NORTH TELFER PROJECT - MINYARI DOME
FURTHER EXCELLENT METALLURGICAL TEST-WORK RESULTS

Highlights

- **2017 metallurgical test-work demonstrated excellent gold recoveries for both oxide and primary mineralisation from the Minyari and WACA deposits[1]:**
  - **Conventional gravity and cyanide leach processing for all ore types delivered average total gold recoveries of 95% in oxide ore and 88% in primary ores.**
- **2018 metallurgical test-work confirms the potential for Minyari Dome to produce copper-gold concentrate and cobalt-gold concentrate product with extremely favourable results:**
  - **Copper-gold concentrate product;**
    - **Up to 21.9% copper grade in intermediate flotation concentrate with very high gold grades up to 67 g/t.**
  - **Standalone cobalt-gold products;**
    - **Cobalt gravity concentrate grading up to 11% cobalt with recoveries up to 66% with gold by-product; and**
    - **Cobalt flotation concentrate grading up to 5.6% cobalt with recoveries up to 68% with gold by-product.**
  - **Up to 89% total recovery of gold in both copper and cobalt flotation concentrates.**
- **Optimisation of metallurgical performance expected via additional test-work.**
- **Positive metallurgical test results support the Company's development strategy.**

Antipa Minerals Ltd (ASX: **AZY**) ("Antipa", "the Company") is pleased to announce that it has received further positive test-work results from the Minyari gold-copper-cobalt deposit located within the Company's North Telfer Project, 40km north of Newcrest's Telfer gold-copper-silver mine in northern Western Australia.

The test-work aimed to confirm the potential for Minyari Dome ores to be processed via two potential processing routes; either via a conventional gold circuit to recover gold only or conventional flotation to create discrete copper-gold and cobalt-gold concentrate products. This test-work follows on from the favourable 2017 metallurgical test-work[1] that focused on gold only, whereby the Company sought to extract further value via alternative processing paths.

Whilst the high-grade gold mineralisation remains the economic driver for both the Minyari and WACA deposits, unlocking the copper and/or cobalt by-product value could serve to further enhance the development opportunity. All metallurgical test-work to date has been conducted by Bureau Veritas Minerals Pty Ltd, an independent organisation, under the management of Strategic Metallurgy Pty Ltd.

[1] Refer to ASX release 13 June 2017

During the 2017 gold focussed test-work total gold recovery of up to 97.1% was achieved via conventional gravity and cyanide leach processing techniques. Test-work undertaken in 2018 focussed on flotation (Figure 1) and gravity processing techniques and intermediate concentrates containing gold and base metals grading up to 432 g/t gold, 21.9% copper and 11% cobalt were achieved. Overall, the 2017 and 2018 gold and by-product metallurgical programmes on the various Minyari Dome ores have produced extremely positive and encouraging results. The ore has demonstrated that it is amenable to conventional processing techniques. A process plant using well established and proven equipment is envisaged.

Figure 1: Minyari Deposit metallurgical test-work copper sulphide float

Future test-work will focus on:

- Copper and cobalt flotation optimisation to improve concentrate grades at suitable recoveries;
- Optimisation of gravity concentration of cobalt;
- Oxide by-product flotation test work;
- Grind optimisation; and
- Evaluation of heap leach amenability.

Details of the metallurgical test-work programme and results are set out in the Appendix to this Media Release.

For further information, please visit www.antipaminerals.com.au **or contact:**

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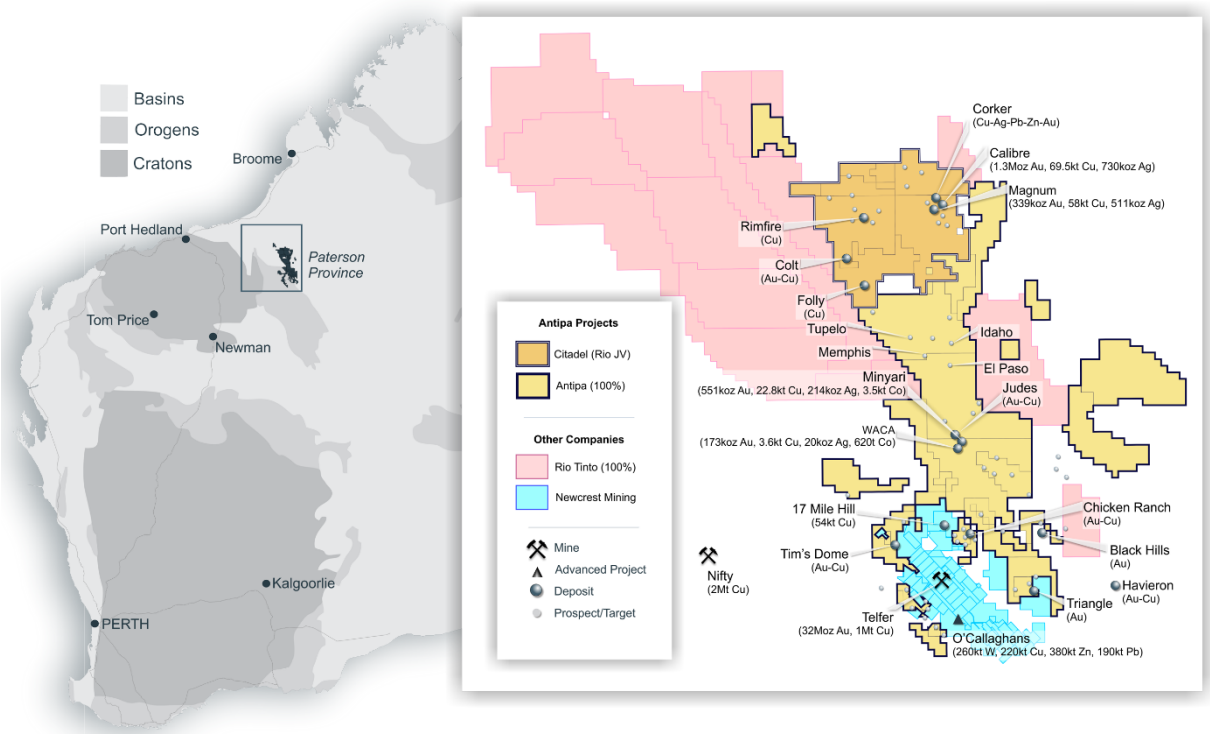
About Antipa Minerals:

Antipa Minerals Ltd is an Australian public company which was formed with the objective of identifying under-explored mineral projects in mineral provinces which have the potential to host world-class mineral deposits, thereby offering high leverage exploration and development potential. The Company owns 5,785km^2 of tenements in the Paterson Province of Western Australia, including a 1,335km^2 package of prospective granted tenements known as the Citadel Project. The Citadel Project is located approximately 75km north of Newcrest's Telfer Gold-Copper-Silver Mine and includes the gold-copper-silver±tungsten Mineral Resources at the Calibre and Magnum deposits and high-grade polymetallic Corker deposit. Under the terms of a Farm-in and Joint Venture Agreement with Rio Tinto Exploration Pty Limited ("Rio Tinto"), a wholly owned subsidiary of Rio Tinto Limited, Rio Tinto can fund up to $60 million of exploration expenditure to earn up to a 75% interest in Antipa's Citadel Project.

The Company has an additional 1,310km^2 of granted exploration licences, known as the North Telfer Project which hosts the high-grade gold-copper Minyari and WACA Mineral Resources and extends its ground holding in the Paterson Province to within 20km of the Telfer Gold-Copper-Silver Mine and 30km of the O'Callaghans tungsten and base metal deposit. The Company has also acquired, from the Mark Creasy controlled company Kitchener Resources Pty Ltd, additional exploration licences in the Paterson Province which cover 831km^2 and the Company owns a further 312km^2 of exploration licences (including both granted tenements and applications), which combined are known as the Paterson Project, which comes to within 3km of the Telfer Mine and 5km of the O'Callaghans deposit.



Competent Persons Statement – Exploration Results:

The information in this report that relates to the Exploration Results is based on and fairly represents information and supporting documentation compiled by Mr Roger Mason, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Mason is a full-time employee of the Company. Mr Mason is the Managing Director of Antipa Minerals Limited, is a substantial shareholder of the Company and is an option holder of the Company. Mr Mason has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Mason consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Various information in this report which relates to Minyari Dome Exploration Results have been extracted from the following announcements:

- Report entitled "*North Telfer Project Update on Former NCM Mining Leases*" created on 3 December 2015;
- Report entitled "*High Grade Gold Mineralisation at Minyari Dome*" created on 8 February 2016;
- Report entitled "*Minyari Deposit Drilling to Commence May 2016*" created on 2 May 2016;
- Report entitled "*Minyari Phase 1 Drilling Commences*" created on 2 June 2016;
- Report entitled "*Further Historical High-grade Gold Intersections at Minyari*" created on 14 June 2016;
- Report entitled "*Minyari Reprocessed IP Survey Results*" created on 5 July 2016;
- Report entitled "*Minyari Phase 1 Drilling Update No. 1*" created on 20 July 2016;
- Report entitled "*Completion of Phase 1 Minyari Deposit RC Drilling Programme*" created on 9 August 2016;
- Report entitled "*Minyari Drilling Update No. 3*" created on 17 August 2016;
- Report entitled "*Minyari Drilling Update No. 4*" created on 29 September 2016;
- Report entitled "*Minyari Dome - Phase 2 Exploration Programme Commences*" created on 31 October 2016;
- Report entitled "*Minyari Dome Drilling Update No. 1*" created on 16 December 2016;
- Report entitled "*Minyari Dome and Citadel – Phase 2 Update*" created on 9 February 2017;
- Report entitled "*Minyari Dome 2017 Exploration Programme*" created on 27 March 2017;
- Report entitled "*Minyari Dome 2017 Phase 1 Exploration Programme Commences*" created on 13 April 2017;
- Report entitled "*Minyari Dome Positive Metallurgical Test Work Results*" created on 13 June 2017;
- Report entitled "*High-Grade Gold Intersected at North Telfer Project Revised*" created on 21 June 2017;
- Report entitled "*Minyari Dome Phase 1 Final Assay Results*" created on 31 August 2017; and
- Report entitled "*Minyari/WACA Deposits Maiden Mineral Resource*" created on 16 November 2017.

All of which are available to view on www.antipaminerals.com.au and www.asx.com.au. The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements.

Forward-Looking Statements:

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Antipa Mineral Ltd's planned exploration programme and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may," "potential," "should," and similar expressions are forward-looking statements. Although Antipa Minerals Ltd believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.

APPENDIX – METALLURGICAL TEST-WORK TECHNICAL INFORMATION:

Minyari Dome 2018 By-Product Metallurgical Test-work Key Results:

The 2018 metallurgical test-work was completed at the Bureau Veritas Minerals Pty Ltd laboratories, an independent organisation, in Perth, Western Australia under the management of the Company's Managing Director, Bureau Veritas metallurgists and Strategic Metallurgy Pty Ltd metallurgists.

Separate copper and cobalt concentrates were generated by flotation, with key results including copper recovery to a rougher concentrate of up to 94% with gold recovery up to 82%. Cleaning of the copper rougher concentrates to copper grades > 14% were achieved at acceptable stage recoveries and gold was concentrated to 40 g/t. Intermediate concentrate grades were 21.9% and 67 g/t for copper and gold respectively.

Gravity processing achieved up to 61% Cobalt recovery at a gravity concentrate grade of 11% cobalt. Flotation processing achieved cobalt recovery to a rougher concentrate from 62 to 68%. Cleaning of the cobalt rougher concentrates to cobalt grades > 3.4% were achieved at acceptable stage recoveries and intermediate concentrate grades of up to 5.6% cobalt were achieved by flotation.

Total recovery of gold via flotation to both copper and cobalt rougher concentrates was as high as 88.9%. Gravity only recovery of gold was moderate to high ranging from 19% to 71%.

The metallurgical test-work programme indicated that a number of processing flow sheet options exist for the Minyari-WACA mineralisation, namely:

- Conventional gold plant (cyanide leach/CIL with gravity);
- Conventional gold plant (cyanide leach/CIL with gravity) and gravity cobalt concentrate;
- Split copper/gold and cobalt flotation plant; or
- Gravity cobalt and copper/gold flotation plant.

The previous 2017 gold focussed metallurgical test-work demonstrated a relatively conventional free milling gold plant (including gravity gold recovery) would be feasible. Given the gravity response a cobalt concentrate should also be feasible. Depending on commercial concentrate terms, the 2018 by-product test-work has also confirmed the primary mineralisation's amenability to split flotation for extraction copper-gold and cobalt concentrates.

Minyari Dome 2018 By-Product Metallurgical Test-work Detail:

Two metallurgical composite samples were composed of Reverse Circulation (RC) drill samples representative of the Minyari deposit gold-copper-cobalt mineralisation. The 2018 metallurgical test-work which focused on the base metal (copper and cobalt) recovery has comprised:

- Diagnostic flotation test work, via a range of copper and cobalt dedicated concentration techniques;
- Gravity test work, focussed on the base metals, copper and cobalt, and gold; and

- Results of the mineralogical and metallurgical data investigation via Bureau Veritas' QEMSCAN® micro-analysis system.

Minyari Deposit Metallurgical Samples:

Two metallurgical composite samples with total weights of 30.4 kg (oxide ore) and 36.1 kg (primary ore) were composed of material from a total of 40 individual samples. All samples were collected from RC drill material representative of the Minyari deposit gold-copper-cobalt oxide and primary mineralisation. The composite samples were constructed to have precious and base metal grades comparable to the Minyari deposit oxide and primary mineralisation. The composite samples are summarised in Table 1 below.

Table 1: Minyari Deposit Metallurgical Composite Head Grades

Composite ID	Deposit	Gold g/t	Copper %	Cobalt ppm	Silver g/t	Sulphur %	Iron %	Arsenic ppm
OX 1	Minyari	2.00	0.41	1,410	0.10	0.10	7.74	460
PR 1	Minyari	1.72	0.38	600	0.83	0.75	3.69	890

Notes: OX = Oxide and PR = Primary/Fresh

Flotation Test Work:

A total of six flotation tests were conducted, only on the primary mineralisation composite. The flotation test-work programme objective was to produce separate copper and cobalt concentrates, with the objectives and targets for potentially saleable concentrates being:

- **Copper Concentrate:** ≥ 15% copper grade and maximise copper and gold recovery whilst minimising cobalt recovery; and
- **Cobalt Concentrate:** ≥ 5% cobalt grade and maximise cobalt recovery.

The flotation test-work was conducted in Perth tap water at a primary grind size of P_{80} 75µm. Testing focused on achieving maximum grade and recovery of copper and cobalt to their respective concentrates, no particular emphasis was made on achieving gold recovery.

The flow sheet utilises conventional flotation techniques using potassium amyl xanthate (PAX) and copper sulphate to activate and float iron sulphides. A precious metal specific di-alkyl-di-thiophosphinate promoter (3418A) was used to improve selectivity and recovery of copper and other iron sulphide minerals. Methyl isobutyl carbinol (MIBC) was used as a froth stabiliser for the flotation tests. Triethylenetetramine (TETA) is an organic reagent used in conjunction with sulphite to depress iron sulphide minerals during sulphide flotation. Lime and hydrogen sulphide were used to modify pH, aiding in the depression of cobaltite.

It should be noted that the tests conducted are expected to improve during scale-up. This is primarily due to the low by-product grades resulting in small concentrate masses during cleaning. Also closing the circuit will assist as this bench-scale test-work was open circuit; i.e. all intermediate tails are considered final tail and not reprocessed to improve recovery as would occur in a full-scale processing facility.

The test-work determined that both copper and cobalt could be recovered to two separate concentrates at significant grades and recoveries. The results of the flotation test-work are summarised in Table 2 below.

Table 2: Primary Ore Flotation Test-work Results

		Copper		Gold		Cobalt		
Flotation Test	Float Stage	Recovery %	Grade %	Recovery %	Grade g/t	Recovery %	Grade %	Comments
FT08	Concentrate							Demonstrated ability to produce split Concentrates (Rougher only).
	Rougher	87.3	3.9	+86.0	11.7	**68.2**	1.5	
FT09	Concentrate							TETA system increased Cu recovery & Rougher con grade. Co over depressed at pH > 9.
	Rougher	93.4	7.6	N/A		11.6	0.2	
FT10	Concentrate	92.6	6.3			3.9	0.3	Bulk rougher – split cleaner. Difficult to depress Co in cleaner.
	Rougher	97.7		**88.4**	17.5	90.1		
FT11	Concentrate	88.4	11.7	**82.0**	21.7			Increased Cu Cleaner con grade. Low Co recovery at pH 7 (rougher only).
	Rougher	92.3		**84.2**		47.2	1.2	
FT12	Concentrate	**85.0**	**14.4**	**68.0**	**39.5**	35.9	2.7	Cu Recleaner increased Con grade. TETA addition depressing Co in Rougher.
	Rougher	**93.9**		**77.0**		40.9		
	Intermediate	**78.8**	**16.1**		**45.5**			
	Intermediate	30.9	21.9		**66.5**			
FT13	Concentrate	83.4	12.7	63.5	22.0	**50.8**	**3.5**	Cu Regrind did not improve on previous results. Co recovery increased with increased reagent addition, initial cons graded >5% Co.
	Rougher	91.6		81.7		**61.8**		
						82.0		

Gravity Test Work:

A total of two gravity tests were conducted, one each for primary and oxide ore. The gravity test-work programme objective was to determine if a saleable cobalt concentrate could be generated by gravity separation.

All tests were conducted in Perth tap water at a grind size of P_{98} 212µm. Testing consisted of two stages, the first was to maximise recovery to a gravity concentrate and the second stage was to upgrade the gravity concentrate to a saleable product.

To maximise recovery to a gravity concentrate 5 kilograms of each sample was passed through a Falcon Concentrator three times to simulate the potential recovery from a continuous Falcon Concentrator. The concentrates from the Falcon Concentrator were then combined and tabled to further upgrade the concentrate.

The results of the gravity tests are summarised in Table 3 below.

Gold Gravity Recovery

Gravity recoverable gold from both the oxide and primary ore is considered high, achieving 50.5% and 71.3% to Falcon concentrates respectively. Whilst the tabling stage recovery was low, the final concentrates grades achieved were as high as 230 to 430 g/t gold.

Cobalt Gravity Recovery

Saleable cobalt concentrates can be produced from both the primary and oxide ore by means of gravity, producing final concentrate grades of 10.8% cobalt and 6.54% cobalt respectively. The primary ore gravity recovery was moderate typically ranging between 40% to 70%.

These results indicate that gravity concentration could be implemented into the final flow sheet for cobalt recovery. More test-work is required to determine the exact configuration and whether multiple gravity concentration stages are required.

The results also indicate that gravity concentration can be used as a cleaning alternative within the cobalt flotation circuit.

Table 3: Gravity Test-work Results

	Gold		Cobalt		Copper	
Gravity Test	Recovery %	Grade g/t	Recovery %	Grade %	Recovery %	Grade %
PRIMARY SAMPLE						
Concentrate 1	**56.7**	35.3	28.0	0.63	4.73	0.62
Concentrate 1-2	**64.6**	20.6	**43.3**	0.50	9.37	0.63
Concentrate 1-3	**71.3**	16.5	**66.1**	0.56	9.48	0.46
Final Concentrate	**32.4**	**238.0**	**40.5**	**10.8**	3.22	4.97
OXIDE SAMPLE						
Concentrate 1	**32.4**	27.9	7.0	0.46	2.49	0.47
Concentrate 1-2	**45.5**	19.2	12.0	0.38	4.80	0.44
Concentrate 1-3	**50.5**	15.2	14.6	0.33	6.47	0.42
Final Concentrate	18.5	**432.0**	4.1	**6.54**	0.84	4.21

QEMSCAN® and SEM/EDS Analysis:

Minyari deposit primary ore was the subject of mineralogical analysis by Bureau Veritas' QEMSCAN® micro-analysis technology and Scanning Electron Microscopy / Energy Dispersive X-Ray Spectroscopy (SEM/EDS).

The overall objective of this mineralogical analysis was to identify key metallurgical characteristics of the gold-copper-cobalt-silver primary mineralisation to assist with processing flow sheet design. Specific objectives were to identify and quantify:

- Gold deportment;
- Sulphide minerals;
- Copper minerals;
- Cobalt minerals;
- The size distribution of gold and sulphides;
- Liberated gold versus fine gold in sulphides; and
- Potential for refractory gold (i.e. gold locked in sulphides).

The key results from this analysis are provided in more detail below, including Tables 4 to 6. The gold was confirmed as being non-refractory in nature, the copper was almost exclusively chalcopyrite and readily liberated, and the cobalt was almost exclusively cobaltite group and readily liberated.

Sample Preparation

The primary ore sample was subject to a physical beneficiation separation process to generate three sub-samples for mineralogical analysis. The beneficiation process involved grinding the two kilogram sample, followed by gravity separation by Knelson Concentrator and Mozley Table to generate a gravity concentrate sub-sample ("M/Con"), with the combined gravity tails streams subjected to sulphide rougher flotation to generate a sulphide concentrate ("M/Tail") and flotation tailings ("K/Tail") sub-samples.

Gold Mineralogy

QEMSCAN® identified twenty particles that contained gold and SEM/EDS was conducted on these particles. The gold varied in size with some large liberated gold grains present; however, the majority of gold was either associated with bismuthinite, chalcopyrite, cobaltite and/or silicates. SEM/EDS analysis showed that gold particles occurred as gold with copper (potentially Tetra-Auricupride), gold with low amounts of silver (NB: Silver levels were too low for Electrum) and nearly 100% gold. SEM/EDS analysis of arsenopyrite showed no refractory gold.

Table 4: QEMSCAN® Mineral Abundance:

Mass %		M/Con	M/Tail	K/Tail
Minerals	Gold Minerals	0.0	0.0	0.0
	Silver Minerals	0.0	0.0	0.0
	Chalcopyrite	14.5	1.8	0.2
	Other Cu phases	0.0	0.0	0.0
	Arsenopyrite	1.3	0.0	0.0
	As Sulphides	0.9	0.0	0.0
	Pyrite	7.8	0.4	0.1
	Pyrrhotite	3.6	6.4	0.1
	Cobaltite Group	31.1	0.1	0.0
	Pentlandite	1.5	0.1	0.0
	Ni Sulphides & Int	0.6	0.0	0.0
	Bismuthinite	0.0	0.0	0.0
	Fe Ox/OH	1.7	0.3	0.2
	Carbonates	0.2	4.2	6.3
	Phosphates	0.9	0.2	0.2
	Ti Minerals & Int	6.3	0.8	1.0
	Quartz	0.3	6.9	11.8
	Feldspar	1.7	23.1	46.6
	Pyroxene	21.6	36.9	15.7
	Iron Silicates	5.1	17.4	15.2
	Other Silicates & Int	0.2	1.0	1.9
	Others	0.8	0.2	0.5
	TOTAL	100.0	100.0	100.0

Table 5: QEMSCAN® Sulphur Deportment:

Mass %		M/Con	M/Tail	K/Tail
Minerals	Silver Minerals	0.0	0.0	0.0
	Chalcopyrite	28.9	18.3	28.7
	Other Cu phases	0.1	0.0	0.0
	Arsenopyrite	1.4	0.0	1.9
	As Sulphides	1.0	0.0	0.4
	Pyrite	24.1	7.2	33.2
	Pyrrhotite	7.9	72.4	24.8
	Cobaltite Group	33.4	0.6	1.1
	Pentlandite	2.9	0.8	0.7
	Ni Sulphides & Int	0.1	0.0	0.0
	Bismuthinite	0.0	0.0	0.0
	Other Silicates & Int	0.2	0.4	2.4
	Others	0.1	0.3	6.7
	TOTAL	100.0	100.0	100.0

Table 6: QEMSCAN® Copper Deportment:

Mass %		M/Con	M/Tail	K/Tail
Minerals	Gold Minerals	0.0	0.6	0.0
	Chalcopyrite	99.1	99.1	94.6
	Other Cu phases	0.7	0.0	0.0
	As Sulphides	0.0	0.0	0.0
	Fe Ox/OH	0.0	0.0	0.0
	Iron Silicates	0.0	0.0	0.1
	Other Silicates & Int	0.0	0.0	0.0
	Others	0.2	0.3	5.3
	TOTAL	100.0	100.0	100.0