

Memorandum

From: Stewart Capp
To: John Canterford, Alan Daley and File.
Date: 14th October 2010
Subject: Metallurgical Samples Selected for Test Work.

John,
Please find following a description of the samples submitted to Ammtec in Burnie on 6th October for the current round of calcinations tests.

Logic of Sample Selection

The samples were selected on the basis that they satisfied the following criteria;

1. They are within the conceptual pit put forward by Gemell Mining Engineers in September 2010.
2. There was continuous ¼ core available over an identifiable interval in the existing drill core (AR013 to AR026) in storage in Wynyard.
3. They comprise a minimum downhole interval of 3m, and a minimum weight of 1Kg.
4. They do not contain any obvious contaminants such as cavity fill which might be straightforward to remove by physical beneficiation.
5. They satisfy the following requirements requested by Process Technologies
 - a. 2 high grade samples of the order of 44% MGO, 1-2 % CaO and low contaminants.
 - b. 1 sample with higher dolomite/magnesite ratios of up to 15% dolomite.
 - c. 1 sample with higher silica (1-2%).

The proposed test work flow sheet is summarised below;

A - weigh sample

B - crush (dry) to 100% minus 5 mm and prepare size analysis: -5+2 mm, -2+1 mm and - 1 mm

C - split out suitable samples for chemical analysis - MgO, CaO, Fe₂O₃, Al₂O₃, SiO₂ and LOI (1000oC)

D - split out 100 g samples and heat in electric muffle furnace for 1 h at temperature - 600oC, 700oC, 750oC, 800oC, 850oC, 1000oC - cool in air - check weight loss and re screen (dry) - repeat above chemical assays - heating rate above 650oC needs to be controlled so as to avoid rapid evolution of carbon dioxide

Subject to the results obtained, XRD patterns of each sample as well as selected caclination products - we are particularly interested in checking the relative amounts of magnesite and dolomite and any opportunity to screen out dolomite and possibly free quartz.

698377

Sample Type – High Grade Magnesite, with low contaminants.

Drill Hole: AR013

From: 86.3m

To: 89.5m

Description: White, massive cuneiform magnesite

Analytical data:

HOLE_ID	SAMPLE	From	To	TYPE	CORESIZ	Length	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI
AR013		86.30	87.90			1.60	2.90	-0.01	-0.05	0.12	0.02	46.70	0.68	0.12	-0.01	-0.01	0.04	48.97
AR013		87.90	89.50			1.60	1.97	-0.01	0.13	0.10	0.02	46.73	1.00	0.13	-0.01	-0.01	0.04	49.74
AR013	698377	86.30	89.50	1/4 Core	HQ	3.20	2.44	-0.01	0.04	0.11	0.02	46.72	0.84	0.13	-0.01	-0.01	0.04	49.36



Photograph of entire sample 698377

698378

Sample Type – Higher CaO, with other contaminants low.

Drill Hole: AR013

From: 131.6m

To: 134.6m

Description: White magnesite with dark (dolomitic?) veining and angular brecciated appearance.

Analytical data:

HOLE_ID	SAMPLE	From	To	TYPE	CORESIZ	Length	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI
AR013		131.60	133.20			1.60	1.53	-0.01	-0.05	0.41	0.04	45.68	1.64	0.11	-0.01	-0.01	0.06	50.07
AR013		133.20	134.60			1.40	2.27	-0.01	-0.05	0.66	0.06	39.12	9.09	0.10	-0.01	-0.01	0.10	48.54
AR013	698378	131.60	134.60	1/4 Core	HQ	3.00	1.88	-0.01	-0.05	0.53	0.05	42.62	5.12	0.11	-0.01	-0.01	0.08	49.36



Photograph of entire sample 698378

698379

Sample Type – High Grade Magnesite with low contaminants.

Drill Hole: AR013

From: 149.6m

To: 152.6m

Description: White, massive cuneiform magnesite.

Analytical data:

HOLE_ID	SAMPLE	From	To	TYPE	CORESIZ	Length	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI
AR013		149.60	151.20			1.60	1.93	-0.01	0.08	0.17	0.02	46.38	1.25	0.12	-0.01	-0.01	0.06	49.77
AR013		151.20	152.60			1.40	1.90	-0.01	-0.05	0.14	0.02	46.53	1.04	0.12	-0.01	-0.01	0.07	49.79
AR013	698379	149.60	152.60	1/4 Core	HQ	3.00	1.92	-0.01	0.02	0.16	0.02	46.45	1.15	0.12	-0.01	-0.01	0.06	49.78



Photograph of entire sample 698379

698381

Sample Type – High Grade Magnesite with elevated levels of CaO, SiO₂ and Fe₂O₃.

Drill Hole: AR020

From: 85m

To: 88m

Description: Generally white/pink to buff coloured magnesite, with veining tending to be parallel sided (rather than a jigsaw pattern).

Analytical data:

HOLE_ID	SAMPLE	From	To	TYPE	CORESIZ	Length	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI
AR020		85.00	86.30			1.30	4.23	-0.01	0.10	0.75	0.09	44.46	0.99	0.10	-0.01	-0.01	-0.01	49.59
AR020		86.30	88.00			1.70	6.28	-0.01	-0.05	0.75	0.08	39.77	5.22	0.09	-0.01	-0.01	0.02	47.70
AR020	698381	85.00	88.00	1/4 Core	HQ	3.00	5.39	-0.01	0.01	0.75	0.08	41.80	3.39	0.09	-0.01	-0.01	0.01	48.52



Photograph of entire sample 698381

698382

Sample Type – High SiO₂, with elevated Fe₂O₃, Al₂O₃, CaO & SO₃. The “dirtiest” sample selected.

Drill Hole: AR016

From: 134.6m

To: 138.2m

Description: Dark brown to light green/cream massive magnesite with breccia textures.

Analytical data:

HOLE_ID	SAMPLE	From	To	TYPE	CORESIZ	Length	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	LOI
AR016		134.60	136.10			1.50	10.57	0.02	0.51	0.98	0.08	38.71	4.08	0.12	0.03	-0.01	0.50	44.60
AR016		136.10	138.20			2.10	11.87	-0.01	-0.05	0.86	0.07	38.46	3.89	0.10	-0.01	-0.01	0.06	45.07
AR016	698382	134.60	138.20	1/4 Core	HQ	3.60	11.33	0.00	0.18	0.91	0.07	38.56	3.97	0.11	0.01	-0.01	0.24	44.87



Photograph of entire sample 698382

