), calcite (8.0%), dolomite (6.6%), chlorite (4.2%), quartz (1.7%), and trace amounts of other sulphides (0.2%), feldspars (0.2%), other silicates (0.6%).

# Occurrence of Ag

Ag grades are between 40 and 80 g/t in the sample. Electron microprobe analyses of the main Fe-Ni-Co sulfoarsenides and arsenides indicate that Ag is below the detection limit. Ag was tentatively identified as borodaevite.

#### **Elemental Distribution**

The elemental distribution is calculated based on the average chemistry of the Co-Ni-Fe sulfarsenides and arsenides and their mass % as calculated by the QEMSCAN<sup>TM</sup> analysis. Most of the Co is accounted by alloclasite (58.6%) and safflorite/skutterudite (40.5%). Most of the Ni is accounted by nickeline (71.5%) and alloclasite (23.1%) and less by safflorite/skutterudite (5.%). Most of the As is accounted by nickeline (34.8%), safflorite/skutterudite (33.1%) and alloclasite (28.9%) and minor arsenopyrite (3.1%).

#### Grain Size Distribution

The following table summarizes the (mid point in the size distribution)  $D_{50}$  or 50% passing value from the cumulative grain size distribution of selected minerals.

The  $D_{50}$  (in  $\mu$ m) of Selected Minerals for Sample

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Mineral	D50 (in μm)							
Arsenopyrie	15							
Alloclastite	53							
Nickeline	57							
Safflorite/Skutterudite	47							
Quartz/Feldspars	44							
Micas/Clays	26							
Carbonates	36							
Particle	53							

**Note:** Several grains make up a **particle**. A particle usually refers to a fragment of a rock or ore, the size of which is dependent on crushing and milling conditions.

#### Liberation and Association

#### Nickeline

Free and liberated nickeline account for 84.7%. The main association of nickeline is as middlings with alloclasite (12.3%), and minor middlings with arsenopyrite/alloclasite/safflorite/skutterudite (1.4%), and complex particles (1.0%). Liberation of nickeline increases moderately from 77% to 84% to 93% from the +106 to -53  $\mu$ m fractions.

The particle liberation by size indicates that free and liberated particles are equally distributed at below and above 50  $\mu$ m size class at 37 and 48%, respectively. Middling particles account for 3% and 12%, respectively.

#### Safflorite/Skutterudite

Free and liberated safflorite/skutterudite account for 82.3%. The main association of safflorite/skutterudite is as middlings with arsenopyrite/alloclasite/nickeline (6.2%), alloclasite (5.2%), complex particles (2.5%) and arsenopyrite (2.3%). Liberation of safflorite/skutterudite increases significantly from,  $\sim$ 73% to 81% to 91%, the +106  $\mu$ m to -53  $\mu$ m size fractions.

The particle liberation by size indicates that free and liberated particles are equally distributed at below and above  $53 \mu m$  size class at 44% and 38%, respectively. Middling particles account for 5% and 13%, respectively.

## **Alloclasite**

Free and liberated alloclasite account for 73.8%. The main association of alloclasite is as middlings with nickeline (10.9%), middlings with arsenopyrite/nickeline/safflorite/skutterudite (5.2%), skutterudite (4.5%), complex (3.1%), arsenopyrite (1.6%) and trace associations (<1%) with other minerals. Liberation of alloclasite increases significantly from, 63% to 75% to 84%, the +106 to -53  $\mu$ m fractions.

The particle liberation by size indicates that free and liberated particles account for 35% and 28% at above and below the 53  $\mu m$  size class, respectively. Middling particles account for 7% and 19%, respectively.

#### Arsenopyrite

Free and liberated arsenopyrite account for 44.5%. The main association of arsenopyrite is with alloclasite (15.6%), alloclasite/nickeline/safflorite/skutterudite (13.9%), safflorite/skutterudite (11.8%) and complex particles (10.7%). Liberation of arsenopyrite increases significantly from 14% to 18% to  $\sim$ 60%, the +106 to -53  $\mu$ m fractions. Middling particles generally decrease with decreasing particle size.

The particle liberation by size indicates that free and liberated particles account for, at below and above the  $53 \mu m$  size class, at 39% and 6%, respectively. Middling particles account for 23% and 32%, respectively.

#### **Mineral Release**

Mineral release curves for arsenopyrite, alloclasite, nickeline and safflorite-skutterudite are as follows.

Liberation of arsenopyrite ranges from 14% to 18% to 60% for grains sizes of 226  $\mu m$ , 75  $\mu m$ , 13  $\mu m$ , respectively.

Liberation of the alloclasite ranges from 63% to 75% to 84% for the same sizes, respectively.

Liberation of nickeline ranges from 77% to 84% to 93% for the same sizes, respectively.

Liberation of the safflorite-skutterudite ranges from 72% to 81% to 91% for the same sizes, respectively.

#### **Grade and Recovery**

Grades and recoveries are based on the minerals instead of Co, Ni and As grades due to the complexity of the mineral chemistry.

The grade-recovery calculations representing the whole sample indicate:

- nickeline grades between 98% and 89% for nickeline recoveries of 85% to 98%, respectively;
- alloclasite grades between 96% and 78% for alloclasite recoveries of 74% to 97%, respectively.
- safflorite/skutterudite grades between 98% and 86% for safflorite/skutterudite recoveries of 83% to 97%, respectively.
- arsenopyrite grades between 98% and 62% for arsenopyrite recoveries of 45% to 73%, respectively.

#### 2. METALLURGICAL TESTS

Two very limited flotation and one flotation-gravity tests were done on the cobalt-nickel samples. Average calculated head grades were as follows:

TEST	Co %	Ni%	Ag g/t
1	7.96	4	1296
2	7.72	3.81	1298
3	8.25	4.14	1144
Avr	7.98	3.98	1246

# 2.1. Flotation Test #1

# **Metallurgical Balance**

Product	Wei	ight	Assays %, g/t					% Distribution				
	g	%	Co	Ni	Ag	S	Co	Ni	Ag	S		
Ro Conc 1	163.6	8.2	9.60	7.81	12754.00	4.41	9.9	15.7	84.0	26.4		
Ro Conc 2	77.9	3.9	8.89	6.01	1133.00	3.46	4.4	5.7	3.6	9.8		
Ro Conc 3	41.8	2.1	8.51	5.16	610.00	2.64	2.2	2.6	1.0	4.0		
Ro Conc 4	37.5	1.9	8.15	4.75	452.00	2.44	1.9	2.2	0.7	3.3		
Rougher Tail	1676.4	83.9	7.74	3.58	159.00	0.92	81.6	73.7	10.7	56.4		
Head (calc)	1997.2	100.0	7.96	4.08	1243.88	1.37	100.0	100.0	100.0	100.0		
(direct)			7.74	4.00	1296.00	1.15						
Combined	Products											
Ro Conc 1		8.20	9.60	7.81	12754.00	4.41	9.9	15.7	84.0	26.4		
Ro Conc 1-2		12.10	9.40	7.23	9007.70	4.10	14.2	21.4	87.6	36.2		
Ro Conc 1-3		14.20	9.20	6.92	7768.35	3.89	16.4	24.1	88.6	40.3		
Ro Conc 1-4		16.10	9.10	6.67	6912.30	3.72	18.4	26.3	89.3	43.6		
Rougher Tail		83.90	7.74	3.58	159.00	0.92	81.6	73.7	10.7	56.4		

# 2.2. Flotation Test #2

# **Metallurgical Balance**

Product	Weight Assays %, g/t						% Distribution						
	g	%	Co	Ni	Ag	S	Co	Ni	Ag	S			
Ro Conc 1	125.6	6.3	9.20	5.59	18003.00	4.12	7.5	9.2	87.1	20.1			
Ro Conc 2	79.6	4.0	8.96	5.75	1305.00	3.54	4.6	6.0	4.0	11.0			
Ro Conc 3	39.2	2.0	7.88	4.85	739.00	2.72	2.0	2.5	1.1	4.1			
Ro Conc 4	50.0	2.5	7.77	4.67	750.00	2.62	2.5	3.1	1.4	5.1			
Rougher Tail	1706.4	85.3	7.55	3.54	96.60	0.90	83.4	79.2	6.3	59.7			
Head (calc)	2000.8	100.0	7.72	3.81	1297.59	1.29	100.0	100.0	100.0	100.0			
(direct)			7.74	4.00	1296.00	1.15							
		Į.		Comb	ined Products								
Ro Conc 1		6.30	9.20	5.59	18003.00	4.12	7.5	9.2	87.1	20.1			
Ro Conc 1-2		10.30	9.10	5.65	11525.30	3.89	12.1	15.2	91.1	31.1			
Ro Conc 1-3		12.20	8.90	5.52	9795.18	3.71	14.1	17.7	92.2	35.2			
Ro Conc 1-4		14.70	8.70	5.38	8257.90	3.52	16.6	20.8	93.7	40.3			
Rougher Tail		85.30	7.55	3.54	96.60	0.90	83.4	79.2	6.3	59.7			

# 2.3. Flotation Followed by Gravity Separation

## **Metallurgical Balance**

Product	Wei	ght	Assays %, g/t				% Distribution				
	g	%	Co	Ni	Ag	S	Co	Ni	Ag	S	
Ro Conc 1-4 combined	216.10	10.9	9.33	5.86	9784	4.63	12.3	15.4	93.0	34.5	
Rougher Tail	1771.8	89.1	8.12	3.93	89.7	1.07	87.7	84.6	7.0	65.5	
Head (calc)	1987.9	100.0	8.25	4.14	1144	1.46	100.0	100.0	100.0	100.0	
(direct)			7.74	4.00	1296	1.15					

Product	Wei	ght	Assays %, g/t				% Distribution				
	g	%	Co	Ni	Ag	S	Co	Ni	Ag	S	
+150 μm Mozley Conc	35.8	7.6	12.6	5.80	152	2.76	14.0	13.1	12.8	20.4	
+150 μm Mozley Middl	4.1	0.9	10.4	4.39	157	2.63	1.3	1.1	1.5	2.2	
+150 μm Mozley Tailings	58.5	12.5	1.07	0.50	182	0.55	1.9	1.9	25.0	6.6	
-150/+53 μm Mozley Conc	93.0	19.9	12.1	6.01	121	1.57	35.0	35.4	26.4	30.1	
-150/+53 μm Mozley Middl	9.0	1.9	11.3	5.52	137	1.83	3.2	3.1	2.9	3.4	
-150/+53 μm Mozley Tailings	63.3	13.5	1.03	0.87	39.9	0.24	2.0	3.5	5.9	3.1	
-53 μm Mozley Conc	35.6	7.6	12.5	6.09	76.0	1.15	13.8	13.7	6.3	8.5	
-53 μm Mozley Middl	15.4	3.3	12.5	5.90	82.9	1.38	6.0	5.8	3.0	4.4	
-53 μm Mozley Tailings	153.4	32.8	4.78	2.30	45.2	0.67	22.8	22.3	16.3	21.2	
Head (calc)	468.1	100.0	6.88	3.37	91.1	1.03	100.0	100.0	100.0	100.0	
(direct)											

Cumulative Assays and Distribution										
+150 μm Mozley Feed	21.0	5.65	2.59	170	1.44	17.3	16.1	39.2	29.3	
-150/+53 μm Mozley Feed	35.3	7.82	4.02	90.8	1.07	40.1	42.0	35.2	36.7	
-53 μm Mozley Feed	43.7	6.71	3.23	53.4	0.81	42.6	41.8	25.6	34.1	
Combined Mozley Conc	35.1	12.3	5.98	118	1.74	62.8	62.3	45.5	59.0	
Combined Mozley Conc + Midds	41.2	12.2	5.92	117	1.73	73.3	72.3	52.9	69.0	
Combined Mozley C&M&-53µm Tailings	74.0	8.93	4.32	85.1	1.26	96.0	94.7	69.1	90.2	
Recovery from Flotation & Gravity Conc +	64.2	61.2	3.7	45.2						

Except for the silver, where an average concentrate grade of 8,418 g/t and 92% recovery was obtained, from the very limited metallurgical tests done, it seems it may not be possible to obtain reasonable concentrate grades along with decent recoveries for the cobalt and the nickel by conventional milling processes. Gold Bullion intends to utilize pressure leaching to produce a cobalt-nickel metal hydroxide cake.

Gilbert Rousseau, P. Eng., is acting as the qualified person (QP) for Gold Bullion Development Corp. in compliance with National Instrument 43-101 and has reviewed the technical contents of this press release.

## **About Gold Bullion Development Corp.**

Gold Bullion Development Corp. is a TSX Venture-listed junior natural resource company focusing on the exploration and development of its Granada Property near Rouyn-Noranda, Québec.

Additional information on the Company's Granada gold property is available by visiting the website at <a href="https://www.GoldBullionDevelopmentCorp.com">www.GoldBullionDevelopmentCorp.com</a> and on SEDAR.com.

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