

MICROSCOPIC EXAMINATION

of Grum Project pilot plant samples

from ore submitted by

NORANDA MINES LIMITED

Progress Report No. 2

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Project No. L.R. 1868

Note:

This report refers to the samples as received.

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Lakefield, Ontario

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INTRODUCTION

Six selected samples consisting of two head samples and four pilot plant test products from Grum Project ore submitted by Noranda Mines Limited were received in the Mineralogical Laboratory. These samples were submitted

1. For comparison of the head samples,
2. For comparison of the pilot plant products,

to determine if there were any dissimilarities in grain size and distribution by association of the contained minerals.

The samples were identified as (a) head samples A (P.P. Test 10) and B (P.P. Test 15), (b) the lead rougher concentrates, (c) the lead scavenger tailings, and (d) the lead first cleaner tailings from tests No. 10 and 15.

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S U M M A R Y

Head Sample A was somewhat more coarse-grained than Sample B, otherwise the samples were similar.

The results of the microscopic examination were tabulated and have been appended to this report.

PREPARATION AND PROCEDURE

A portion of each sample was briquetted and polished for microscopic examination in reflected light and for grain counting, to determine the distribution by association of the contained minerals.

RESULTS

Head Samples

Sample A was more coarse-grained than Sample B, with both galena and sphalerite present having maximum dimensions greater than 100 micrometers for isolated grains. Sample B exhibited no galena with a maximum dimension greater than 35 micrometers. In general, the samples were similar with respect to mineral content, but Sample B did contain slightly more sphalerite than did Sample A.

Traces of oxide mineral in the form of malachite were identified in Sample B, but not in Sample A. Examination of the two samples lead to the conclusion that Sample A represented a mixture of material similar to that comprising Sample B, plus a coarser-grained variety of the same material.

Rougher Concentrates

Reference to the tabulated data for these two samples will show that Sample A Pb rougher concentrate contained substantially more liberated galena than did the Sample B concentrate. Mixed grains of galena and other minerals were fewer, a reflection of the coarser grain size of the galena in Sample A.

Coatings of galena on pyrite were almost equally common for both samples. Galena was associated most commonly with sphalerite, whether as sphalerite + galena, galena + sphalerite or with either of the preceding pairs plus pyrite.

Scavenger Tailings

Both samples contained fine-grained material, and counting the minus 2 micrometer sized sulphides was too time-consuming to be undertaken. As a consequence the results of the calculated weights percent must be viewed with caution.

Results - Continued

<u>Mineral Association</u>	Weight % (Calc.)	
	<u>Head - B Lot 1</u>	<u>Head A</u>
Sphalerite - liberated	1.7	4.0
Galena - liberated	0.4	5.8
Pyrite - liberated	7.7	16.4
Gangue - liberated	12.5	13.7
Sphalerite + pyrite + galena + gangue	9.8	3.1
Sphalerite + pyrite + galena	5.0	1.4
Sphalerite + galena	0.2	3.1
Sphalerite + pyrite	1.6	1.2
Sphalerite + gangue	0.2	0.2
Galena + sphalerite + pyrite + gangue	6.3	0.5
Galena + sphalerite + pyrite	6.7	4.9
Galena + sphalerite	0.4	1.2
Galena + pyrite	0.4	0.4
Galena + gangue	0.4	0.7
Pyrite + sphalerite + galena + gangue	9.9	6.9
Pyrite + sphalerite + galena	13.7	9.4
Pyrite + sphalerite	2.8	6.9
Pyrite + galena coating	5.8	3.1
Pyrite + sphalerite coating	1.6	0.9
Gangue + sphalerite + galena + pyrite	4.3	2.8
Gangue + sphalerite + galena	0.5	2.6
Gangue + sphalerite + pyrite	1.2	-
Gangue + sphalerite	0.6	2.3
*Gangue + galena + pyrite	2.6	3.1
Gangue + galena	2.2	1.0
Gangue + pyrite	0.8	-
Chalcopyrite (total)	0.3	0.4
Other Mineral (arsenopyrite etc.)	0.4	0.9
Pyrite + chalcopyrite	-	3.1
Pyrite + gangue	-	-
Total	100.0	100.0

*Read pyrite + galena

Results - Continued

<u>Mineral Association</u>	Weight % (Calc.)	
	<u>PP-15 - Pb Ro. Conc.</u>	<u>PP-10 - Pb Ro. Conc.</u>
Sphalerite - liberated	9.1	9.6
Galena - liberated	18.9	36.4
Pyrite - liberated	11.3	17.6
Gangue - liberated	4.0	2.3
Sphalerite + pyrite + galena + gangue	1.2	-
Sphalerite + pyrite + galena	4.6	0.8
Sphalerite + galena	6.5	4.2
Sphalerite + pyrite	1.0	0.4
Sphalerite + gangue	0.5	-
Galena + sphalerite + pyrite + gangue	0.9	-
Galena + sphalerite + pyrite	3.9	0.5
Galena + sphalerite	6.4	5.2
Galena + pyrite	2.2	2.9
Galena + gangue	-	-
Pyrite + sphalerite + galena + gangue	2.1	0.4
Pyrite + sphalerite + galena	8.4	2.9
Pyrite + sphalerite	3.6	1.7
Pyrite + galena coating	7.5	9.7
Pyrite + sphalerite coating	-	-
Gangue + sphalerite + galena + pyrite	0.7	0.5
Gangue + sphalerite + galena	0.6	-
Gangue + sphalerite + pyrite	-	-
Gangue + sphalerite	0.2	-
*Gangue + galena + pyrite	5.2	3.3
Gangue + galena	0.1	0.8
Gangue + pyrite	-	-
Chalcopyrite (total)	0.5	0.8
Other minerals (arsenopyrite etc.)	-	-
Pyrite + chalcopyrite	0.6	-
Pyrite + gangue	-	-
Total	100.0	100.0

*Read pyrite + galena

Results - Continued

<u>Mineral Association</u>	Weight % (Calc.)	
	<u>PP15 - Pb Scav. Tail.</u>	<u>PP10 - Pb Scav. Tail.</u>
Sphalerite - liberated	8.0	9.0
Galena - liberated	5.3	3.9
Pyrite - liberated	37.7	33.8
Gangue - liberated	34.9	32.2
Sphalerite + pyrite + galena + gangue	-	-
Sphalerite + pyrite + galena	-	-
Sphalerite + galena	0.4	0.4
Sphalerite + pyrite	2.4	-
Sphalerite + gangue	0.4	0.2
Galena + sphalerite + pyrite + gangue	-	-
Galena + sphalerite + pyrite	-	0.4
Galena + sphalerite	-	-
Galena + pyrite	-	0.4
Galena + gangue	-	0.8
Pyrite + sphalerite + galena + gangue	-	-
Pyrite + sphalerite + galena	3.0	1.2
Pyrite + sphalerite	3.5	4.6
Pyrite + galena coating	1.0	5.0
Pyrite + sphalerite coating	-	-
Gangue + sphalerite + galena + pyrite	-	0.5
Gangue + sphalerite + galena	-	1.1
Gangue + sphalerite + pyrite	-	-
Gangue + sphalerite	1.7	0.5
*Gangue + galena + pyrite	-	1.6
Gangue + galena	0.1	3.2
Gangue + pyrite	-	0.2
Chalcopyrite (total)	1.6	1.0
Other minerals (arsenopyrite etc.)	-	-
Pyrite + chalcopyrite	-	-
Pyrite + gangue	-	-
Totals	100.0	100.0

*Read - pyrite + galena

Results - Continued

<u>Mineral Association</u>	Weight % (Calc.)	
	<u>P.P. No. 15 - Pb 1st Cl. Tail.</u>	<u>P.P. No. 10 - Pb 1st Cl. Tail.</u>
Sphalerite - liberated	15.0	11.7
Galena - liberated	4.0	8.4
Pyrite - liberated	33.5	50.9
Gangue - liberated	12.7	13.2
Sphalerite + pyrite + galena + gangue	0.3	-
Sphalerite + pyrite + galena	2.1	0.3
Sphalerite + galena	1.4	0.7
Sphalerite + pyrite	2.9	0.5
Sphalerite + gangue	-	0.3
Galena + sphalerite + pyrite + gangue	0.5	-
Galena + sphalerite + pyrite	1.0	0.5
Galena + sphalerite	1.5	-
Galena + pyrite	1.0	1.3
Galena + gangue	1.0	1.3
Pyrite + sphalerite + galena + gangue	-	0.3
Pyrite + sphalerite + galena	2.4	0.9
Pyrite + sphalerite	8.7	1.9
Pyrite + galena coating	7.1	3.5
Pyrite + sphalerite coating	-	-
Gangue + sphalerite + galena + pyrite	1.0	0.9
Gangue + sphalerite + galena	0.4	0.4
Gangue + sphalerite + pyrite	-	-
Gangue + sphalerite	1.0	0.4
*Gangue + galena + pyrite	2.1	0.9
Gangue + galena	-	0.7
Gangue + pyrite	-	-
Chalcopyrite (total)	0.4	1.0
Other minerals (arsenopyrite etc.)	-	-
Pyrite + chalcopyrite	-	-
Pyrite + gangue	-	-
Totals	100.0	100.0

*Read - pyrite + galena