

SUBJECT: GRUM METALLURGICAL TEST RESULTS

TO: C.H.FRAME, CHAIRMAN AND CEO

FROM: G.MCDONALD and C.K.BENNER

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The following is a brief summary of the above mentioned:

Done during Curragh's Time:

Three rock composite tests done at Lakefield all which were bench tests. The flow sheet developed required finer grinds and additional high intensity conditioning to produce saleable concentrate at respectable recoveries.

The three composites were from diamond drill core selected by the geologists which were representative of the three major rock types of the Grum deposit. This was done in the latter part of 1988.

As you know we elected to do further testing in early 1991 as a result of the Vangorda experience and selected two drill core from holes known to be in the vicinity of the Noranda (Kerr Addison) underground test headings. The reason for this was to try and determine the cause of the Noranda pilot plant results not living up to the expectations of a high grade concentrate and/or confirming their results.

Noranda geologists had identified the problematic ore as a shear contact zone where brecciated sulphides existed between the massive sulphide and carbonaceous phyllites.

Test results of the first hole (DDH G89-37) indicate that there are approximately 20 increments ranging from a cleaner con of 48% Pb at increment number one to increment number 4 results of a 60% Pb and at increment number 8 a 69% Pb.(The increments were taken in descending order.) The conclusion drawn was that in the top portion of the ore deposit ore grades were consistent with previous results however the recoveries were lower. Subsequent refinement of grind and reagents would provide an upgrading potential. It was also concluded that at the lower depths in the ore deposit the expected selectivity, con grades and recovery were in an acceptable and saleable range.

Mineralogical investigations on 3 increments of the first hole in the top, middle and lower portion of the hole, revealed that there was more middling size in the top of the hole than at the bottom thus explaining the metallurgical test results witnessed.

Test results of the second hole (DDH G91-48), a hole which was placed in the massive sulphide area and was close to the ore intersection of the Noranda decline and where they had obtained their bulk sample for pilot plant test work. Results in this hole

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indicated that a 60% Pb con can be produced however it contains 9 to 14% Zn. A 50% to 54% Zn con at an 80% recovery is produced in conjunction with these results. The head grades in the increments tested range from 24% to 37% combined.

During Noranda's time:

Extensive testing (pilot plant work) of at least two campaigns resulted in their concluding that they could not produce satisfactory concentrate in one instance and in another they could. It is believed that the possible culprit which confused the results was the middling size and the quantity of middling in the brecciated area. This is similar to the Stronsay Pb/Fe middling.

Further test work underway:

A further analysis of the DDH G91-48 hole results with high Zn in Pb to determine whether finer grind and/or high intensity conditioning will produce the desired results is necessary.

It should also be noted that there will be oxidation in the cap rock and we will have to treat the cap rock with this in mind. Obviously we will not get the metallurgical results at the outset that we desire and this must be taken into account.

With respect to the circuit of the Faro concentrator it will be necessary to modify to the extent that an additional grinder (one regrind mill) and high intensity conditioning capacity (one or two conditioners) and the necessary plumbing to support these additions. Further consideration will be given to the dewatering and thickening circuits however at this time it appears that the existing facility is adequate. A preliminary estimate for this additional infrastructure is a cost of \$1.5 million.

Copper levels in the Grum deposit are 0.13 which is similar to the Faro levels and are not believed to be of the same nature in occurrence as in the Vangorda deposit i.e; soluble copper in sands.

Grum reserve calculation is done and is being sent from Whitehorse to Faro today. Greg Jilson and Cam Reed are still doing some final check work however things appear to be in order on the basis of global results. (see attached for comparison of four calculations - NB 8705 is basis of IPO reserves and previous mine plans.) Geology department in process of plotting benches to check in more detail so that we can proceed with the completion of more detailed model. (summary attached).

For your information,

C.K.Benner and G.McDonald

ckb/

CURRAGH RESOURCES INC.

GRUM MINE

Results of several reserve calculations for Vintila Pit Stage III, at a 4% Pb+Zn cutoff

reserve calculation	Notes	ORE RESERVE								CONTAINED METAL			
		volume (cu. m.)	density (t/m ³)	tonnage (tonnes)	Pb+Zn (wt %)	Pb (wt %)	Zn (wt %)	Ag (g/t)	Au (g/t)	lead (tonnes)	zinc (tonnes)	silver (kg)	gold (kg)
8706	1	6,244	3.68	22,989	9.16	3.41	5.76	57.0	0.928	783	1,323	1,310	21
8706 diluted	2	NA	NA	26,438	7.97	2.96	5.00	49.6	0.807	789	1,323	1,310	21
8706 dil w/5% loss	3	NA	NA	25,116	7.97	2.96	5.00	49.6	0.807	744	1,257	1,246	20
8911	4	6,726	3.33	22,423	8.05	2.99	5.06	50.4	0.796	670	1,134	1,130	18
9009	5	6,757	3.31	22,364	8.08	3.01	5.07	48.4	0.801	673	1,134	1,082	18
9108	6	6,878	3.42	23,517	8.22	3.06	5.16	48.9	0.787	719	1,213	1,151	19
differences between calculations													
9108-8706	absolute	634	-0.26	528	-0.95	-0.35	-0.59	-8.1	-0.141	(64)	(110)	(159)	(3)
	percent	10%	-7%	2%	-10%	-10%	-10%	-14%	-15%	-8%	-8%	-12%	-13%
9108-8706 diluted	absolute	NA	NA	(2,921)	0.25	0.09	0.16	-0.6	-0.020	(64)	(110)	(159)	(3)
	percent	NA	NA	-11%	3%	3%	3%	-1%	-2%	-8%	-8%	-12%	-13%
9108-8706 w/ loss	absolute	NA	NA	(1,599)	0.25	0.09	0.16	-0.6	-0.020	(25)	(43)	(94)	(2)
	percent	NA	NA	-8%	3%	3%	3%	-1%	-2%	-3%	-3%	-8%	-8%
9108-8911	absolute	152	0.08	1,094	0.17	0.07	0.10	-1.4	-0.009	49	79	21	1
	percent	2%	3%	5%	2%	2%	2%	-3%	-1%	7%	7%	2%	4%
9108-9009	absolute	121	0.11	1,153	0.14	0.05	0.09	0.6	-0.014	46	80	89	1
	percent	2%	3%	5%	2%	2%	2%	1%	-2%	7%	7%	6%	3%

Note 1: 4.5 m benches, semi-geological compositing, strict rock matching, no CRF drilling

Note 2: as above but with 15% dilution by 0% Pb+Zn rock

Note 3: as above but with a 5% mining loss subtracted

Note 4: 7m benches, all drilling but 1991, slight revisions to geology, bench composites, loose matching

Note 5: 6m benches, all drilling but 1991, geology revised as above, bench composites, loose matching

Note 6: newest calculation 6m. benches, bench composites, all drilling but same geology as above, loose matching