BIG ROCK EXPLORATION
GOLD DEPORTMENT STUDIES

GOLD DEPORTMENT STUDY

Gold Mineralogy plays a key role in the economic evaluation of a gold deposit by providing an early indication of ease or complexity of processing and recovery.

Gold Deportment studies have been developed to understand the nature, mode of occurrence, associations, and deportment of gold in a resource. These studies can be utilized to focus drilling in areas that will provide the most value to the project considering potential mining methods and recovery processing and the impact of deleterious components.

The Gold Deportment studies provide the following information about each sample:

- Distribution
- Mineral Associations
- Liberation (% surface area)
- Elemental Deportment
- Grain Size Analysis

"Many projects don't consider advanced mineralogical and metallurgical analyses until far into the exploration cycle, often resulting in unexpected mineral associations and complex metallurgical processing needs that could drastically affect deposit potential.

We have worked with dozens of analytical labs throughout North America, and PMC sets itself apart with cost-effective solutions to understanding your ore and the potential processing needs.

PMC delivers very high-quality results that have helped guide our goals for long-term success. It is never too early to define your deposit characteristics and potential processing needs."

- Rob Bergmann, President, Big Rock Exploration.

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BACKGROUND

Big Rock Exploration engaged **PMC** to investigate the gold deportment of several early stage exploration composite samples. The goal of the project was to obtain information about the mineralization styles and preliminary petrogenetic models of individual Au & Ag bearing prospects. The information could then be used to guide future exploration programs.

Samples were milled to P_{80} 250µm and screened into size fractions and concentrated to increase the number of gold grains observed.

FINDINGS

The following key observations, primary Au associations, and other information about each composite (numbered 1-5) were obtained.

1. Assaying as 2.7 – 4.9 g/t Au approximately 50-60% of the observed gold grains were present as low-Au electrum (Ag:Au 9.5-17:1). 27% of all Au was liberated with the remainder attached to Pb-Sb phases, locked in silicates or unobserved. Copper sulphides were also present.
   Note: Probable refractory gold deposit with low recoveries expected
2. Gold assays were 2.4 – 4.5 g/t Au and gold was closely associated with arsenopyrite and pyrite with >80% either attached or locked in sulphides and only 13% was free. Gold was primarily present as electrum (Ag:Au 1.25:1) and grain sizes were <32µm.
   Note: Possible saleable float concentrate but high As could limit value
3. Gold assayed at 2.5 g/t Au and appeared as 80% electrum (Ag:Au 2:1) with the rest as native gold. Approximately 80% of the gold was free and unliberated gold was in Pb-Sb phases or locked in coarse silicate.
   Note: Possible free milling gold amenable to conventional processing
4. The gold presented as 86% electrum (Ag:Au 13:1) and 11% as native gold with an assay value of 2.5 g/t Au. 82% of the gold was liberated with the remainder locked in Fe-hydroxides or attached to pyrite. By mass, 62% of the gold occurred as grains larger than 32µm.
   Note: Possible free milling gold amenable to conventional processing
5. Gold was nearly entirely present as native gold with an assay value of 12 g/t Au. Breakage mode was bimodal with almost 40% liberated and the remainder as fine grains locked primarily in silicates. Bismuth and Vanadium were also found in significant quantities, but gold was not associated with Bismuth.
   Note: Potential for high gravity recoverable gold amenable to conventional processing

OUTCOMES

Learning that gold was not associated with Bismuth in Composite 5 was an unexpected benefit. Based on these findings Big Rock will focus their next stage of exploration on areas of Composites 3, 4 and 5

Composite #4 Gold deportment

This composite contains approximately 2.5 g/t Au and 32 g/t Ag. The gold classifies predominantly as electrum (50 - 80% Au in grain) with minor Native Gold (10.7% of the gold) and Au-rich Ag-minerals (3.2% of the gold; including gold telluride). The somewhat bimodal occurrence of electrum and Native Gold (with a compositional gap) possibly suggests two different mineralization styles in the composite sample.

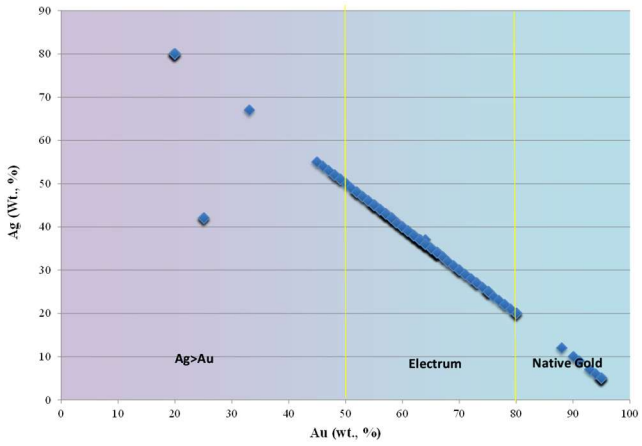
The most frequently observed gold is <8 µm in size, but it accounts for only 12% of the total gold. Larger grains of over 32 µm in size make up the majority of the gold in this sample (62% of total gold).

The gold shows a bimodal distribution across the three fractions with 36.5% reporting to the +106 µm-fraction and 46.4% to the -38 µm-fraction (17.2% in +38 µm-fraction) indicating that a significant portion of the gold in this sample was liberated during milling.

This conclusion is supported by the association data which indicates that 82% of the gold is free. The data also indicates that a major host for locked gold are Fe-(hydr)oxides (8.8% of the gold). The frequently observed association of gold with pyrite accounts for approximately 7% of the gold, while Pb- and Pb-Sb phases do not seem to be of importance for the gold deportment.

Mineral	Frequency (N)	Frequency (%)	Au Deportment (%)
Native Gold	18	8.57	10.7
Electrum	171	81.4	86.1
Calaverite	4	1.90	0
Ag>Au	17	8.10	3.15

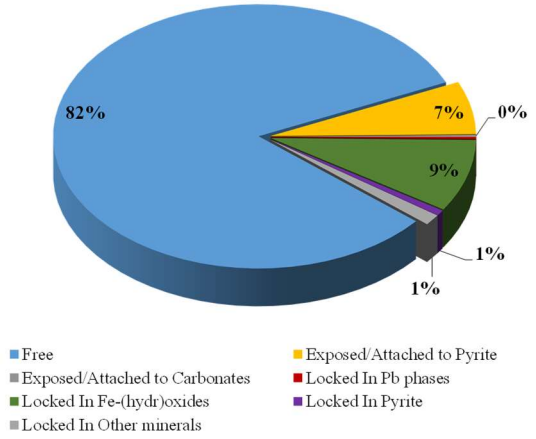
Ag vs Au in Gold-bearing Minerals



Exposure	Frequency	Frequency (%)	Au Deportment (%)
Locked	84	40.0	11.2
In fractures	0	0	0
At grain boundaries	0	0	0
Exposed	126	56.0	88.8

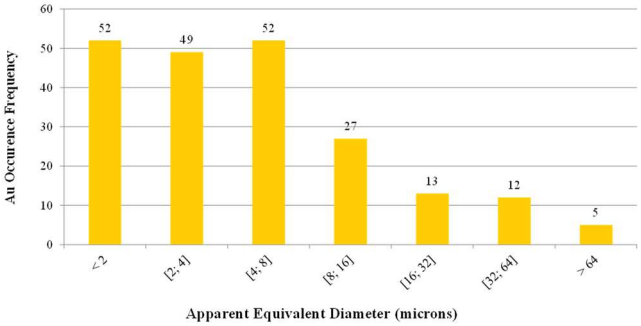
	Type of Association	Frequency	Frequency (%)	Au Deportment (%)
1	Free	99	47.1	82.0
2	Exposed/Attached to Pb phases	7	3.3	0.0
3	Exposed/Attached to Fe-(hydr)oxides	2	1.0	0.1
4	Exposed/Attached to Pyrite	11	5.2	6.5
5	Exposed/Attached to Carbonates	2	1.0	0.2
6	Exposed/Attached to Silicates	5	2.4	0.0
7	Locked In Pb-Sb phases	3	1.4	0.0
8	Locked In Pb phases	19	9.0	0.2
9	Locked In Fe-(hydr)oxides	7	3.3	8.8
10	Locked In Pyrite	43	20.5	0.7
11	Locked In Carbonates	3	1.4	0.0
12	Locked In Silicates	7	3.3	0.1
13	Locked In Other minerals	2	1.0	1.3
TOTAL		**210**	**100**	**100**

Au Association Summary by % Au Distribution



By fraction	Weight (g)	Weight %	Au Assay (g/t)	% Distribution
+106	848.5	48.4	1.90	36.5
+38	454.2	25.9	1.67	17.2
-38	450.7	25.7	4.55	46.4
By product				
+106 Tail	756.9	47.5	0.56	10.54
+106 Con	14.83	0.9	**70.31**	25.92
+38 Tail	397.7	24.9	0.94	9.30
+38 Con	15.33	1.0	**20.60**	7.86
-38 Tail	338.5	24.3	2.75	26.45
-38 Con	20.19	1.4	**34.72**	19.93
Total	**1543.5**	**100**		**100**
Head (calc)			***2.52***	
Head (assay)			**2.51**	

Overall Gold Grain Frequency Distribution



Overall Gold Grain Distribution by Au Deportment