

MEMORANDUM

To: Australia Hualong Limited	Date: 13 th April 2015
Attn: Dr Joe Xie	Our Ref: BR801-00283 EJT M15001
cc: Jim Luo	From: Ed Tuplin

RE: TENTH LEGION MAGNETITE PROJECT – WASTE ROCK SAMPLE SELECTION STUDY

1. INTRODUCTION

Knight Piésold (KP) has been requested to provide advice and assistance on the selection of waste rock samples from the Tenth Legion Magnetite Project. A total of forty eight samples are to be collected and analysed for this preliminary study. This is slightly higher than the number of samples initially envisaged by KP given the wide range of waste lithologies now known to be present within the deposit, but is commensurate with the current scoping study level of design. The purpose of this study is to identify high risk lithologies or waste zones which may require additional investigation and definition during subsequent study phases and prior to mining operations.

KP has been provided with background information on the project, as summarised below:

- Metallurgical test results for two ore samples by Guangzhou Research Institute of Non-Ferrous Metals, July 2014.
- Production schedule.
- Drilling database.
- Mineral Resource Estimation Report by Resource and Exploration Geology, August 2014.
- Mining Scoping Study Report by Sino Mining Consultants, February 2015.

2. GEOLOGY

A summary of the site geology is provided below, based on the information provided in the resource estimation report.

The Tenth Legion locality is dominated by the Devonian Heemskirk granite batholith, which outcrops to the immediate northwest of the prospect forming the prominent Heemskirk Range. The Heemskirk granite is responsible for much of the tin-tungsten, lead-zinc, magnetite and nickel skarn mineralisation in the district.

The Tenth Legion deposit is a carbonate hosted magnetite skarn deposit formed within Precambrian sedimentary rocks of the Oonah Formation on the south-eastern edge of the Heemskirk Granite. The skarn strikes west-northwest and dips steeply to the north. The skarn extends approximately east-west for 500 m in strike length and has been drilled to approximately 200 m depth. Mineralised lenses vary from 1 to 12 m in thickness. Hornfelsed quartzite forms the hangingwall and footwall to the host sequence.

Mineralisation is hosted in what is interpreted to have been impure limestone beds associated with pale grey siltstones within the Oonah Formation. The host sequence is bounded by Oonah Formation quartzite, siltstone and black shales to the north and south.

Variable amounts of pyrrhotite, galena and sphalerite to 2-5% are sometimes associated with the magnetite. Increased sulphide contents were recorded at the south end of the Central Lode. Minor amounts of chalcopyrite-pyrite and trace tin, tungsten, gold and bismuth have been reported.

The Oonah Formation is strongly deformed and has been thrust over the younger Cambrian mafic-ultramafic complex and Crimson Creek volcanoclastics by the low angle Tenth Legion Thrust. Later brittle faulting and folding has disrupted the Proterozoic and Cambrian lithologies.

3. DRILLING DATABASE AND SAMPLE SELECTION

3.1 DRILLING DATA

Three phases of exploration drilling have been conducted at the Tenth Legion deposit resulting in a total of 87 boreholes. KP has been provided with a drilling database which includes lithological descriptions for 67 boreholes advanced using diamond drilling techniques. Some of these boreholes also have assay data available, although predominantly focussed at ore intercepts rather than waste zones. From this dataset, KP has excluded boreholes drilled during the first campaign in 1980 from the sampling programme due to potential oxidation of the core. Instead only holes drilled during the 2010 and 2013 drilling campaigns are considered appropriate for sampling. However, all boreholes included within the database have been included in the database interrogation and analysis to characterise the occurrence of each lithology.

3.2 INTERROGATION OF DRILLING DATABASE

The sum of all intercepts for each lithology in the drilling database was calculated to identify key lithologies and determine the appropriate number of samples to be selected from each lithology according to occurrence. Ore intercepts (i.e. where magnetite was referenced as the main lithology) were found to comprise 22% of the database with waste comprising 78%. Zones of core loss, unknown lithologies and minor waste lithologies with limited occurrence (i.e. each comprising on average 0.4% of the database) collectively comprised 6% of the database and were not included in the sample selection process. These lithologies were typically considered low risk with the exception of a single 0.6 m intercept of 'massive sulphide'. The excluded intercepts are summarised in Table 3.1.

Table 3.1: Waste Lithology Intercepts Excluded from Sampling Programme

Lithology	Logging Code	Intercept (m)	Intercept (%)
Clay	CLY	143.3	2.20%
No sample	NS	81.9	1.26%
Limestone with calc-silicate alteration	LC	57.7	0.88%
Slate	MSL	39.8	0.61%
Volcaniclastic	VCC	11.7	0.18%
Carbonaceous siltstone	SCI	11.2	0.17%
Siltstone	SSI	9.4	0.14%
Carbonaceous clay	CCY	9	0.14%
Marble	MMA	7.9	0.12%
Limestone with serpentinite	LS	7.6	0.12%
Unknown	UNK	6	0.09%
Shale	SSH	5.2	0.08%
Gossan	CSG	4.2	0.06%
Limestone	SLM	1	0.02%
Massive sulphide	OMS	0.6	0.01%
<i>Sub-Total (Above Intercepts)</i>		<i>396.5</i>	<i>6%</i>
<i>Ore Intercepts in Database</i>		<i>1407.6</i>	<i>22%</i>
<i>Main Waste Lithologies in Database</i>		<i>4721.3</i>	<i>72%</i>
<i>Total Database Intercepts</i>		<i>6525.4</i>	<i>100%</i>

The number of samples selected from each of the main waste lithologies is based on occurrence within the drilling database and the recommendations provided within the Department of Industry, Tourism and Resources publication, “*Managing Acid and Metalliferous Drainage*” dated 2007. Given the current resource definition study phase, it is recommended that five to ten representative samples are tested for each key lithology. Therefore, KP has assigned ten samples to each of the two main waste lithologies (together comprising around 50% of the waste), five samples to each of the next two most common lithologies both comprising around 10% of the waste and three samples to each of the six minor waste lithologies, as summarised in Table 3.2.

It should be noted that although *Managing Acid and Metalliferous Drainage* recommends basic testwork at this phase of development such as NAPP/NAG and sulphide/carbonate analysis, KP prefers to adopt a comprehensive suite of analysis including a full Acid-Base Accounting suite, NAG testing and multi-element analysis on all samples and distilled water extract and quantitative XRD mineralogy on a limited number of samples at this early stage to allow detailed examination and full interpretation. Also given the potential for high metals contents within the deposit based on the reported tin, tungsten, gold and bismuth, multi-element and distilled water extract analysis is warranted at this early stage to identify enrichments and assess the leaching potential. The proposed analysis suites are summarised in Section 5.

Table 3.2: Lithology Intercepts in Drilling Database and Sample Weighting

Lithology	Logging Code	Intercept (m)	Intercept (%)	Intercept (Excluding Ore and Minor Waste Lithologies) (%)	Weighted Number of Samples
Calc-Silicate	C	1376.67	21%	29%	10
Shale and Siltstone	H	1139.58	17%	24%	10
Quartzite	MQZ	527.9	8%	11%	5
Calc-Silicate Rock with Magnetite	CM	503.03	8%	11%	5
Breccia	BC, BH, BS	387.75	6%	8%	3
Quartz-Sericite	Q	369.24	6%	8%	3
Serpentinite	IUS	125.1	2%	3%	3
Dolomite with Magnetite	DM	100.4	2%	2%	3
Black Shale	SBS	97.8	1%	2%	3
Dolomite	SDL	93.8	1%	2%	3
All Other Waste (Minor Lithologies)	Varies	396.5	6%	-	0
Magnetite (as main lithology)	Varies	1407.63	22%	-	0
Total		6525.4	100%	100%	48

3.3 SELECTED SAMPLE INTERCEPTS

The samples were selected from a range of boreholes and depths to achieve a reasonable lateral and vertical spread. Samples from depths greater than 100 m in inclined holes were disregarded given the design pit depth of approximately 80 m. Efforts were also made to select samples from within the design pit shell.

KP has specified the intercepts from which to select each sample based on the drilling database. This is presented in Table 3.3. Where assay data is available, the sample should comprise a composite sample formed from the full assay intercept, typically 1 m but up to 1.7 m. Where assay data is not available, the site geologist will be required to select a representative sample over a discrete length from the lithological intercept. A composite sample is not required in these circumstances as the lithological intercepts are up to 44 m in length. Further guidelines for selecting samples from each intercept are provided in Section 4.

Table 3.3: Sampling Intercepts

Sample Number	Drill Hole Name	Lithology Intercept		Lithology	Assay Intercept		Assay Data ¹		Take Composite Sample from Assay Intercept ²	Take Representative Sample from Lithology Intercept ³
		Depth From	Depth To		Depth From	Depth To	Fe (%)	S (%)		
1	TLC18	47.3	49.5	DM - Dolomite with magnetite	48	49	14.4		✓	
2	TLC18	56	58	SBS - black shale	56	57	3.03		✓	
3	TLC20	65	66	MQZ - quartzite						✓
4	TLC20	89	90	MQZ - quartzite						✓
5	TLC22	61	63.2	H - Shale and siltstone						✓
6	TLC22	91	100.6	H - Shale and siltstone						✓
7	TLC30	17	24.5	SBS - black shale						✓
8	TLC30	68.7	71.2	IUS - serpentinite						✓
9	TLC31	63.2	70.4	SBS - black shale	63	64	4.16		✓	
10	TLC31	82.4	91.5	MQZ - quartzite	83	84	11.2		✓	
11	TLC32	94.8	138.9	DM - Dolomite with magnetite						✓
12	TLC37	68.8	98	MQZ - quartzite	69	70	7.24		✓	
13	TLC39	0	27	H - Shale and siltstone						✓
14	TLC39	27	31.6	H - Shale and siltstone						✓
15	TLC39	32.5	35.7	H - Shale and siltstone						✓
16	TLC39	35.7	44	C - Calc-silicate rock						✓
17	TLC40	83.5	120	MQZ - quartzite	83	84	3.78		✓	
18	TLC42	69	81.5	SDL - dolomite	69	70	1.11		✓	
19	TLR1	36.4	41.2	Q - Quartzite, quartz-sericite rock	36.2	37	22.98	5	✓	
20	TLR13	1.3	11.6	CM - Calc-silicate rock with magnetite						✓
21	TLR13	21.6	24.9	IUS - serpentinite						✓
22	TLR15	12.1	14.8	H - Shale and siltstone						✓
23	TLR15	19.2	20.7	C - Calc-silicate rock						✓
24	TLR15	22.3	26.9	CM - Calc-silicate rock with magnetite						✓
25	TLR15	37.8	39.5	Q - Quartzite, quartz-sericite rock						✓
26	TLR16	44.9	55.5	SDL - dolomite	44.3	45.3	17.61	0.025	✓	
27	TLR18	15.7	18.9	CM - Calc-silicate rock with magnetite	17.9	18.8	25.15	0.001	✓	
28	TLR20	21.1	44	C - Calc-silicate rock	43	44	20.25	1.44	✓	

Sample Number	Drill Hole Name	Lithology Intercept		Lithology	Assay Intercept		Assay Data ¹		Take Composite Sample from Assay Intercept ²	Take Representative Sample from Lithology Intercept ³
		Depth From	Depth To		Depth From	Depth To	Fe (%)	S (%)		
29	TLR26	62	69.5	Q - Quartzite, quartz-sericite rock						✓
30	TLR3	6.7	12.2	H - Shale and siltstone	6.7	8.3	3.24	0.02	✓	
31	TLR3	21.3	25.3	C - Calc-silicate rock						✓
32	TLR31	20.5	25	DM - Dolomite with magnetite	21	22	2.51	0.03	✓	
33	TLR31	38.7	57.1	C - Calc-silicate rock	35	36	24.4	0.001	✓	
34	TLR32	7	9.8	SDL - dolomite						✓
35	TLR36	33.8	45.1	BH - Brecciated shale and siltstone	44	45	5.9	0.696	✓	
36	TLR37	11.2	16.7	C - Calc-silicate rock	11.2	12.9	11.94	0.028	✓	
37	TLR37	18.4	23.7	BH - Brecciated shale and siltstone						✓
38	TLR37	33.4	39.5	BC - Brecciated calc-silicate rock	33	34	16.26	0.994	✓	
39	TLR38	0	13.1	C - Calc-silicate rock						✓
40	TLR42	0.8	18	C - Calc-silicate rock						✓
41	TLR42	18	46	H - Shale and siltstone						✓
42	TLR42	46	48.5	H - Shale and siltstone						✓
43	TLR6	35.5	43.1	C - Calc-silicate rock						✓
44	TLR8	17.1	18.6	CM - Calc-silicate rock with magnetite	17	18.7	24.64	0.003	✓	
45	TLR8	41	48	H - Shale and siltstone						✓
46	TLR9	12.3	15.2	CM - Calc-silicate rock with magnetite						✓
47	TLR9	24.4	36.8	C - Calc-silicate rock						✓
48	TLR9	36.8	46	IUS - serpentinite						✓

Notes:

¹ Assays not available for all intercepts

² Based on the available assay data, a sample should be composited from the entire intercept listed

³ A representative discrete sample should be selected from the intercept. This should not be a composite sample

4. GUIDELINES FOR SELECTING AND DISPATCHING SAMPLES

The following recommendations are provided to assist the site geologist in collecting samples:

1. Samples can be part core ($\frac{1}{4}$ or $\frac{1}{2}$ core is acceptable) with a required sample size of at least 1 kg.
2. For intercepts where no assay data is available, a sample should be selected which broadly represents the lithology it is targeting. This should be from a discrete interval and not a composite.
3. For intercepts where assay data is available, a composite sample should be formed over the entire assay intercept.
4. All samples should have iron concentrations below the cut-off grades of 26% (oxide) and 31% (fresh). However, some samples should be in the low grade range of 15% to 25%.
5. Samples should have varying sulphide grades from negligible to very high.
6. Samples must be from depths greater than 2 m due to interstate quarantine restrictions.
7. When selecting the samples, a brief sample description should be prepared (e.g. black shale containing disseminated sulphides, or calc-silicate rock containing calcite veining. These notes will be very important in the interpretation of the results.
8. Once the samples are selected, they should be bagged and labelled using the borehole ID and sample depth. It is understood that the core will be prepped at ALS Burnie prior to being dispatched to Intertek Genalysis.
9. The samples should be packaged in well sealed, sturdy plastic bags. Using two plastic bags per sample is often a good safety measure. Ensure that labels are well written on bags and, if possible, include a sample label inside each sample bag.
10. The chain of custody / sample submission sheets (attached as an excel file) should be completed and emailed to Ed Tuplin at Knight Piésold (etuplin@knightpiesold.com) as well as attached to the shipment.
11. The chain of custody / sample submission sheets (attached as an excel file) should be completed and emailed to Ed Tuplin at Knight Piésold (etuplin@knightpiesold.com) as well as attached to the shipment.
12. The samples will need to be packaged for shipment to Intertek Genalysis in Western Australia. Please forward a copy of the consignment note to Ed Tuplin (email above) to allow us to notify the laboratory. The address and contact details of the laboratory are as follows:

Intertek Genalysis
Sample Receiving
Gate 6, 16 Davison Street,
Maddington,
Western Australia, 6109
+61 (0) 8 9251 8100

5. ANALYSIS SUITE

All forty eight samples will be analysed for the following acid base accounting and multi-element suite:

- Paste pH and EC
- Total sulphur (by Leco), sulphate sulphur (HCl digest) and sulphide sulphur (by difference).
- Total carbon (by Leco) and carbonate carbon (acetic acid digest)
- Acid Neutralising Capacity (ANC) with siderite correction
- Net Acid Generation (NAG) including measurement of final NAG pH and titration to NAG pH 4.5 and NAG pH 7.0.
- Four acid digest and ICP multi-element analysis (plus specialist digest and detection methods for certain elements)

In addition, a limited number of samples (including at least one sample from each lithology) will be selected for distilled water extract and quantitative XRD mineralogical analysis. However, these samples will be selected based on the results from the initial phase of analysis.

We trust this information is suitable for your current requirements, however, please do not hesitate to contact us should you require anything further.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD



ED TUPLIN
Project Engineer



TIM ROWLES
Regional Manager, Queensland