

# Far West Ore Reserve and Mineral Resource Update Extends Thalanga Mine Life

- Maiden Far West Ore Reserve of 1.5Mt @ 12.0% Zinc Equivalent
- Far West Mine design and scheduling work completed targeting ore production in 2H CY2018
- Far West Mineral Resource increased to 1.7Mt @ 15.5% Zinc Equivalent with a material increase in the geological knowledge and confidence at Far West
  - 100% increase in Measured & Indicated (M&I) Mineral Resource from 0.8Mt to 1.5Mt
  - 137% increase in contained metal (M&I) from 101kt Zn Eq. to 240kt Zn Eq.
  - 18% increase in grade from 13.1% Zn Eq. to 15.6% Zn Eq.
- Early stage development activities and permitting have commenced for Thalanga Far West
- Exploration continuing across portfolio to target further resource inventory increases

Red River Resources Limited (ASX: RVR) ("Red River" or the "Company") is pleased to announce a Maiden Ore Reserve and Mineral Resource update for the Thalanga Far West polymetallic massive sulphide deposit ("Far West") at the Thalanga Zinc Operation in Central Queensland has been completed, produced in accordance with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

Far West is the second deposit planned to be mined at Thalanga, with Red River commencing underground mining at the West 45 deposit earlier this year.

Red River's Managing Director Mel Palancian commented: "Delivering a maiden Ore Reserve of 1.5Mt @ 12.0% Zn Eq. for Far West is an outstanding result, with the potential for further mine life extensions at depth where Far West is still open.

"The potential to mine Far West was identified in 2014, and the maiden Far West Mineral Resource was announced in early 2015. We are now targeting first ore production in 2H CY2018.

"This result gives greater certainty regarding the future operational life of our Thalanga operations. It represents the first stage in increasing utilisation of the Thalanga Mill and extending the overall operational life of Thalanga.

"With exploration across our landholding in the Mt Windsor Belt in Queensland continuing in tandem to our mining operations, we hope to make new discoveries that can add further life to Thalanga."



Key highlights of the maiden Ore Reserve and Mineral Resource upgrade include:

- Maiden Far West Ore Reserve of 1.5Mt @ 12.0% Zinc Equivalent
- Far West Mine design and scheduling work has been completed targeting ore production in 2H CY2018
- Far West Mineral Resource increased to 1.7Mt @ 15.5% Zinc Equivalent
- The recent Far West Infill and Resource Extension drilling program has delivered a material increase in the geological knowledge and confidence at Far West, with the Measured and Indicated Mineral Resource growing from 0.8Mt to 1.5Mt (100% increase). It demonstrated a 137% increase in contained metal in the Measured and Indicated Mineral Resource (101kt Zn Eq. to 204Kt Zn Eq.) and an 18% increase in grade of the Measured and Indicated Mineral Resource (13.1% Zn Eq. to 15.6% Zn Eq.)
- Early stage development activities and permitting have commenced for Far West in preparation for mining

Reserve Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Proved	48	1.3	1.0	4.4	0.0	27	10.1
Probable	1,486	1.3	1.6	5.0	0.2	46	12.1
Total	1,534	1.3	1.6	5.0	0.2	45	12.0

#### Table 1 Far West Ore Reserve (>6 % Zn Eq.)

JORC (2012) Table Checklist of Assessment and Reporting Criteria is attached in Appendix 1 of this release. The Competent Persons statement is provided under the Competent Persons section at the end of this release.

Tonnages and grades are rounded.

Discrepancies in totals may exist due to rounding.

Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained in Appendices of this announcement. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

Proved and Probable Reserves are included within (and not in addition to) the Thalanga Far West Mineral Resource estimate

Resource Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Measured	52	1.4	1.3	5.3	0.0	32	12.0
Indicated	1,491	1.7	2.2	6.6	0.2	61	15.7
Measured + Indicated	1,543	1.7	2.1	6.6	0.2	60	15.6
Inferred	150	1.4	2.3	6.5	0.1	53	14.6
Total	1,693	1.6	2.1	6.5	0.2	59	15.5

#### Table 2 Far West Mineral Resource (>5% Zn Eq.)

Source: Updated Resource Estimation of the Thalanga Far West Deposit (Mining One Consultants, 9 November 2017).

Tonnages and grades are rounded.

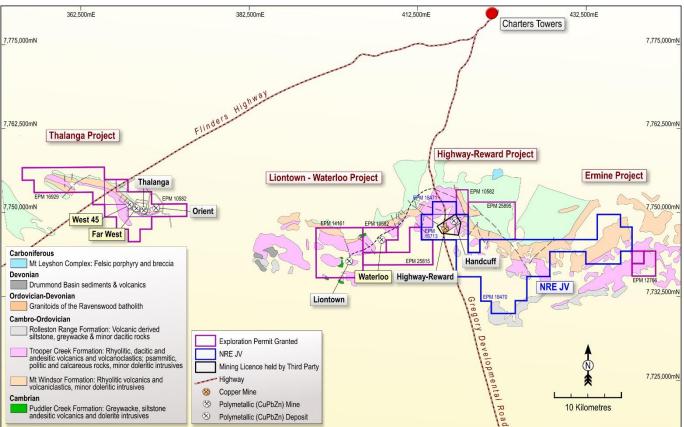
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### 1. Thalanga Far West

The Thalanga Far West polymetallic deposit is located at Thalanga Operations, 65km SW of Charters Towers in Central Queensland.



#### Figure 1 Thalanga Far West Location

Thalanga Far West is classified as a volcanogenic hosted massive sulphide (VHMS) style of deposit where copper, zinc, lead and silver mineralisation is found associated with a suite of sulphide minerals including sphalerite, galena, chalcopyrite, pyrite and other minor sulphide assemblages. Mineralised zones are typically represented by fault controlled lenses located within a blue quartz eye volcanic unit. Stratabound massive to semi-massive sulphide lenses and bands can occur throughout the quartz eye unit and consist of three textural and mineralogical main types:

- Sphalerite-galena dominant with sub-ordinate chalcopyrite, pyrite and barite; typically poorly banded, coarse grained and recrystallised, massive to semi-massive, lensoidal, and with anastomosing and gradational contacts;
- Pyrite with minor chalcopyrite and lesser barite and base-metals, commonly finely banded to massive and granular, and lie at the base the quartz eye unit and the strike extremities of the base-metal sulphide lenses; and
- Anastomosing stringer zones of pyrite-sphalerite-galena-chalcopyrite in varying proportions, frequently adjacent to the more massive sulphide lenses.



### 2. Thalanga Far West Ore Reserve

A maiden Ore Reserve estimate for the Thalanga Far West deposit has been completed (refer to Table 3). The Reserve estimate was determined using the mining, geotechnical, metallurgical and economic factors provided in Appendix 1 of this release.

Table 3 Thalanga Far West Ore Reserve (>6% Zn Eq.)

Reserve Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Proved	48	1.3	1.0	4.4	0.0	27	10.1
Probable	1,486	1.3	1.6	5.0	0.2	46	12.1
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Tonnages and grades are rounded.

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Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained in Appendices of this announcement. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

Proved and Probable Reserves are included within (and not in addition to) the Thalanga Far West Mineral Resource estimate

#### 2.1. Mining Method Selected and Other Mining Assumptions

The selected mining method is bench stoping based on 20m sublevels and stope strike lengths of 20m. The average stope width is approximately 5m with a minimum stope mining width of 2m. Stope backfill will be a combination of cemented rock fill (CRF) and unconsolidated waste rock fill, which enables a high recovery of ore, removing the need to leave pillars within the orebody, and also utilising the waste rock

Hanging wall and footwall dilution of 0.5m wide each (1m in total) was included and an additional 10% tonnage at 0% grade was applied to all stopes. A recovery factor of 95% was applied to all diluted stope tonnages. No unplanned dilution and a recovery factor of 100% were applied to development inventory.

The proposed Far West mine will use infrastructure and facilities used for West 45 given that they are only about 1km apart, and both within 2km of the ROM pad at the Plant.

#### 2.2. Processing Method and Other Assumptions

Ore produced from Far West will be processed through Red River's Thalanga Mill (refer to Figure 2), which is processing polymetallic massive sulphide ore from Red River's West 45 underground mine. The Thalanga Mill is designed for a nominal throughput of 650kpta and is running at an annualised throughput of 325ktpa. The mill uses standard industry technology to produce separate saleable copper, lead and zinc concentrates. The plant flowsheet is summarised as:

- Three stage crushing circuit;
- Primary (x1) and secondary ball mill (x2) circuit;
- Regrind plant;
- Differential copper, lead and zinc flotation circuits;
- Concentrate thickening and filtration;
- Concentrate storage, blending and transport and
- Sub aqueous disposal of tailings to Tailings Storage Facility (TSF)



#### Figure 2 Thalanga Mill



Far West is an extension of the Thalanga deposit which was mined from 1990 to 1998, resulting in a high degree of process certainty. The following metallurgical grades and concentrate recoveries are assumed for Far West based on historic production data from Thalanga.

Table 4 Metallurgical Grades and Concentrate Recoveries

	Copper	Lead	Zinc	Gold	Silver
Copper Concentrate					
Grade Recovery	26% 80%			1.0 g/t 17%	150 g/t 15%
Lead Concentrate					
Grade Recovery		60% 75%		3.5 g/t 30%	1,050 g/t 50%
Zinc Concentrate					
Grade Recovery			56% 89%		



The copper, lead and zinc concentrates produced at Thalanga from processing West 45 ore are sold to Glencore (copper concentrate) and Trafigura (lead and zinc concentrates) under existing concentrate offtake agreements. The concentrates produced from processing the Far West ore will be sold to Glencore and Trafigura under the terms of the existing offtake agreements.

For further details regarding the Glencore offtake agreement, please refer to the ASX release dated 13 June 2017 "Red River Secures Copper Offtake Agreement with Glencore" and for further details as regards the Trafigura offtake agreement, please refer to the ASX release dated 8 August 2017 "Red River Secures Zinc and Lead Offtake Agreements with Trafigura".

### 2.3. Basis of Cut-Off Grade

The Thalanga Far West Ore Reserve was estimated using a cut-off grade of 6% Zn Eq. based on commodity pricing shown in Table 5 and Metallurgical recoveries stated in Table 4.

Commodity	Units	2018+
Copper	US\$/lb	3.00
Lead	US\$/lb	0.90
Zinc	US\$/lb	1.00
Gold	US\$/oz	1,200
Silver	US\$/oz	17.00
Exchange Rate	(US\$:A\$)	0.75

Table 5 Pricing Assumptions

### 2.4. Other Material Modifying Factors

The Thalanga Far West deposit is located on ML1392 and ML1531 which are both held by Cromarty Pty Ltd. (a wholly owned subsidiary of Red River Resources) and form part of Red River's Thalanga Zinc Project. Red River is currently working on an amendment to the existing Environmental Authority to allow mining at Far West to commence as scheduled in 2H CY2018.

Copper concentrates produced from Thalanga Far West will initially be sold to Glencore under the current offtake agreement at the Thalanga mine gate, and under the terms of the Trafigura offtake agreement, zinc and lead concentrates will be trucked 200km to the Port of Townsville, for onward delivery to customers.



#### 3. Thalanga Far West Mining and Scheduling

The planned mine designs and schedules for Thalanga Far West are based on industry standard Australasian mechanised underground mining techniques. The mine designs and schedules for the Thalanga Far West deposit were prepared by Mining Plus and Red River Resources using Enhanced Production Scheduler software in conjunction with Mine24D mine planning software with contributions from other consultants and Company employees.

The proposed Far West portal is located ~500m from the ROM pad at the Thalanga Mill, to the west of and directly adjacent to the historically mined Thalanga West deposit. Far West sits within existing mining leases (ML1392 and ML1531).

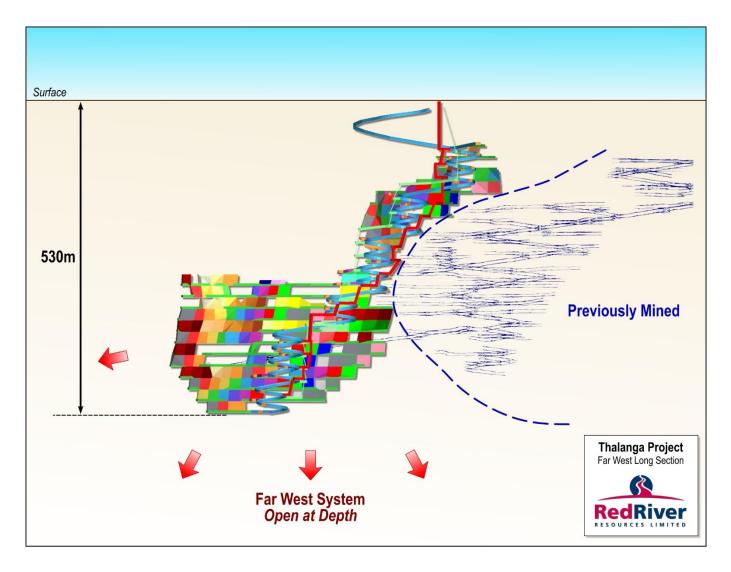
Figure 3 Thalanga Far West Proposed Portal Location





The current Far West mining schedule assumes that ore production will commence in 2H CY2018, with mine development commencing in early 2018.

Figure 4 Thalanga Far West Mine Design





#### 4. Thalanga Far West Updated Mineral Resource Estimate

Red River engaged Mining One to update the JORC 2012 compliant Mineral Resource estimate for the Thalanga Far West deposit. The source drilling, sampling and QAQC data was supplied by Red River together with a 3D interpretation of the mineralised domains and intrusive dykes in the form of a wireframe model for the Thalanga Far West deposit.

A program of 42 diamond holes was completed over the last 12 months and were drilled into the upper areas of the Far West resource area with the aim of expanding the resource in those areas. The program successfully intersected significant base metal mineralisation up dip of the 2016 resource area that has allowed the resource to be expanded into those areas. An inverse distance estimate was run to estimate copper, zinc, lead, silver and gold grades into the block model. The resources have been reported above a 5% Zn Eq. cut-off into inferred, indicated and measured categories. The reporting of measured blocks was possible due to the data available from the development drive and trial stope that was put into the deposit in the 1990's.

Results of the estimation are shown in the table below, blocks were constrained by removing all blocks <5% Zn Eq., all mined material, and all non-classified blocks in respect to resource category. The grade tonnage curve for Zn Eq. % is also shown below.

Resource Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Measured	52	1.4	1.3	5.3	0.0	32	12.0
Indicated	1,491	1.7	2.2	6.6	0.2	61	15.7
Measured + Indicated	1,543	1.7	2.1	6.6	0.2	60	15.6
Inferred	150	1.4	2.3	6.5	0.1	53	14.6
Total	1,693	1.6	2.1	6.5	0.2	59	15.5

Table 6 Thalanga Far West Mineral Resources (>5% Zn Eq.)

Source: Updated Resource Estimation of the Thalanga Far West Deposit (Mining One Consultants, 9 November 2017). Tonnages and grades are rounded. Discrepancies in totals may exist due to rounding.

Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained in Appendices of this announcement. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

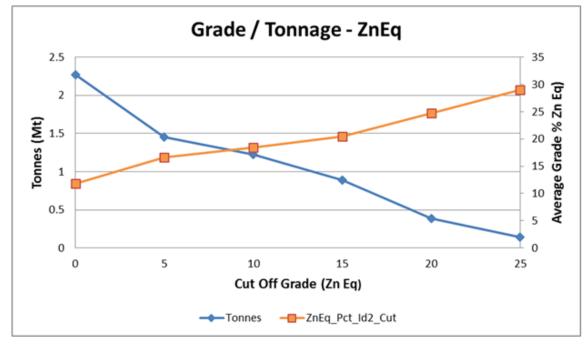


Figure 5 Thalanga Far West Mineral Resource – Zn Eq. % Grade Tonnage Curve



### About Red River Resources (ASX: RVR)

RVR is the leading ASX pure play zinc producer, with its key asset being the high quality Thalanga Zinc Project in Central Queensland. RVR commenced concentrate production at the Thalanga Zinc Project in September 2017.

RVR is focused on maximising returns from the Project by increasing plant throughput and extending mine life through increasing Mineral Resources and Ore Reserves at deposits currently in the mine plan (West 45, Thalanga Far West and Waterloo), by converting Mineral Resources into Ore Reserves at Liontown and Orient and by continuing to aggressively explore our growing pipeline of high quality targets within the surrounding area.

On behalf of the Board,

Mel Palancian Managing Director Red River Resources Limited

For further information please visit Red River's website or contact us:

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### **COMPETENT PERSONS STATEMENT**

#### **Far West Mineral Resource**

The information in this report that relates to the estimation and reporting of the Thalanga Far West Mineral Resource is based on and fairly represents, information and supporting documentation compiled by Mr Stuart Hutchin who is a Member of The Australasian Institute of Mining and Metallurgy, Member of the Australian Institute of Geoscientists and a full time employee of Mining One Consultants Pty Ltd.

Mr Hutchin has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is 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 Hutchin consents to the inclusion in the report of the matters based on the information in the form and context in which it appears. The information in this report that relates to database compilation, geological interpretation and mineralisation wireframing, project parameters and costs and overall supervision and direction of the Thalanga Far West Mineral Resource estimation is based on and fairly represents, information and supporting documentation compiled under the overall supervision and direction of Mr Hutchin.

#### Far West Ore Reserve

The information in this report that relates to the estimation and reporting of the Far West Ore Reserve is based on and fairly represents, information and supporting documentation compiled by Mr Mel Palancian who is a Member of The Australasian Institute of Mining and Metallurgy and a full time employee of Red River Resources.

Mr Palancian has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is 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 Palancian consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.



### **Zinc Equivalent Calculation**

The net smelter return zinc equivalent (Zn Eq.) calculation adjusts individual grades for all metals included in the metal equivalent calculation applying the following modifying factors: metallurgical recoveries, payability factors (concentrate treatment charges, refining charges, metal payment terms, net smelter return royalties and logistic costs) and metal prices in generating a zinc equivalent value for copper (Cu), lead (Pb), zinc (Zn), gold (Au) and silver (Ag).

Red River has selected to report on a zinc equivalent basis, as zinc is the metal that contributes the most to the net smelter return zinc equivalent (Zn Eq.) calculation. It is the view of Red River Resources that all the metals used in the Zn Eq. formula are expected to be recovered and sold.

#### Where:

**Metallurgical Recoveries** are derived from historical metallurgical recoveries from test work carried out the Thalanga deposit. The Far West deposit is related to and of a similar style of mineralisation to the Thalanga Operations and it is appropriate to apply similar recoveries. The Metallurgical Recovery for each metal is shown below in Table 1.

**Metal Prices and Foreign Exchange** assumptions are set as per internal Red River price forecasts and are shown below in Table 1.

Table 1 Metallurgical Recoveries and Metal Prices

Metal	Metallurgical Recoveries	Price				
Copper	80%	US\$3.00/lb				
Lead	75%	US\$0.90/lb				
Zinc	89%	US\$1.00/lb				
Gold	47%	US\$1,200/oz				
Silver	65%	US\$17.00/oz				
FX Rate: A\$0.75:US\$1						



**Payable Metal Factors** are calculated for each metal and make allowance for concentrate treatment charges, transport losses, refining charges, metal payment terms and logistic costs. It is the view of Red River that three separate saleable base metal concentrates will be produced at Thalanga. Payable metal factors are detailed below in Table 2.

Table 2 Payable Metal Factors

Metal	Payable Metal Factor
Copper	Copper concentrate treatment charges, copper metal refining charges copper metal payment terms (in copper concentrate), logistic costs and net smelter return royalties
Lead	Lead concentrate treatment charges, lead metal payment terms (in lead concentrate), logistic costs and net smelter return royalties
Zinc	Zinc concentrate treatment charges, zinc metal payment terms (in zinc concentrate), logistic costs and net smelter return royalties
Gold	Gold metal payment terms (in copper and lead concentrates), gold refining charges and net smelter return royalties
Silver	Silver metal payment terms (in copper, lead and zinc concentrates), silver refining charges and net smelter return royalties

The zinc equivalent grade is calculated as per the following formula:

Zn Eq. = (Zn%\*1.0) + (Cu%\*3.3) + (Pb%\*0.9) + (Au ppm\*0.5) + (Ag ppm\*0.025)

The following metal equivalent factors used in the zinc equivalent grade calculation has been derived from metal price x Metallurgical Recovery x Payable Metal Factor, and have then been adjusted relative to zinc (where zinc metal equivalent factor = 1).

Table 3 Metal Equivalent Factors

Metal	Copper	Lead	Zinc	Gold	Silver
Metal Equivalent Factor	3.3	0.9	1.0	0.5	0.025



# **APPENDIX ONE – THALANGA FAR WEST JORC 2012 TABLES (ORE RESERVES)**

#### **Estimation and Reporting of Ore Reserves**

Criteria	Commentary
Mineral Resource	Mineral Resource Estimate used for the Thalanga Far West reserve was the November 2017 updated
estimate used	Resource by Stuart Hutchin who is a full time employee of Mining One Consultants Pty Ltd. The total
	Measured, Indicated and Inferred Resource is 1,693,109 tonnes at grades of 1.63% copper, 6.55% zinc,
	2.15% lead, 59.38 g/t silver and 0.20g/t gold using a cut-off grade of 5% zinc equivalent. The zinc
	equivalent grade of this resource is 15.47%.
	The Reserves are included within (and not in addition to) the Thalanga Far West Mineral Resources.
Site Visits, Study	The following people have provided input into this Reserve estimate.
inputs and	
preparation	<b>Mr Mel Palancian</b> (Red River Resources): Mr Palancian has visited the site and understands the detail associated with the site. Mr Palancian is the Managing Director of Red River Resources and is responsible for the compilation of the Reserve Estimate as the competent person.
	<b>Mr Karl Spaleck</b> (Red River Resources): Mr Spaleck has visited the site and understands the detail associated with the site. Mr Spaleck is the Thalanga Site General Manager and has been involved with the project for some time. Mr Spaleck is a metallurgist and assisted with metallurgical aspects as well as the external environmental consultants (Northern Resource Consultants) in relation to the environmental requirements and approvals associated with the Thalanga Far West deposit.
	<b>Mr Donald Garner</b> (Red River Resources): Mr Garner has visited the site and understands the detail associated with the site. Mr Garner is an Executive Director of Red River Resources and compiled the overall economic model associated with the Project.
	<b>Mr Stuart Hutchin</b> (Mining One Consultants): Mr Hutchin is the Geology Manager (Mining One) and is responsible for the geological review of the deposits (West 45, Far West and Waterloo) including the resource estimation process as part of the Re-Start Study. He has visited the site and is familiar with the Project and its layout.
	<b>Mr Aurimas Karosas</b> (Mining Plus Pty Ltd): Mr Karosas is a Senior Mining Consultant (Mining Plus) who has completed the mining study work associated with the Re-Start Study. Mr Karosas has not visited the site and has done his work based on information provided to him by the Company.
	<b>Mr Adrian Penney</b> (AMC Consultants): Mr Penney is a Principal Geotechnical Engineer (AMC) who has been to site, reviewed previous designs and drill core for Thalanga Far West has assisted the company in geotechnical aspects. The company also has a site geotechnical engineer who has provided input.
Study status	The Reserve Estimate has been prepared based on a feasibility study that assesses the technical and economic study of the potential viability of developing Mineral Resources at an order of magnitude. It includes assessments, modifying and operational factors required to demonstrate that progress to early works and production can be reasonably justified at the time of reporting.
	As a part of the Study, a detailed mine design and schedule was developed by Mining Plus. The study assumes that the Thalanga processing plant and all supporting infrastructure is in place which is the current status as at November 2017. The Thalanga Operations are currently mining and processing ore from the West 45 mine which is approximately 1km to the west of Thalanga Far West. It is assumed that Thalanga Far West will start in 2018.
Cut-off parameters	The economic cut-off grade for the mineralisation was determined using the Net Smelter Return (NSR) to account for the value of all payable metals. The NSR values were calculated on at the 'mine gate' basis and incorporate metal pricing in the table below. The NSR value was adjusted for transport costs, port handling charges and concentrate treatment and refining charges on all payable metals. Payable metals are zinc, lead, copper, gold and silver.
	The cut-off NSR value was determined from the site operating costs including mining, processing and site administration costs. The incremental stope cut-off of \$80 per tonne and an incremental development cut-off of \$40 per tonne processed were also estimated as a subset of the operating costs. The Reserve has been estimated using a 6% Zn Eq. cut-off.



	The NSR cut-off was recoveries shown b other metals produ	elow. ZnEo		-	• • • • • • • • • • • • • • • • • • • •	-			•
	The ZnEq formula was estimated as: ZnEq%= Zn% + 0.9 x Pb% + 3.3 x Cu% + 0.5 x Au g/t + 0.025 the mine design was developed using a cut-off of 9% ZnEq and does not include incremental matrix								
			Cut-off Grade			-	Incremental Development Cut-off Grade		
	Total Operating Cost	AUD	\$135		\$80			\$40	
	Cut-off Grades Note: Cut-off Grad	<b>Zn Eq.</b> des have be	9% een round	led	6%			3%	
	Zinc Equivalents (			Zn	Pb	Cu	Au	Ag	]
	Commodity Prices	USD/lb or	· /oz	1.0	0.9	3.0	1,200	17.0	
	Forex AUD:USD			0.75	0.75	0.75	0.75	0.75	
	ZnEq Factors Notes: ZnEq facto	rs have he	en rounda	<b>1</b>	0.9	3.3	0.5	0.025	1
	<ul> <li>which will be filled with cemented rockfill and the remaining stope voids will be filled with rockfi selected mining method is considered well suited to the disposition of the orebody and g conditions; it is also flexible to enable ready adjustments to stope strike lengths as needed.</li> <li>Development mining using drill and blast methods will commence from the surface. The main d will be 5m wide by 5.5m high and at a gradient of 1 in 7. Ore development will be mined 4.5m wide 4.5m high. A standard underground mobile mining fleet will be utilised for underground mining act including a twin boom jumbo drill, production drill, load haul dump units and 50t trucks.</li> <li>The Thalanga Far West orebody is an extension of the Thalanga West orebody which was mined 1990's. An exploration drive was mined from Thalanga West to Thalanga Far West to conduce xtensive underground drilling campaign and also one stope was extracted before the mine clo 1998. There are numerous geotechnical reports by Kevin Rosengren &amp; Associates relating to the stope stope</li></ul>							ly and ground d. e main decline 4.5m wide and hining activities as mined in the to conduct an mine closed in relating to the	
	performance and ground conditions at Thalanga West. The main geotechnical issue at Thalan was when the microdiorite dyke intersected stope voids and unravelled. It is assumed that Tha West will, in places, have the microdiorite dyke intersecting or in close proximity to some st development. Therefore, the mine design for Thalanga Far West is based on significantly small than Thalanga West. In addition the mine plan includes cablebolting of all stope hangingwalls fr ore drive using 6m long cables, 4 per ring and rings spaced at 2.5m. Stope brows will also be cab at set points.						at Thalanga Far me stopes and smaller stopes alls from every be cable bolted		
	The sublevel interval chosen is 20m floor to floor and stope strike lengths of 20m to 25m maximu Stopes are planned to be mined in single lifts. The average stope width is approximately 5m. T minimum stope width of 2m was applied for the mine design. Hangingwall and footwall dilution of 0.5 wide each (1m total) was included. A recovery factor of 95% has been applied to all diluted sto tonnages.							ately 5m. The ilution of 0.5m	
No unplanned dilution has been applied to deve Measured, indicated and inferred Mineral Res hole drilling and blasting will be used to break t It is assumed that development will be bolted elements. Bolts in the decline backs will be grou all development intersections.						ve been re. shed in	used in th the backs	ne study. Cor and walls us	iventional long sing galvanised
	A stand-off pillar of and designed Thala confirm the stand-o	inga Far W	/est stope	s. Probe	holes fro	m new o	developme	ent drives wil	l be needed to



	West working have been filled with we serve that to it as and the union play serves that the bistorie
	West workings have been filled with un-cemented tailings and the mine plan assumes that the historic workings will be progressively dewatered as the decline advances down via a series of dewatering holes.
	A power line is installed near the planned mine portal which is assumed will be extended and the mine plan includes establishment of a stepdown transformer. An air compressor and receiver, underground two way communications as well as associated underground air, water and electrical reticulations systems are included in the mine plan.
	A ventilation system consisting of a surface to underground exhaust raise along with primary and secondary fans is included in the mine plan. The decline is assumed to be used as the fresh air intake.
	An egress system from surface (progressively installed as the mine workings become deeper) and an underground refuge chamber is included in the mine plan. Water supply to the underground operations is nearby and extension of this system is included in the mine plan. Diesel storage facility, workshops, mine offices and change houses are currently in place. The run of mine ore pad is approximately 450m away and waste rock dump is also in place.
Metallurgical factors or assumptions	The Thalanga poly metallic processing facility is approximately 0.5km from the proposed Thalanga Far West portal and has treated approximately 30,000t of Thalanga Far West ore the late 1990's. It has also successfully treated approximately 3.66Mt of primary sulphides from the adjacent Thalanga mine. It is intended that this facility will be used to beneficiate Thalanga Far West mineralisation.
	The processing facility consists of a three stage crushing circuit including a primary jaw crusher and, secondary and tertiary cone crushers, a 640kW primary ball plant, two 640kW secondary ball plants, separate copper, lead and zinc flotation circuits, separate copper, lead and zinc thickeners, a vertical filter press and an associated reagent dosing systems and control systems. A regrind plant is also a part of the circuit.
	The maximum throughput of this plant treating poly metallic ore is considered to be 650kt per annum as achieved in 1996. The Company is operating the plant at a throughput of approximately 325kt per annum and there is ample capacity for processing Thalanga Far West. The company considers that there will be surplus capacity in the processing plant.
	The processing facility utilises differential flotation of copper, lead and zinc minerals and is a common and proven beneficiation method throughout the mining industry but also in the past at Thalanga. The process plant is considered to be appropriate to the Thalanga Far West style of mineralisation and is not novel in its nature.
	The metallurgical factors applied in the economic evaluations are based on Thalanga mine historicals; zinc concentrate 89% recovery & 56% concentrate grade, lead concentrate 75% recovery & 60% concentrate grade plus 50% recovery of silver & 30% recovery of gold into the lead concentrate, copper concentrate 80% recovery & 26% concentrate grade plus 15% recovery of silver & 17% recovery of gold into the copper concentrate. There are no material deleterious elements expected that will prevent the saleability of the concentrates.
Environmental	The project is a disturbed mine site currently in operations. The Thalanga Operations' region is characterised by flat, open plains and situated relatively high in this landscape, at the foot of a rocky range that crosses the Flinders Highway. The topography of the mining leases is generally flat to gently undulating terrain.
	Typical wet season rainfall occurs from November to March; with average annual rainfall of 662mm and wettest months of January and February. Average annual maximum temperature is 30°C and average wind speed is ~8km/h. Evaporation in the region varies from ~1,500mm to ~2,500mm; generally ~2,000mm.
	The Thalanga processing facility, associated infrastructure including the existing tailings storage facility will be used to beneficiate Thalanga Far West mineralisation. These facilities are permitted in accordance to statuary authorities. The Thalanga Far West resource is on a granted and valid mining leases (ML1392 and ML. The proposed mining activities are similar to that of previous underground mines at the project including storage of selected mine waste in existing dumps, tailings in the exiting tailings storage facility and mine water through the exiting water management and storage facilities. The Plan of Operations will require amendment and approval from statutory authorities. There is a risk that approvals may be delayed from timeframes stated in the study.



Infrastructure	All of the infrastructure for the process plant and supporting areas are in place. Refurbishment of the plant and infrastructure has been completed.				
	Some supporting infrastructure for the underground mine will be required such as primary ventilation fans, electrical substation and pumping stations all of which have been included in the study and economic evaluations.				
	The site is powered from the Queensland electricity grid and it is assumed that adequate power supply will be available. Water is mainly recycled and reused on site and supplemented by an existing borefield which has provided adequate volumes.				
		nunications a	re accessible	ders Highway; approximately 60km from Charters e from the Telstra mobile network from Charters	
	It is intended to recruit and	d bus most of	the workford	ce from Charters Towers.	
Costs	The majority of capital and costs were estimated using and supplemented by Rec operating costs were estir similar locality and based o	l operating cos g vendor price d River actual mated using n on a similar m	sts have beer s (contractor and estimat nining contra ining methoo	n built up from first principles. Capital and operating rs, original equipment manufacturers and suppliers) red prices in the same process. Mining capital and actor pricing received for West 45 as they are in a d and plan.	
	workforce will be provid	ed by the m delines and a	ining contra a local labou	department (except underground mining as the actor) and employee salaries and on-costs were ar hire advisory firm who provided local salaries. and Qld Mines Safety levy.	
	Concentrate transport and handling costs were sourced from current contracts. Concentrate shipping costs were sourced from a shipping logistics provider. Concentrate treatment and refining costs were sourced from current company contracts including penalty elements.				
	Queensland government royalties were applied as per published rates (State Revenue Office) for the various metals recovered. Royalties to third parties have also been accounted for in the economic assessment as per their respective agreements.				
Revenue factors				consensus industry surveys.	
nevenue juciois	The Thalanga Far West head grades and tonnage were determined on a monthly basis from a detailed schedule after the application of dilution and recovery factors. The schedule is based on a logical mining				
				ts, port handling charges, shipping costs, smelter	
	_	-		e economic model. Payable terms for metals in zinc,	
	lead and copper concentra	ates were also	provided by	a reputable metals trader.	
		•		nd copper in concentrates and silver and gold credits	
	This forms the base case for			ces used for economic assessments are listed below.	
	Commodity	Unit	2018+		
	Zinc	USD/lb	\$1.00	1	
	Lead	USD/lb	\$0.90		
	Copper	USD/lb	\$3.00		
	Gold Silver	USD/oz USD/oz	\$1,200 \$17.00		
	Foreign Exchange	030/02			
	USD:AUD		0.75		
Market assessment	The majority of the Thalanga Far West value is derived from zinc then copper and lead. London Metal Exchange (LME) zinc stocks have been steadily declining over the past 3 years. It is anticipated that declining zinc inventories will persist depending on global demand strength and the market price will be favourable. Similarly copper and lead is seeing a resurgence and enjoying strong demand and favourable market pricing.				
	It is assumed the demand for zinc, lead and copper concentrate from Thalanga Far West will be supported by strong demand and limited mine supply response therefore creating a favourable selling environment.				



	The company has offtake agreements with Trafigura for Zinc and Lead concentrates and with Glencore for copper concentrates which include future production from Thalanga Far West.			
Economic	Mine production and ore processing inputs have been detailed in the sections above and have been included in the economic assessment. The capital and operating cost inputs have also been discussed above and are considered to be with $\pm$ 15% accuracy and have been included in the economic assessment.			
	The mining, processing, capital cost and operating cost schedules form the basis of the financial model which utilises commodity prices and foreign exchange rates detailed above. The NPV was calculated using a discount rate of 8%. Sensitivities around commodity prices, foreign exchange rates, metallurgical recoveries, capital costs and operating costs to ±15% variance have been presented.			
Social	The Thalanga Operations are approximately 65km from Charters Towers which is a mining and agriculture based community of approximately 8,200 people. The Company intends to source the majority of its workforce from Charters Towers as there are skilled workers available. In addition the site is a bus in/out from Charters Towers which will further strengthen community support for the project and benefits for the community. The Company has received only positive indications from local landholders and the Charters Towers community to date as the community sees the direct benefits the operations.			
Other	The Thalanga Operations and Thalanga Far West do typically receive higher rainfall in summer and early autumn and dryer periods in winter. In some years the 'wet season' rainfall can be double the average and these peak events could adversely impact the site and operations. The Flinders Highway from Charters Towers and the sealed site access road is rarely cut-off and in the event that it is cut-off due to flooding, it is likely to be less than one week. This may impact short term production however it is unlikely to impact longer term production estimates. The Company is not aware of any material legal risks. The Company has not entered into any concentrate or metal off-take or marketing arrangements for Thalanga Far West.			
	The Thalanga Far West Mineral Resource is located on a granted Mining Lease. The current Plan of Operations and Environmental Authority need to be amended and approved by the state government. There is a risk that timeframes could be delayed. The Company intends to undertake further studies and drilling relating to the project. The development of the project will depend on the outcome of these amongst other factors. The Company must raise funds to finance the project subject to board and shareholder approvals. The Company will consider its options for structuring finance and it could be either or a combination of equity, debt and offtake finance. The Company will also investigate working capital facilities which it has assumed in the economic modelling. The Company has assumed that financing activities will occur in parallel to further studies and drilling.			
Classification	The Company does have an Ore Reserve estimate for Thalanga Far West. These evaluations have also assessed the mining potential of inferred resources however they have not been included in in the ore reserve.			
Discussion of relative accuracy/ confidence	The Company has a view that the study is of high confidence as the site is in operation, the Mineral Resource contains Measured and Indicated Mineral Resources in addition to Inferred Mineral Resources and the mine plan and schedule were completed to a high standard with appropriate modifying factors.			
	The level of accuracy for the study is considered to be ±15%.			



# APPENDIX TWO - THALANGA FAR WEST JORC 2012 TABLES (MINERAL RESOURCES AND ORE RESERVES)

# Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Diamond drilling was used to obtain core samples</li> <li>Samples consist of half NQ2 drill core</li> <li>Sample intervals were selected by company geologists based on visual mineralisation</li> <li>Intervals ranged from 0.5 to 1.45m based on geological boundaries</li> <li>Samples were sawn if half using an onsite core saw and sent to Intertek Genalysis laboratories Townsville.</li> <li>Samples were crushed to sub 6mm, split and pulverised to sub 75µm in order to produce a representative sub-sample for analysis.</li> <li>Analysis consisted of a four acid digest and Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) for the following elements; Ag, As, Ba, Bi, Ca, Cu, Fe, K, Mg, Mn, Na, Pb, S, Sb, Ti, Zn, &amp; Zr. A selection of samples was also assayed for Au using a 30g Fire Assay technique</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	• A total of 417 drillholes holes have been used to estimate the Thalanga Far West resources. The diamond core size drilled was predominately with standard tube NQ2 sized core. All diamond core was orientated.
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>The diamond core drill recovery was monitored using a combination of the drillers run sheets, core block markings and manual piecing together of core and measurement by Kagara and more recently Red River Resources Geologists and Field Assistants in the core processing facility. Any core loss was noted within the logging sheets. Core recovery averaged 95% through the ore intervals.</li> <li>The majority of the resource is based on diamond drilling, the deposit predominately consists of copper, zinc and lead mineralization, there are no concerns regarding loss of fine material during the core sampling process for this deposit.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative</li> </ul>	<ul> <li>All diamond core and reverse circulation chips were logged for geological and geotechnical characteristics. Rock type, alteration style and sulphide mineral content were logged by a site geologist. The logging was sufficient to enable creation of detailed geological model that</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	supports the resource estimate. Core photographs are taken of each core tray and stored as part of the resource database dataset.
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all subsampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>NQ2 and HQ sized diamond core was marked up and cut in half with a diamond core saw. The right side of the core as sampled according to the geological intervals selected by the site Geologist.</li> <li>The methodology of selecting half core via geological intervals guarantees that the core samples are representative. The sample sizes vary from material sourced from the core samples given the varying sample lengths.</li> <li>The sample sizes are appropriate given the relatively even distribution of base metal grades within the deposit</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>The ALS laboratory completed internal standard and duplicate samples. The results of these samples indicate that there are no known material biases in the original Thalanga Far West assay dataset. The Intertek laboratory also used internal standards, blanks and duplicates.</li> <li>268 re-assays of core samples were submitted to the laboratory for holes along the Thalanga line of mineralisation, the results of these re-assayed showed an acceptable correlation with the original assay data.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Close spaced (10m) underground production holes exist in the drilling dataset, the correlation between these fans of holes for base metal assays is high.</li> <li>Data was entered into a central database and then validated by a series of validation checks to ensure erroneous data was not saved into the resource database.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>The Thalanga mine grid was used as the grid reference for the Thalanga Far West deposit. All holes were surveyed using the Thalanga site survey team who used a differential GPS survey system. A hand held GPS unit was used to survey the 2015-2016 collars.</li> <li>The topography surface is represented by a wireframe file that has been edited over time by the site survey team. The surface covers the complete Thalanga Far West deposit area. The surface is an accurate representation of the</li> </ul>



Criteria	JORC Code explanation	Commentary
		actual topographic surface at the site.
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>The Thalanga Far West deposit has been drilled on an average spacings of 10m x 10m along the old development drive out to 100m x 100m on the peripheries of the deposit area. Overall average drill spacing across the whole deposit is approximately 50m x 50m. This drill spacing provides evidence of mineralized zone continuity for the purposes of resource estimation.</li> <li>No sampling compositing was necessary in the initial diamond drilling however compositing of raw assay data was completed in preparation for the resource estimation process.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>The majority of diamond holes were orientated to provide an approximate perpendicular intersection angle with the main mineralized zones.</li> <li>No sampling bias is assessed as been caused by the drilling orientation.</li> </ul>
Sample security	The measures taken to ensure sample security.	• Samples were supervised by either the drill crew, field assistant or geologist and at all times. Given the base metal nature of the deposit sample security was not assessed as a significant risk.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• A review of the assay data was completed by Sheperd 1997. A due diligence review of the resource estimation was completed by Mining One Consultants was completed in November 2013.



# **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>No joint ventures exist over the property however a 4% NSR is payable to Thalanga Copper Mines in addition to the standard Queensland government royalty.</li> <li>The license area is current.</li> </ul>
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>RGC Thalanga Pty Ltd drilled the deposit between 1994-1998.</li> </ul>
Geology	• Deposit type, geological setting and style of mineralisation.	<ul> <li>The deposit consists of stratiform sulphide lenses and stringer zones developed within quartz eye volcanoclastics located between a dacite hangingwall and rhyolite footwall.</li> </ul>
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>A list of each resource drillhole location and interval has not been supplied in this updated resource report as these were provided in the previous resource report released in May 2016, the collar information for the new diamond holes drilled in 2016-2017 are however are provided is located as an appendix to this table, see below.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>The exploration results reported for the Thalanga Far West deposit were included as weighted average assay intervals for Zn, Cu, Ag and Pb. No cutting of high grades was completed when reporting as exploration results</li> </ul>
Relationship between mineralisation widths and	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> </ul>	<ul> <li>The typical drill sample interval is 1m in length, the average thickness of the mineralized zone is 10m, there are no issues with reporting the results based on this.</li> <li>The drillholes intercepted the mineralized lenses</li> </ul>



Criteria	JORC Code explanation	Commentary
intercept	• If it is not known and only the down hole	at an approximately perpendicular angle. All
lengths	lengths are reported, there should be a clear statement to this effect (eq 'down hole length,	exploration results were reported as downhole thicknesses.
	true width not known').	
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	These are included in the body of the updated resource report for the drill collars used in the resource estimate.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• All significant drill intercepts from the 2016-2017 diamond drilling program are listed in Appendix 4
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Not Applicable
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Further infill drilling will be required within the deposit area with a view to defining additional resources.



# Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>The survey, sampling and logging data was electronically imported into the resource database. Checks were also made of the original lab sample sheets and the database to ensure that transcription errors were not present. A visual check was also made of the drill traces, assay and logging data in the 3D environment of Surpac to ensure that results correlated between drillholes and were in line with the geological interpretation and mineralization continuity.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	• A site visit was completed by Stuart Hutchin on 16/10/2015 where The Thalanga Far West core samples were inspected.
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>The confidence in the overall geological interpretation is high and has been confirmed by continued infill drilling from the underground workings and the actual orientation of the trial stoping block from within the mine.</li> <li>The dacite, quartz eye volcanclastics and rhyolite geological units have been logged and are used to define general areas of rock types within the deposit. The mineralized zones typically occur within the quartz eye volcanoclastics.</li> <li>The mineralized lenses occur within the quartz eye volcanoclastic package, they are discrete pods of massive sulphide and stringer mineralization, some fault control on these zones is evident with further drilling required to full quantify.</li> </ul>
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The strike length of the main lens modelled is approximately 600m individual mineralized pods ranges from 40m to 240m, thickness of the zone ranges from 2m to 30m. The resource domain is located from 150m below the surface topography and extends to a depth of 600m below surface.
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous</li> </ul>	<ul> <li>The resource model was constructed using Surpac software. Mineralised domain wireframes were constructed using a massive sulphide (high grade) and stringer zone (low grade) domain boundary with the geological logging used to determine the mineralized envelope. A minimum domain thickness of 2m was used, this corresponds to the minimum practical mining width within an underground operation.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>High grade Zn, Cu, Pb, Ag and Au top cuts were applied using a combination of the 95% confidence interval, histograms, cumulative probability plots and operational experience from the Thalanga and West 45 operations. Top cut values were Cu at 7%, Zn at 25%, Pb at 10%, Ag at 260ppm and Au at 2 ppm.</li> <li>A composite file was created using a composite length of 1m. The median sample length within the assay dataset is also 1m.</li> <li>Variograms were not created due insufficient quantity of sample pairs within the relatively small dataset, sufficiently resolved variograms were not created.</li> <li>An inverse distance estimate was run given the lack of variograms. This method was however deemed to be suitable given the style and orientation of the mineralization.</li> <li>The estimation process was validated by comparing global block grades with the average composite grades, visual checks comparing block grades with raw assay data, volume checks of the ore domain wireframe vs the block model volume and comparison of composites and block grades by RL.</li> <li>The validation steps taken indicate that the block estimates are a realistic representation of the modelled interpretation.</li> </ul>
Moisture	<ul> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	<ul> <li>The resource tonnages have been estimated on a dry basis</li> </ul>
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>A cut – off using 5% Zn Eq has been used to report resources. This was chosen as the lower limit of potentially economically extractable material within an underground mining operation in this style of deposit.</li> </ul>
Mining factors or assumptions	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul> <li>The resources have been estimated using a minimum thickness of 2m for each of the domain shapes, this minimum thickness therefore accounts for any dilution in zones that are less than this thickness. The proposed mining method is via underground long hole stoping techniques, the model parameters are therefore deemed to be suitable for this type of potential mining operation.</li> </ul>
Metallurgical factors or assumptions	<ul> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual</li> </ul>	• The ore is planned to be crushed and a concentrate containing Zn, Pb, Ag and Cu produced. The ore would likely be processed at the existing Thalanga processing facility.



Criteria	JORC Code explanation	Commentary
	economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>Metallurgical Recoveries are derived from historical metallurgical recoveries from test work carried out the Thalanga deposit. The Far West deposit is related to and of a similar style of mineralisation to the Thalanga Operations and it is appropriate to apply similar recoveries.</li> </ul>
Environmen- tal factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul> <li>The tailings produced during the creation of the concentrate would be disposed of at the currently permitted Thalanga tailings facility. Waste rock from the mine will be placed on the existing waste dump locations.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>The bulk densities for the ore and waste rock types were estimated using the Archimedes method, that is (Dry Weight / (Dry Weight – Wet Weight). Density was assigned per block via an inverse distance estimate using the raw density measurements.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The resources have been classified according to the drill density and the modelled continuity of both the thickness and grade of the mineralized zones in the view of the competent geologist. Measured, indicated and inferred blocks have been reported for the resource.</li> <li>The resource classification is deemed appropriate in relation to the drill spacing and geological continuity of the mineralized domains.</li> </ul>
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• Stuart Hutchin has visited the Thalanga site within the last two years. No historical resources were reported for the project. The review involved a high level assessment of the exploration potential.
Discussion of relative	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or	• The resource estimate is deemed to be an accurate reflection of both the geological interpretation and tenure of mineralization



Criteria	JORC Code explanation	Commentary
accuracy/ confidence	<ul> <li>procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	within the deposit. Underground development commenced on the deposit in the 1990's where a trial stope was taken, significant underground diamond drilling was completed from this development where economic base metal grades and thicknesses were intersected. This provides confidence in the estimate.



# APPENDIX THREE – THALANGA FAR WEST 2016/2017 DRILLHOLE COLLARS

Hole ID	Easting	Northing	RL	Depth	Dip	Azimuth
TH678	371243	7750620	331.24	89.1	-55	206
TH679	371209	7750669	331.56	170.1	-57	222.8
TH680	371122	7750710	332.2	181.8	-65.8	183
TH681	371122	7750710	332.2	244.7	-72.4	211.2
TH682	371122	7750710	332.2	212	-61.8	235.1
TH683	371097	7750813	334.3	313.3	-55.5	208.4
TH684	371097	7750813	334.3	387.6	-68.5	211
TH685	371097	7750813	334.3	335.2	-66.5	195.7
TH686	371097	7750813	334.3	326	-62.5	185.9
TH687	370948	7750824	338.5	320.2	-76.1	189.7
TH688	371041	7750822	335.8	311	-65.5	195.1
TH689	370948	7750824	338.5	287.3	-70.3	203.5
TH690	371041	7750822	335.8	346.5	-70.5	207
TH691	370948	7750824	338.5	380.3	-74	217
TH692	370948	7750824	338.5	26.2	-72.3	222
TH693	370948	7750824	338.5	392.3	-75.5	217
TH694	371122	7750710	332.2	222	-70	220
TH695	371041	7750822	335.8	269.5	-51	186.6
TH696	370948	7750824	338.5	338.3	-66.5	225.5
TH697	371122	7750710	332.2	200	-54.5	230.2
TH698	370586	7750611	340.5	548.3	-62.5	33
TH702	370586	7750611	340.5	25.3	-60	34.8
TH703	370586	7750611	340.5	407.1	-60	34.8
TH704	369950	7751611	357.3	96.2	-70	260.7
TH705	370587	7750610	340.3	437.2	-62	34.8
TH706	371041	7750823	336.2	276	-54	199.5
TH707	371041	7750823	336.2	326.8	-70	193
TH708	371122	7750710	332.2	158.7	-53	199
TH709	371122	7750710	332.2	180.2	-67.5	199.8
TH710	370806	7750972	343.3	422.3	-61	191.8
TH711	370948	7750825	338.6	212.9	-78	186.3
TH712	370806	7750972	343.3	377.1	-57	195.5
TH713	370948	7750825	338.6	338.7	-80	186.3
TH714	370806	7750972	343.3	362.4	-69	216
TH715	370948	7750825	338.6	245.8	-80	169.5
TH716	370806	7750972	343.3	446.3	-67	213.5
TH717	370948	7750825	338.6	341	-77.5	170
TH718	371243	7750620	331.2	104.5	-66	228.8
TH721	370806	7750982	343.3	466.8	-72	186.8
TH722	370944	7750815	338.6	329.9	-80	199.6
TH723	370806	7750972	343.3	491.1	-69.1	216.7
TH725	371243	7750620	331.24	143	-78	174
TH727	370806	7750982	343.3	365	-55	208.8
TH730	371243	7750620	331.24	131	-62	146.62



Hole ID	Easting	Northing	RL	Depth	Dip	Azimuth
TH731	371243	7750620	331.24	140	-55.6	129.2
TH732	371243	7750620	331.24	42	-48	128.5
TH734	371122	7750710	332.2	158.7	-50	178.3
TH736	371122	7750710	332.2	244.7	-50	239.8
TH752	371122	7750694	332	158	-49.8	228.8
TH755	371033	7750810	335	139	-47	201.5



### APPENDIX FOUR – THALANGA FAR WEST 2016 SIGNIFICANT ASSAYS

BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH678	64.4	65	0.6	0.32	1.18	2.05	0.06	16.9	4.62
TH678	65	66	1	0.04	0.29	0.56	0.03	4.7	1.09
TH678	66	67	1	0.03	0.26	0.48	0.02	2.5	0.89
TH678	67	68.3	1.3	0.11	0.74	1.39	0.05	8.6	2.66
TH678	68.3	69	0.7	2.22	2.84	10.5	0.20	58.8	21.95
TH678	69	70	1	0.86	4.73	16.75	0.37	84.3	26.12
TH678	70	71.1	1.1	2.13	2.14	7.34	0.26	50.5	17.68
TH678	71.1	72	0.9	0.01	0.03	0.11	0.01	0.6	0.18
TH678	72	73	1	0.01	0.01	0.07	0.03	0	0.13
TH678	73	74	1	0.02	0	0.03	0.00	0	0.11
TH679	139.9	141	1.1	0.14	0.02	0.05	0.05	2	0.62
TH679	141	142	1	0.07	0.01	0.02	0.06	1.5	0.33
TH679	142	143	1	0.05	0.25	0.36	0.07	6	0.93
TH679	143	144	1	0.01	0.05	0.11	0.02	3	0.28
TH679	144	145.4	1.4	0.07	0.05	0.32	0.04	3.3	0.69
TH679	145.4	146	0.6	1.6	1.23	1.72	0.24	37.1	9.16
TH679	146	147	1	0.63	7.87	14.84	0.50	173.6	28.58
TH679	147	148	1	1.48	6.81	13.92	0.56	148	28.91
TH679	148	149	1	1.54	3.1	8.51	0.36	79.4	18.56
TH679	149	150	1	1.5	2.63	8.03	0.51	59.1	17.09
TH679	150	151	1	0.11	0.27	1.82	0.04	4.3	2.55
TH679	151	152.1	1.1	1.97	3.12	8.66	0.46	91.6	20.5
TH679	152.1	153	0.9	0.02	0.01	0.09	0.00	0.5	0.19
TH679	153	154	1	0.01	0.01	0.04	0.00	0	0.08
TH679	154	155.2	1.2	0.02	0	0.03	0.00	0	0.11
TH679	155.2	156	0.8	0	0	0.02	0.00	0	0.05
TH679	156	157	1	0.01	0	0.02	0.00	0	0.06
TH679	157	158	1	0	0	0.01	0.00	0	0.03
TH679	158	159	1	0	0	0.02	0.00	0	0.04
TH679	159	160	1	0	0	0.01	0.00	0	0.03
TH680	91.9	93	1.1	0	0.09	0.02	0.00	1.7	0.16
TH680	93	94	1	0	0.15	0.1	0.21	7.3	0.53
TH680	94	95	1	0.01	0.26	0.32	0.27	10.2	0.98
TH680	95	96	1	0	0.04	0.04	0.05	1.2	0.14
TH680	96	97.2	1.2	0	0.04	0.05	0.00	1.6	0.14
TH680	159.15	160.2	1.05	0.1	0.04	0.11	0.00	2	0.54
TH680	160.2	161	0.8	0	0.01	0.03	0.00	0	0.07
TH680	161	161.8	0.8	0.02	0.01	0.03	0.00	0	0.11
TH680	161.8	163	1.2	4.67	2.61	4.36	0.49	74.8	24.23
TH680	163	163.45	0.45	4.16	0.57	0.84	0.46	23.3	15.88
TH680	163.45	164.3	0.85	0.02	0.02	0.08	0.00	0.5	0.19
TH680	164.3	165	0.7	0.04	0.01	0.03	0.00	0	0.17
TH680	165	166	1	0	0	0.02	0.00	0	0.04
TH680	166	167	1	0	0.01	0.01	0.00	0	0.04



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH681	196	197	1	0	0	0.02	0.00	0	0.05
TH681	197	198	1	0.04	0	0.02	0.00	0.5	0.19
TH681	198	199.05	1.05	0.2	0.17	0.32	0.02	6.4	1.31
TH681	203.4	204	0.6	0.04	0.02	0.24	0.00	1.1	0.44
TH681	204	205	1	0	0	0.02	0.00	0	0.05
TH681	205	206	1	0	0	0.02	0.00	0	0.05
TH681	206	207	1	0	0.01	0.06	0.00	0	0.09
TH681	207	208	1	1.53	3.77	9.64	0.34	81.8	20.32
TH681	208	209	1	4.64	7.24	11.93	1.11	156.1	38.23
TH681	209	210	1	1.46	4.42	9.93	0.39	89	21.15
TH681	210	211	1	2.29	1.4	6.84	0.23	45.3	16.91
TH681	211	212	1	3.99	5.03	10.7	1.19	114.8	31.84
TH681	212	213	1	0.87	9.69	23.24	0.42	166.3	39.19
TH681	213	213.6	0.6	1.26	10.76	17.03	0.54	155.9	35.04
TH681	213.6	215	1.4	0.19	0.31	1.08	0.03	8.1	2.22
TH681	215	216	1	0.01	0.07	0.81	0.03	2.5	0.99
TH681	216	217	1	0.15	2	2.66	0.08	28.4	5.72
TH681	217	218	1	0.01	0.02	0.21	0.00	0.6	0.27
TH681	218	219	1	0	0.24	0.52	0.00	5.4	0.89
TH681	219	220	1	0.01	0.16	0.87	0.02	2.8	1.13
TH681	220	221	1	0.01	0.09	2.93	0.00	2	3.09
TH681	221	222	1	0.06	0.36	4.91	0.06	9.2	5.7
TH681	222	222.8	0.8	0.1	0.25	1.95	0.04	9.5	2.76
TH681	222.8	224	1.2	0.04	0.09	0.12	0.02	3.2	0.41
TH681	224	224.9	0.9	0.32	0.1	0.38	0.04	10.5	1.81
TH681	224.9	226	1.1	4.58	2.15	7.47	1.07	116.8	27.96
TH681	226	227	1	1.93	2.65	8.75	0.90	140.1	21.47
TH681	227	228.3	1.3	5.13	4.66	12.06	1.29	150.9	37.61
TH681	228.3	229	0.7	0.06	0.02	0.07	0.01	1	0.3
TH681	229	230	1	0.01	0.01	0.05	0.00	0.5	0.1
TH681	230	231.2	1.2	0.01	0	0.03	0.00	0	0.07
TH681	231.2	232	0.8	0.01	0	0.02	0.00	0	0.09
TH681	232	233	1	0	0	0.02	0.00	0	0.04
TH681	233	234	1	0	0	0.02	0.00	0	0.04
TH681	234	235	1	0	0	0.02	0.00	0	0.04
TH681	235	236	1	0	0	0.02	0.00	0	0.05
TH682	189.8	191	1.2	0.18	0.1	0.33	0.02	2.7	1.09
TH682	191	191.5	0.5	0.65	0.64	1.56	0.18	32.3	5.17
TH682	191.5	192.4	0.9	6.34	5.13	12.12	1.16	232.1	44.06
TH682	192.4	193	0.6	0.42	0.23	0.28	0.17	12	2.24
TH682	193	194.2	1.2	0.91	0.52	1	0.56	19.7	5.24
TH682	194.2	195.2	1	6.45	2.72	3.84	3.72	99.5	31.9
TH682	195.2	196	0.8	0.07	0.01	0.06	0.03	0.8	0.34
TH682	196	197	1	0.02	0.01	0.03	0.00	0	0.11
TH682	197	198	1	0	0	0.02	0.00	0	0.04
TH683	270.4	271	0.6	0.01	0	0.02	0.01	0	0.09



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH683	271	272	1	0.04	0.12	0.21	0.02	1.1	0.5
TH683	272	273	1	0.12	0.22	0.85	0.03	5.3	1.59
TH683	273	274	1	0.28	0.57	5.02	0.06	10.4	6.75
TH683	274	275	1	0.72	0.82	5.6	0.16	22	9.37
TH683	275	276	1	0.09	0.78	3.13	0.09	5	4.31
TH683	276	277	1	0.21	2.31	2.69	0.05	16.6	5.9
TH683	277	278	1	0	0.01	0.08	0.01	1.1	0.13
TH683	278	278.4	0.4	0	0.01	0.04	0.00	0	0.07
TH683	278.4	279	0.6	0	0	0.06	0.01	0	0.08
TH683	279	280	1	0	0	0.02	0.01	0	0.04
TH683	286	287	1	0.34	0.08	0.3	0.08	4.5	1.63
TH683	287	287.9	0.9	0.01	0.02	0.05	0.01	0.6	0.13
TH683	287.9	289	1.1	2.05	7.76	23.68	1.63	169.8	42.48
TH683	289	290	1	0.03	0.01	0.03	0.00	0.6	0.15
TH683	290	291.3	1.3	0.01	0.01	0.04	0.00	0	0.09
TH683	291.3	292.2	0.9	0.01	0.02	0.05	0.00	1.3	0.14
TH683	292.2	293.4	1.2	1.51	2.53	3.76	1.29	159.6	15.66
TH683	293.4	294.65	1.25	0.01	0.01	0.04	0.00	0.9	0.1
TH683	294.65	295.8	1.15	0	0.01	0.02	0.00	0	0.05
TH683	295.8	297	1.2	0	0	0.02	0.00	0	0.05
TH684	344.9	346	1.1	0.35	0.03	0.03	0.04	6	1.37
TH684	346	347	1	0.84	0.5	4.44	0.10	42.2	8.76
TH684	347	348	1	1.58	1.1	3.44	0.12	75.4	11.58
TH684	348	349	1	0.22	0.04	0.35	0.03	4	1.24
TH684	349	350	1	0.89	3.81	7.07	0.19	162.6	17.58
TH684	350	351	1	1.46	0.02	0.35	0.03	5.5	5.36
TH684	351	352	1	2.18	0.95	2.74	0.13	39.7	11.86
TH684	352	352.8	0.8	0.97	0.03	0.48	0.11	6.2	3.94
TH684	352.8	353.95	1.15	1.28	0.24	0.94	0.25	34.8	6.38
TH684	353.95	355	1.05	1.72	0.03	0.58	0.31	11.1	6.72
TH684	355	356	1	5.31	0.15	1.1	0.30	33.9	19.77
TH684	356	357	1	3.04	0.92	1.59	0.41	34.3	13.51
TH684	357	358	1	2.49	4.48	5.22	0.42	189.2	22.41
TH684	358	359.4	1.4	2.7	3.38	6.12	0.31	64.4	19.85
TH684	359.4	360	0.6	0.03	0.02	0.07	0.00	1.2	0.23
TH684	360	360.5	0.5	0.02	0.08	0.13	0.02	3.6	0.37
TH684	360.5	361.05	0.55	0	0	0.01	0.00	0.6	0.04
TH684	361.05	362	0.95	0	0	0.02	0.03	0	0.05
TH684	362	363	1	0	0	0.01	0.01	0	0.03
TH684	363	364	1	0	0	0.01	0.00	0	0.03
TH684	364	365	1	0	0	0.01	0.00	0	0.03
TH684	365	366	1	0	0	0.01	0.00	0	0.03
TH685	311.75	313	1.25	0	0	0.02	0.03	0	0.05
TH685	313	314	1	0.05	0.03	0.12	0.05	3.4	0.41
TH685	314	314.45	0.45	0.12	0.04	0.33	0.08	2.4	0.87
TH685	314.45	315	0.55	1.04	0.16	1.39	0.16	6.8	5.22



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH685	315	316.3	1.3	1.59	2.23	6.91	0.22	48.1	15.46
TH685	316.3	317	0.7	0.05	0.1	0.26	0.04	4.1	0.64
TH685	317	318	1	0	0	0.02	0.02	0	0.05
TH685	318	319	1	0	0	0.01	0.02	0	0.03
TH686	269.1	270	0.9	0.01	0.03	0.08	0.00	0	0.16
TH686	270	271	1	0.02	0.09	0.13	0.00	0.8	0.28
TH686	271	272	1	0.11	0.25	0.64	0.00	2.5	1.3
TH686	272	273	1	0.19	0.35	1.54	0.00	6.5	2.66
TH686	273	274	1	0.02	0.01	0.19	0.00	0.6	0.27
TH686	282.8	284	1.2	0.03	0.01	0.04	0.00	1.5	0.19
TH686	284	284.9	0.9	0.09	0.01	0.06	0.01	1.2	0.38
TH686	285.4	286	0.6	0.06	0.01	0.05	0.01	1.5	0.3
TH686	286	287	1	0	0.01	0.04	0.00	1	0.08
TH686	287	288.1	1.1	0.02	0.01	0.11	0.00	1.4	0.22
TH686	291.8	293	1.2	0.01	0	0.03	0.00	0.5	0.08
TH686	293	294	1	0	0	0.02	0.00	0	0.04
TH686	294	295	1	0	0	0.02	0.00	0	0.04
TH686	295	296	1	0	0.01	0.04	0.00	1	0.08
TH686	296	297	1	1.3	0.13	1.25	0.17	16.2	6.15
TH686	297	298	1	2.42	0.68	2.55	0.34	58.4	12.78
TH686	298	299	1	2.68	1.38	4.14	0.19	37.2	15.26
TH686	299	300	1	1.73	0.86	5.63	0.14	40.4	13.2
TH686	300	300.6	0.6	2.27	1.32	2.86	0.09	57.2	13.03
TH686	300.6	302	1.4	0.04	0.08	1.46	0.00	1.8	1.72
TH686	302	303	1	0.02	0.04	0.52	0.00	1	0.66
TH686	303	304	1	0.05	0.32	1.77	0.01	8.9	2.43
TH686	304	305.3	1.3	0.65	1.96	4.73	0.15	51.5	9.99
TH686	305.3	306	0.7	0.11	0.3	0.24	0.04	7	1.08
TH686	306	306.9	0.9	0	0.01	0.04	0.00	0.5	0.08
TH687	282.4	283	0.6	0.02	0	0.03	0.00	0	0.12
TH687	283	284	1	0	0	0.03	0.00	0	0.05
TH687	284	285	1	0	0	0.01	0.01	0	0.03
TH687	285	285.5	0.5	0	0	0.03	0.01	0	0.06
TH688	286.05	287.4	1.35	0	0	0.02	0.00	0	0.05
TH688	287.4	287.7	0.3	2.01	0.07	0.07	0.29	10.7	7.18
TH688	287.7	289	1.3	0.07	0.01	0.04	0.00	0	0.31
TH688	289	290	1	0.02	0.01	0.05	0.00	0	0.14
TH688	290	291	1	0	0	0.02	0.00	0	0.04
TH689	258.4	259	0.6	0	0.01	0.01	0.00	0.9	0.05
TH689	259	260	1	0.01	0.19	0.24	0.11	19.3	0.98
TH689	260	261	1	0	0	0.02	0.00	0	0.05
TH689	261	262	1	0.03	0	0.01	0.00	0.8	0.13
TH689	262	263	1	0	0	0.02	0.00	0	0.04
TH689	263	264	1	0.01	0	0.02	0.00	0	0.07
TH689	264	265.2	1.2	0	0.01	0.04	0.00	1.1	0.09
TH689	268.1	268.7	0.6	0.11	0.02	0.09	0.00	2.6	0.55



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH690	314.7	316	1.3	0.1	0.02	0.07	0.02	1.6	0.45
TH690	316	317.15	1.15	2.67	1.44	9.66	0.39	58.7	21.43
TH690	317.15	318	0.85	0.01	0.01	0.05	0.00	0	0.09
TH690	318	319	1	0	0.01	0.04	0.00	0	0.09
TH690	319	320	1	0	0	0.01	0.00	0	0.03
TH691	329.8	331.05	1.25	0	0	0.01	0.00	1	0.06
TH691	331.05	331.7	0.65	0.89	13.94	30.56	0.69	309.6	54.12
TH691	331.7	332.75	1.05	1.51	0.34	3.64	0.77	29	10.04
TH691	332.75	334	1.25	0.02	0.03	0.05	0.02	1.3	0.18
TH691	334	335	1	0	0	0.01	0.00	0	0.05
TH691	335	336.15	1.15	0	0.01	0.01	0.00	0	0.04
TH691	336.15	337	0.85	0	0	0.01	0.00	0	0.04
TH691	337	338	1	0	0	0.01	0.00	0	0.04
TH693	335.3	336.2	0.9	0	0	0.02	0.00	0	0.04
TH693	336.2	337	0.8	0.15	0.01	0.13	0.00	1.3	0.68
TH693	337	338	1	0	0.09	0.32	0.00	5.3	0.54
TH693	338	339.1	1.1	0	0.42	0.51	0.05	25.3	1.56
TH693	339.1	340	0.9	0.18	2.34	8.2	0.08	36.3	11.86
TH693	340	341	1	2.32	3.99	9.31	0.28	155.2	24.57
TH693	341	341.8	0.8	7.47	3.2	5.25	0.94	328.1	41.44
TH693	341.8	343	1.2	0.01	0.02	0.05	0.00	0.6	0.13
TH693	343	344	1	0.03	0.02	0.04	0.00	1.7	0.19
TH693	344	345	1	0	0	0.03	0.00	0	0.06
TH693	345	345.6	0.6	0.01	0.01	0.04	0.00	1.1	0.11
TH693	345.6	346.4	0.8	0.02	0.14	0.06	0.11	8.5	0.52
TH693	346.4	347.1	0.7	0.01	0.01	0.02	0.03	1.2	0.09
TH694	183.4	184	0.6	0.04	0	0.03	0.00	0	0.18
TH694	184	185	1	0.01	0.01	0.09	0.00	0.7	0.15
TH694	185	186	1	0.01	0	0.05	0.00	0	0.1
TH694	186	187	1	0.2	0.07	0.07	0.03	4.5	0.93
TH694	187	188	1	0.04	0.12	0.22	0.00	2.4	0.51
TH694	188	188.8	0.8	0.3	0.1	0.25	0.05	7.3	1.53
TH694	188.8	189.7	0.9	7.87	7.96	20.57	1.04	275.6	61.11
TH694	189.7	190.3	0.6	1.09	0.39	0.14	0.60	37.9	5.35
TH694	190.3	190.85	0.55	14.29	0.73	0.99	1.99	107	52.47
TH694	190.85	192	1.15	0.1	0.13	0.18	0.06	8.4	0.86
TH694	192	193.3	1.3	0.03	0.01	0.07	0.00	0	0.19
TH695	241.05	242	0.95	0	0.01	0.03	0.00	0	0.06
TH695	242	243	1	0	0.02	0.04	0.00	0.5	0.08
TH695	243	244	1	0	0.05	0.03	0.00	1.3	0.12
TH695	244	245.2	1.2	0.01	0.05	0.05	0.03	2.2	0.21
TH695	245.2	246	0.8	1.27	0.94	3.87	4.21	35.8	11.91
TH695	246	247	1	0.74	0.35	6.55	1.73	43.5	11.26
TH695	247	247.7	0.7	1.75	2.68	5.94	0.24	60.3	15.76
TH695	247.7	249	1.3	0.01	0.05	0.19	0.00	1.3	0.32
TH695	249	249.8	0.8	0	0.01	0.04	0.00	0	0.08



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH695	249.8	251	1.2	1.22	3.37	9.32	0.44	87.4	18.77
TH695	251	251.6	0.6	1.07	0.5	3.93	0.22	40.8	9.04
TH695	251.6	252.3	0.7	0	0.02	0.04	0.00	0.6	0.09
TH695	252.3	253	0.7	0.01	0	0.02	0.00	0.5	0.08
TH695	253	254	1	0	0	0.02	0.00	0	0.05
TH696	288.2	289	0.8	0.02	0.01	0.34	0.00	1	0.44
TH696	289	290	1	0	0.01	0.02	0.00	0	0.06
TH696	290	291	1	0.01	0.03	0.05	0.00	1	0.12
TH696	291	291.7	0.7	0.03	0.03	0.07	0.02	3.2	0.3
TH696	291.7	292.1	0.4	0.77	0.11	0.79	0.19	15	3.91
TH696	292.1	293.2	1.1	0.01	0.01	0.03	0.00	0	0.07
TH697	159	159.8	0.8	0.03	0.16	0.42	0.01	3.3	0.75
TH697	159.8	161.2	1.4	0.43	1.84	4.64	0.16	35.4	8.67
TH697	161.2	161.8	0.6	5.35	4.14	21.09	1.32	173.6	47.47
TH697	161.8	162.6	0.8	0.06	0.25	0.43	0.03	5.2	0.99
TH697	162.6	164	1.4	0.01	0.02	0.08	0.00	1.2	0.16
TH697	164	165	1	0.01	0.04	0.1	0.00	2.7	0.25
TH697	165	166	1	0.01	0.05	0.11	0.01	3.3	0.27
TH697	166	167	1	0.01	0.06	0.44	0.01	1.8	0.57
TH697	167	168	1	0.01	0.01	0.03	0.01	0.8	0.09
TH697	168	169	1	0.03	0.45	1.87	0.05	10.8	2.69
TH697	169	170	1	0.05	0.76	1.36	0.06	14.1	2.6
TH697	170	171	1	0.06	0.11	0.22	0.03	6.6	0.71
TH697	171	172	1	0.05	0.09	0.23	0.02	5.5	0.61
TH697	172	173	1	0.33	0.08	0.19	0.04	14.3	1.72
TH697	173	173.7	0.7	1.15	0.15	0.55	0.16	34.3	5.41
TH697	173.7	174.1	0.4	4.47	5.48	12.6	1.07	211.6	38.12
TH697	174.1	175	0.9	0.48	0.04	0.52	0.10	7.6	2.4
TH697	175	176	1	0.02	0.01	0.05	0.00	0.9	0.14
TH697	176	177	1	0.01	0	0.02	0.01	bdl	0.31
TH698	422	423	1	0	0	0.01	0.00	0	0.03
TH698	423	424.8	1.8	0	0	0.02	0.00	0	0.05
TH698	424.8	426	1.2	4.31	4.18	15.79	1.04	103.8	36.88
TH698	426	427	1	1.74	6.61	38.61	0.76	142.3	54.25
TH698	427	428	1	0.86	5.12	22.38	0.64	119.4	33.14
TH698	428	429	1	1.38	3.14	7.6	1.64	136.9	19.21
TH698	429	430	1	1	6.01	22.16	0.64	148.8	34.91
TH698	430	431	1	0.34	8.49	18.91	0.62	153.2	31.8
TH698	431	432	1	0.45	6.58	21.42	0.72	105.1	31.83
TH698	432	433	1	0.56	6.67	24.71	0.51	103.3	35.41
TH698	433	434	1	0.86	1.7	9.79	0.42	42.6	15.44
TH698	434	435	1	0.62	8.86	20.49	0.74	134.7	34.26
TH698	435	436	1	0.64	7.01	14.69	0.52	113.1	26.19
TH698	436	437	1	0.4	1.68	3.36	0.10	45.6	7.38
TH698	437	438	1	2.39	2.35	4.83	0.37	59.9	16.52
TH698	438	439	1	1.05	3.2	8.21	0.35	55.4	16.1



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH698	439	439.6	0.6	0.97	5.52	14.45	0.33	91.3	25.06
TH698	442.8	443	0.2	0.03	0.04	0.08	0.02	1.1	0.25
TH698	443	444	1	0	0.02	0.03	0.05	0	0.1
TH698	444	445.1	1.1	0	0.01	0.02	0.00	0	0.05
TH698	445.1	446.2	1.1	0.78	1.95	5.76	0.20	37	11.12
TH698	448.4	449	0.6	0	0.01	0.02	0.00	0	0.05
TH698	449	450	1	0	0.01	0.02	0.00	0	0.05
TH698	450	451	1	0	0.01	0.02	0.00	0.8	0.06
TH698	451	452	1	0	0	0.03	0.00	0.9	0.06
TH698	452	453	1	0.21	1.81	4.19	0.15	37.4	7.52
TH698	453	454	1	3.95	8.43	17.88	0.98	173.6	43.34
TH698	454	455	1	0.22	6.65	19.76	0.38	161.1	30.7
TH698	455	456	1	0.16	3.61	14.42	0.29	85	20.47
TH698	456	457	1	0.66	11.07	9.68	0.77	236.9	28.13
TH698	457	458	1	0.68	3.63	2.25	0.26	80.1	9.88
TH698	458	459	1	1.2	5.49	9.55	0.29	119.9	21.58
TH698	459	460	1	0.19	6.19	11.21	0.25	154.9	21.43
TH698	460	461	1	1.23	2.69	2.67	0.12	51.8	10.52
TH698	461	462	1	0.49	1.93	2.01	0.16	36.7	6.37
TH698	462	463	1	2.67	2.41	9.32	0.91	57.9	22.2
TH698	463	464	1	0.77	2.08	12.53	0.24	33.4	17.91
TH698	464	465	1	1.77	1.34	4.43	0.29	55.1	12.99
TH698	465	466	1	1.96	1.12	7.2	0.61	70.4	16.72
TH698	466	467	1	1.05	0.23	3.12	0.08	14	7.19
TH698	467	468	1	2.98	0.96	9.38	0.13	52.3	21.45
TH698	468	469	1	1.65	1.63	5.57	0.10	33.9	13.36
TH698	469	470	1	0.72	2.47	14.22	0.17	47.2	20.08
TH698	470	470.95	0.95	0.99	1.25	4.09	0.15	27.6	9.25
TH698	470.95	472	1.05	0.31	0.79	2.28	0.07	21.6	4.59
TH698	472	473	1	0.12	0.13	0.33	0.03	3.6	0.96
TH698	473	474	1	0.08	0.17	0.38	0.02	1.7	0.87
TH698	474	475	1	0.06	0.27	0.39	0.00	1.9	0.88
TH698	475	476	1	0.18	0.81	2.25	0.03	4.3	3.7
TH698	476	477	1	0.19	1.33	2.51	0.03	5.9	4.49
TH698	477	478	1	0.04	0.34	1.02	0.03	2.9	1.55
TH698	478	479	1	0.2	0.35	0.92	0.02	2.3	1.96
TH698	479	480	1	0.14	0.79	1.71	0.02	2.5	2.96
TH698	480	481	1	0.94	0.69	2.47	0.07	2.6	6.29
	481 482	482 483	1	0.05 0.66	0.01	1.53 0.59	0.00	0	1.73 2.94
TH698 TH698	482	483	1	0.66	0.09	0.59	0.06	0	2.94 0.47
TH698	483	484	1	0.12	0.01	0.04	0.02	0.8	1.01
TH698	484	485	1	0.28	0.01	0.04	0.04	0.8	0.53
TH698	485	486	1	0.15	0.01	0.02	0.02	1.7	1.99
TH698	480	487	1	0.15	0.01	0.03	0.00	0.5	0.53
TH698	487	489	1	0.15	0	0.03	0.00	0.5	0.04
10090	400	405	1	0	U	0.01	0.00	U	0.04



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH698	489	490	1	0	0.01	0	0.01	0	0.03
TH703	372	373	1	0.11	0.74	3.83	0.05	14.9	5.25
TH703	373	374	1	0.1	0.54	1.44	0.02	10.3	2.51
TH703	374	375	1	1.78	0.76	2.14	0.14	34.4	9.61
TH703	375	376	1	0.67	1.17	5.18	0.28	39.9	9.57
TH703	376	377	1	1.66	0.68	1.95	0.24	29.5	8.9
TH703	377	378	1	3.31	0.25	8.75	0.23	35.2	20.89
TH703	378	379	1	2.68	0.36	3.85	0.22	33	13.94
TH703	379	380	1	0.71	1.9	4.22	0.22	37.2	9.32
TH703	380	380.5	0.5	0.1	0.43	0.93	0.04	9.8	1.91
TH703	380.5	381	0.5	0	0.04	0.13	0.00	0	0.18
TH703	381	381.5	0.5	0	0.02	0.08	0.00	0	0.11
TH703	381.5	382	0.5	0	0.02	0.06	0.00	0	0.11
TH704	4	5	1	0.02	0.04	0.14	0.01	0.19	0.22
TH704	5	6	1	0.01	0.03	0.05	0.01	0.76	0.14
TH704	6	7	1	0.01	0.02	0.03	0.01	0.69	0.12
TH704	7	8	1	0.01	0.03	0.04	0.01	0.23	0.12
TH704	8	9	1	0.01	0.01	0.04	0.01	0.3	0.09
TH704	9	10	1	0	0.01	0.02	0.01	0.24	0.04
TH704	15	16	1	0	0.01	0.02	0.01	0.59	0.05
TH704	21	22	1	0.01	0.06	0.02	0.01	bdl	0.09
TH704	24	25	1	0	0.02	0.05	0.01	bdl	0.08
TH704	29	30	1	0.01	0.07	0.1	0.01	0.12	0.19
TH704	34	35	1	0	0.22	0.11	0.01	0.4	0.33
TH704	44	45	1	0	0.06	0.1	0.01	0.22	0.18
TH704	49	50	1	0	0.02	0.06	0.01	bdl	0.08
TH704	54	55	1	0	0.03	0.06	0.01	0.21	0.1
TH704	59	60	1	0	0	0.02	0.01	bdl	0.03
TH704	64	65	1	0	0.01	0.02	0.01	bdl	0.04
TH704	69	70	1	0	0.01	0.02	0.01	bdl	0.05
TH704	74	75	1	0	0.01	0.01	0.01	0.06	0.03
TH704	79	80	1	0	0.01	0	0.01	bdl	0.02
TH704	84	85	1	0	0.03	0.06	0.01	bdl	0.09
TH704	89	90	1	0	0.03	0.02	0.01	bdl	0.06
TH704	94	95	1	0.01	0.02	0.07	0.01	bdl	0.11
TH705	372	373	1	0	0.01	0.02	0.00	0	0.04
TH705	373	374.2	1.2	0.04	0.57	0.62	0.17	7.3	1.54
TH705	374.2	375	0.8	0	0	0.01	0.00	0	0.04
TH705	375	376	1	0	0	0.01	0.00	0	0.04
TH705	376	377	1	0	0	0.01	0.00	0	0.04
TH705	377	378	1	0	0	0.01	0.00	0	0.04
TH705	378	378.95	0.95	0	0	0.01	0.00	0	0.04
TH705	378.95	380	1.05	0	0.01	0.02	0.01	0	0.05
TH705	380	381.2	1.2	0.01	0.01	0.04	0.02	0.8	0.09
TH705	381.2	382.2	1	0.06	0.14	0.33	0.08	8.2	0.91
TH705	382.2	383.37	1.17	0.07	0.46	0.97	0.05	10.1	1.89



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH705	383.37	384	0.63	0.28	0.14	1.43	0.06	7.6	2.7
TH705	384	385	1	0.06	0.17	0.78	0.03	3.4	1.23
TH705	385	386	1	0.31	1.35	2.69	0.08	15.9	5.38
TH705	386	387	1	0.19	0.46	3.18	0.04	8.6	4.47
TH705	387	388	1	0.01	0.03	0.06	0.01	1	0.16
TH705	388	389	1	0.02	0.06	0.13	0.01	2.6	0.31
TH705	389	390	1	0	0.01	0.02	0.00	0.6	0.06
TH706	245	246	1	0.13	0.44	0.65	0.04	4.4	1.6
TH706	246	247	1	0.01	0.05	0.04	0.01	0.8	0.13
TH706	247	248	1	0	0	0.01	0.00	0	0.04
TH706	248	248.8	0.8	0	0	0.01	0.00	0	0.05
TH706	248.8	249.6	0.8	0.01	0.01	0.1	0.00	0.9	0.17
TH706	249.6	250.5	0.9	0.82	1.74	9.28	0.21	40.6	14.66
TH706	250.5	251.3	0.8	0.01	0.02	0.11	0.01	0	0.17
TH706	251.3	252	0.7	0	0	0.02	0.00	0	0.05
TH706	252	253	1	0.04	0.94	1	0.05	6	2.15
TH707	298	299	1	0.04	0.01	0.01	0.04	1.6	0.2
TH707	299	300	1	0.01	0.01	0.02	0.02	0.8	0.09
TH707	300	301.05	1.05	0	0	0.01	0.04	0	0.05
TH707	301.05	302	0.95	0	0	0.01	0.00	0	0.04
TH707	302	303	1	0	0	0.01	0.00	0	0.04
TH707	303	303.65	0.65	0.13	0.15	0.07	0.28	8.3	0.97
TH707	303.65	304.3	0.65	0.5	1.69	4.52	0.53	68.7	9.66
TH707	304.3	304.7	0.4	0.09	0.02	0.17	0.04	1	0.54
TH707	304.7	306	1.3	0.14	0.03	0.09	0.03	1.8	0.63
TH707	306	307	1	0.01	0.01	0.02	0.01	0	0.06
TH707	307	308	1	0.09	0	0.01	0.18	0.8	0.44
TH707	308	308.5	0.5	0	0	0.02	0.01	0	0.04
TH707	308.5	309	0.5	0	0	0.01	0.00	0	0.03
TH707	309	310	1	0	0	0.01	0.00	0	0.03
TH708	136	137.4	1.4	0	0.01	0.02	0.00	0.7	0.05
TH708	136	137.4	1.4	0	0.01	0.02	bdl	0.5	0.09
TH708	137.4	138.4	1	0.21	0.5	5.85	0.00	9.9	7.25
TH708	137.4	138.4	1	0.01	0	0.02	bdl	0	0.1
TH708	138.4	138.9	0.5	0.01	0	0.02	0.00	0	0.06
TH708	138.4	138.9	0.5	0.26	0.41	4.55	bdl	9.3	6.06
TH708	138.9	140	1.1	0.05	0	0.23	0.00	0	0.4
TH708	138.9	140	1.1	0.05	0	0.23	bdl	0	0.46
TH708	140	141	1	0.34	0.52	1.21	0.00	8.2	3.03
TH708	140	141	1	0.4	0.21	0.9	bdl	5.1	2.58
TH708	141	142	1	0.01	0.01	0.02	0.00	0	0.07
TH708	141	141.6	0.6	0.23	0.61	1.42	bdl	14.1	3.13
TH708	141.6	143	1.4	0.01	0.01	0.02	bdl	0	0.12
TH708	142	143	1	0.24	0.44	0.83	0.00	9.7	2.28
TH709	156	157	1	0	0.01	0.02	0.02	0	0.06
TH709	157	158	1	0.01	0.01	0.07	0.01	0.6	0.13



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH709	158	159	1	0.02	0.03	0.03	0.01	1.2	0.16
TH709	159	160	1	0.03	0.01	0.02	0.00	0.5	0.14
TH709	160	160.5	0.5	0.11	0.04	0.08	0.00	4.7	0.58
TH709	160.5	161	0.5	0.01	0.04	0.09	0.00	2	0.22
TH709	161	162	1	0.04	0.04	0.12	0.00	1.7	0.35
TH709	162	163	1	0	0.01	0.02	0.00	0	0.04
TH709	163	164	1	0	0	0.01	0.00	0	0.05
TH710	361	361.7	0.7	0	0	0.02	0.00	0	0.04
TH710	361.7	362.8	1.1	0	0.01	0.03	0.00	3.3	0.13
TH710	362.8	364	1.2	1.41	5.67	11.09	0.85	173.4	25.6
TH710	364	365	1	0.88	3.86	12.14	0.31	71	20.45
TH710	365	366	1	1.15	1.26	2.98	0.25	30	8.79
TH710	366	367	1	2.63	9.15	20.17	1.04	208.5	42.84
TH710	367	367.5	0.5	4.62	8.61	20.28	1.26	257.5	50.34
TH710	367.5	368	0.5	0.34	0.24	0.12	0.14	15.6	1.9
TH710	368	369	1	0.02	0.03	0.06	0.00	0.9	0.17
TH712	339	340	1	0	0	0.01	0.00	0	0.03
TH712	340	340.67	0.67	0.04	0.14	0.45	0.00	5	0.83
TH712	340.67	341.8	1.13	3.37	3.78	10.13	0.60	174	29.29
TH712	341.8	343	1.2	0.01	0.01	0.02	0.00	0	0.06
TH712	343	344	1	0.01	0.01	0.02	0.00	0	0.06
TH712	344	344.7	0.7	0	0	0.01	0.00	0	0.04
TH712	344.7	346	1.3	0.04	0.18	0.68	0.02	6	1.13
TH712	346	346.7	0.7	0.05	0.11	0.17	0.02	3	0.53
TH712	346.7	348	1.3	0	0	0.02	0.00	0	0.04
TH712	348	349	1	0.01	0	0.01	0.00	0	0.08
TH712	349	350.05	1.05	0	0	0.01	0.00	0	0.04
TH712	350.05	351	0.95	0.02	0.01	0.03	0.00	0	0.12
TH712	351	352	1	0	0.01	0.03	0.00	0	0.06
TH713	304	305	1	0.02	0.01	0.03	0.01	0.9	0.13
TH713	305	306.2	1.2	0	0.01	0.04	0.01	0.8	0.09
TH713	306.2	307	0.8	0	0.01	0.02	0.00	0	0.05
TH713	307	308	1	0.04	0.09	0.07	0.03	3.2	0.37
TH713	308	308.7	0.7	0	0	0.03	0.00	0	0.05
TH713	308.7	310	1.3	0	0	0.01	0.00	0	0.04
TH713	310	311	1	0	0	0.01	0.00	0	0.04
TH713	311	312	1	0	0	0.01	0.00	0	0.04
TH713	312	313	1	0	0	0.01	0.00	0	0.04
TH713	313	313.8	0.8	0	0	0.01	0.00	0	0.04
TH713	313.8	315	1.2	0.08	0.1	0.23	0.03	3	0.68
TH713	315	316.25	1.25	0.04	0.02	0.08	0.00	1.4	0.26
TH713	316.25	316.8	0.55	6.37	4.07	12.55	3.51	145.3	42.63
TH713	316.8	317.2	0.4	0.04	0.02	0.06	0.01	0.9	0.25
TH713	317.2	318	0.8	0.01	0.01	0.03	0.00	0	0.09
TH713	318	319	1	0	0.01	0.02	0.00	0	0.04
TH716	404	405	1	0.02	0.01	0.03	0.01	0.5	0.12



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH716	405	406.1	1.1	0.02	0.01	0.03	0.01	0	0.11
TH716	406.1	407	0.9	0	0.01	0.03	0.00	0	0.06
TH716	407	408.05	1.05	0	0.06	0.12	0.00	3.7	0.28
TH716	408.05	409.3	1.25	0.99	1.58	3.58	0.20	67.6	10.05
TH716	409.3	410.5	1.2	0.02	0.08	0.29	0.02	3.4	0.53
TH716	410.5	411.65	1.15	0.2	2.1	3.69	0.10	24.8	6.91
TH716	411.65	412.5	0.85	0.88	3.15	6.51	0.32	37.7	13.37
TH716	412.5	413.5	1	0.04	0.03	0.05	0.01	1.2	0.24
TH716	413.5	414.5	1	0.01	0.01	0.03	0.00	0	0.08
TH716	414.5	415.5	1	1.08	0.21	1.57	0.09	29.3	6.09
TH716	415.5	416.5	1	0.88	2.22	1.12	0.15	53.8	7.44
TH716	416.5	417.9	1.4	0.29	0.86	1.37	0.07	18.1	3.6
TH716	417.9	419.3	1.4	0.01	0.03	0.02	0.00	0.9	0.1
TH716	419.3	420.7	1.4	0	0	0.01	0.00	0	0.05
TH716	420.7	421.55	0.85	0	0	0.01	0.00	0	0.04
TH716	421.55	423	1.45	0.82	0.09	0.16	0.13	11.6	3.31
TH716	423	424	1	3.19	2	5.11	0.28	84.6	19.7
TH716	424	425	1	1.52	4.6	11.07	0.42	109.5	23.16
TH716	425	426	1	0.07	0.59	1.69	0.10	23.3	3.09
TH716	426	426.63	0.63	1.19	4.18	7.14	0.63	162.5	19.2
TH716	426.63	427.1	0.47	0.9	4.54	8.05	0.73	168.6	19.69
TH716	427.1	428.2	1.1	0.67	0.44	0.4	0.26	28.3	3.85
TH716	428.2	428.7	0.5	2.43	16.78	20.67	0.43	218.3	49.46
TH716	428.7	430	1.3	0	0.02	0.04	0.01	1.2	0.1
TH716	430	431	1	0.01	0.06	0.06	0.00	0.8	0.17
TH716	431	432	1	0	0	0.01	0.00	0	0.03
TH717	307	308	1	0.07	0.02	0.11	0.00	1	0.39
TH717	308	309	1	0.05	0.03	0.04	0.01	1.2	0.27
TH717	309	310	1	0.07	0.06	0.07	0.00	2.6	0.42
TH717	310	311	1	0.08	0.03	0.05	0.00	1.2	0.39
TH717	311	312.3	1.3	0.07	0.01	0.03	0.00	0.9	0.29
TH717	312.3	313	0.7	0.01	0	0.02	0.02	0	0.07
TH717	313	314	1	0.02	0.01	0.04	0.00	1	0.13
TH717	314	315	1	0.03	0.02	0.07	0.00	0.9	0.2
TH717	315	316.3	1.3	0.01	0.04	0.05	0.01	2.5	0.18
TH717	316.3	317	0.7	0.08	0.06	0.05	0.02	2.9	0.44
TH717	317	318	1	0	0	0.01	0.00	0	0.04
TH717	318	319	1	0	0	0.01	0.00	0	0.04
TH717	319	320.4	1.4	0.01	0.01	0.03	0.00	0	0.08
TH717	320.4	321	0.6	0.04	0.07	0.13	0.02	2.5	0.4
TH717	321	322	1	0	0.01	0.02	0.00	0	0.05
TH717	322	322.7	0.7	0.15	0.16	0.25	0.01	3.4	0.98
TH717	322.7	324	1.3	0.45	1.55	3.32	0.16	45.2	7.43
TH717	324	324.6	0.6	0.64	3.97	1.06	0.11	129.1	10.03
TH717	324.6	325.4	0.8	0.03	0.37	0.12	0.02	3.8	0.67
TH717	325.4	326	0.6	0	0.01	0.08	0.00	0	0.11



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH717	326	327.4	1.4	0	0.01	0.04	0.00	0	0.07
TH717	327.4	328	0.6	0	0.01	0.02	0.00	0	0.05
TH717	328	329	1	0	0	0.02	0.00	0	0.04
TH717	329	330	1	0	0	0.02	0.00	0	0.04
TH717	330	331	1	0	0	0.01	0.00	0	0.03
TH717	331	332	1	0	0	0.01	0.00	0	0.03
TH718	78.6	79.6	1	0.01	0.01	0.04	0.00	0	0.08
TH718	79.6	81	1.4	0.24	0.04	0.14	0.04	5	1.13
TH718	81	82	1	0.86	0.04	0.16	0.06	4.9	3.18
TH718	82	83	1	0.1	0.02	0.13	0.02	1.7	0.52
TH718	83	84	1	0.09	0.04	0.05	0.03	2.8	0.45
TH718	84	85.1	1.1	1.02	0.09	1.28	0.12	13.6	5.13
TH718	85.1	86	0.9	0.07	0.14	0.64	0.03	3.5	1.1
TH718	86	87.4	1.4	0.05	0.11	0.79	0.04	4.1	1.19
TH718	87.4	88.45	1.05	2.21	1.45	6.22	0.30	74.9	16.86
TH718	88.45	89.3	0.85	2.94	0.93	6.31	0.25	41.6	18.01
TH718	89.3	90.2	0.9	0.73	0.6	4.58	0.12	15	7.96
TH718	90.2	91.5	1.3	2.16	0.74	6.83	0.19	45.4	15.86
TH718	91.5	92.5	1	0.07	0.09	0.34	0.00	2.3	0.71
TH718	92.5	93.5	1	2.53	0.97	5.01	0.20	64.2	15.94
TH718	93.5	94.2	0.7	0.85	1.19	6.75	0.13	30.5	11.45
TH718	94.2	95.1	0.9	0.01	0.04	0.57	0.00	0	0.67
TH718	95.1	96	0.9	0.01	0.03	0.22	0.00	0.5	0.3
TH718	96	97	1	0	0.01	0.02	0.00	0	0.06
TH721	436	437.1	1.1	0	0	0.03	bdl	0	0.3
TH721	437.1	438	0.9	0	0	0.05	bdl	0	0.32
TH721	438	439	1	0	0.01	0.09	bdl	0	0.36
TH721	439	439.8	0.8	0.09	0.04	0.23	0.04	2.3	0.63
TH721	439.8	441	1.2	4.45	6.69	21.03	1.11	178.5	46.76
TH721	441	441.7	0.7	1.3	2.5	7.65	0.20	50.2	15.54
TH721	441.7	443	1.3	3.52	4.93	9.78	0.64	123.1	29.23
TH721	443	444	1	0.37	3.51	5.45	0.16	45.2	11.04
TH721	444	444.5	0.5	0.35	2.94	5.44	0.15	35	10.17
TH721	444.5	445	0.5	0.37	0.4	0.84	0.10	9.9	2.72
TH721	445	446	1	0.72	0.74	2.37	0.18	21.7	6.03
TH721	446	446.5	0.5	0.23	0.01	3.47	0.05	3.8	4.34
TH721	446.5	448	1.5	0.01	0	0.02	0.01	0	0.06
TH722	307	308.4	1.4	0	0	0.01	0.02	0	0.05
TH722	308.4	309	0.6	0	0	0.02	bdl	0	0.29
TH722	309	310	1	0	0	0.03	bdl	0	0.3
TH722	310	311.5	1.5	0.08	0.08	0.06	0.03	1.6	0.43
TH722	311.5	311.9	0.4	0.22	0.13	0.31	0.07	5.4	1.31
TH722	311.9	313	1.1	0	0	0.02	bdl	0	0.29
TH722	313	314	1	0	0	0.02	bdl	0	0.29
TH723	468	469	1	0.01	0.01	0.1	0.00	0.9	0.17
TH723	469	470	1	0	0	0.07	0.00	0.5	0.1



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH723	470	471.15	1.15	0.38	0.06	0.1	0.88	10.1	2.1
TH723	471.2	472.37	1.22	2.05	1.01	9.92	0.35	70.6	19.53
TH723	472.4	473.5	1.13	1.06	0.56	4.91	0.10	25.4	9.59
TH723	473.5	474.4	0.9	1.03	1	10.2	0.67	48.1	16.03
TH723	474.4	475	0.6	1.19	9.44	23.79	0.49	187	41.12
TH723	475	475.55	0.55	1.01	0.32	0.17	0.26	53.4	5.25
TH723	475.6	476.4	0.85	3.06	10.9	26.57	0.82	268.8	53.61
TH723	476.4	477	0.6	1	0.8	1.76	0.22	33	6.71
TH723	477	477.45	0.45	8.07	1.52	0.82	1.58	154	33.45
TH723	477.5	477.9	0.45	0.09	0.46	0.74	0.14	21.3	2.06
TH723	477.9	479	1.1	0.03	0.02	0.09	0.00	1.2	0.24
TH723	479	479.6	0.6	0	0.01	0.02	0.00	-0.05	0.04
TH723	479.6	481	1.4	0	0	0.01	0.00	-0.05	0.03
TH723	481	482	1	0	0	0.01	0.00	-0.05	0.02
TH725	121.6	123	1.4	0.04	0.17	0.29	0.00	0.5	0.58
TH725	123	124	1	0.03	0.32	0.41	0.00	7.8	1
TH725	124	125	1	0.25	1.68	3.03	0.11	12.6	5.73
TH725	125	126	1	0.25	0.77	2.96	0.06	10.4	4.78
TH725	126	127	1	0.34	0.27	3.29	0.08	20.3	5.22
TH725	127	128	1	1.51	1.69	3.63	0.32	164.3	14.39
TH725	128	129	1	1.26	0.11	0.67	0.10	22.7	5.54
TH725	129	129.6	0.6	0.54	0.09	0.18	0.26	13.2	2.49
TH725	129.6	130	0.4	17.9	3.45	8.55	7.19	290.8	81.58
TH725	130	131.3	1.3	14.46	2.86	6.78	1.72	276.6	64.84
TH725	131.3	131.6	0.3	1.96	0.29	0.68	1.24	50.1	9.3
TH725	131.6	133	1.4	0.81	0.03	0.18	0.10	6.3	3.1
TH725	133	134	1	0.09	0.01	0.04	0.02	1.4	0.4
TH727	326	327	1	0.01	0.01	0.03	0.00	bdl	0.09
TH727	327	327.7	0.7	0.38	0.01	0.09	0.02	9.6	1.59
TH727	327.7	328	0.3	1.02	4.65	10.88	0.38	178.8	23.1
TH727	328	328.5	0.5	0.07	0.39	2.19	0.04	14.6	3.15
TH727	328.5	329	0.5	0.06	0.06	1.51	0.05	13.4	2.11
TH727	329	329.96	0.96	0.01	0	0.02	0.00	bdl	0.05
TH727	329.96	331.5	1.54	0.01	0.04	0.18	0.00	bdl	0.25
TH727	331.5	332.6	1.1	0	0	0.07	0.00	bdl	0.09
TH727	332.6	334	1.4	0.01	0.03	0.67	0.00	bdl	0.74
TH727	334	335	1	0	0.01	0.03	0.00	bdl	0.04
TH727	335	335.9	0.9				0.00	bdl	
TH730	91	92	1	0.0896	0.9566	2.7456	0.03	6.2	4.07222
TH730	92	93	1	0.0541	1.1133	1.4876	0.04	5.9	2.8356
TH730	93	94	1	0.3116	3.2047	5.5216	0.06	16.9	9.88661
TH730	94	94.9	0.9	0.2821	1.664	3.0757	0.04	11.1	5.80173
TH730	94.9	96.1	1.2	0.5706	5.3797	8.1728	0.06	29.2	15.65751
TH730	96.1	97	0.9	0.0356	0.3471	0.3826	0.02	3.3	0.90497
TH730	97	98	1	0.4243	3.4312	7.3367	0.11	22.8	12.44997
TH730	98	99	1	0.1204	1.3406	1.7912	0.04	12.9	3.73756



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
TH730	99	100	1	0.0382	0.252	0.2282	0.04	8.2	0.80606
TH730	100	101	1	0.0233	0.1775	0.3465	0.03	7.6	0.78814
TH730	101	102.5	1.5	0.0891	0.3662	0.9468	0.06	21.4	2.13541
TH730	102.5	104.2	1.7	0.3518	2.3185	5.4449	0.29	52.8	10.15749
TH730	104.2	105.7	1.5	0.7198	2.0525	6.3859	0.14	43.1	11.75599
TH730	105.7	107.2	1.5	0.2033	1.5959	9.2594	0.08	45	12.5316
TH730	107.2	108.8	1.6	0.1395	0.2522	0.9881	0.00	9.5	1.91793
TH730	108.8	110.3	1.5	1.4926	0.3115	1.035	0.14	25.2	6.94093
TH730	110.3	111.2	0.9	0.8222	0.1229	0.3007	0.06	13	3.47957
TH730	111.2	112.7	1.5	1.3193	0.2276	0.9719	0.11	19	6.06043
TH730	112.7	114.2	1.5	1.1325	0.0244	0.2609	0.10	5.7	4.21261
TH730	114.2	115.7	1.5	0.0663	0.0152	0.1124	0.00	1.5	0.38737
TH730	115.7	117.2	1.5	0.0099	0.0082	0.2954	0.00	0.6	0.35545
TH730	117.2	118.7	1.5	0.2696	0.7002	4.1029	0.04	18	6.09276
TH730	118.7	119.9	1.2	0.2334	0.221	0.6127	0.04	31.6	2.39182
TH730	119.9	120.38	0.48	0.7545	0.0725	0.1651	0.06	12.1	3.0527
TH730	120.38	120.78	0.4	13.9912	2.4261	2.6066	0.61	263.9	57.86355
TH730	120.78	121.6	0.82	0.0408	0.023	0.0661	0.00	2.9	0.29894
TH730	121.6	123.1	1.5	0.034	0.0084	0.0234	0.00	1	0.17316
TH730	123.1	123.8	0.7	0.0009	0.0022	0.0191	0.00	bdl	0.0303
TH731	95	96	1	0.07	0.3	0.45	0.02	6.1	1.12
TH731	100	101	1	0.3	0.01	0.32	0.02	4.2	1.44
TH731	104	105	1	0.09	0.01	0.07	0.00	1	0.41
TH731	110.1	111	0.9	0.35	0.12	0.24	0.02	14.5	1.88
TH731	111	117	6	0.4	1.73	2.06	0.14	48.6	6.22
TH731	117	120.5	3.5	0.19	0.54	1.77	0.05	24.7	3.54
TH731	120.5	123	2.5	1.61	0.28	3.25	0.15	30.2	9.65
TH731	123	125.1	2.1	0	0.01	0.02	0.00	0.5	0.05
TH731	125.1	126	0.9	0	0	0.01	0.00	bdl	0.03
TH734	104	105	1	0	0.03	0.02	0.00	2.1	0.11
TH734	105	106	1	0	0.01	0.11	0.00	0.5	0.14
TH734	106	107	1	0	0	0.11	0.00	bdl	0.12
TH734	107	108	1	0	0	0.01	0.01	bdl	0.02
TH734	108	109	1	0	0	0.01	0.00	bdl	0.02
TH734	109	110	1	0	0	0.01	0.00	bdl	0.02
TH734	110	111	1	0	0.01	0.01	0.02	1.3	0.06
TH734	111	112	1	0	0	0.01	0.00	bdl	0.02
TH734	129	130.1	1.1	0.01	0.01	0.03	0.00	bdl	0.06
TH734	130.1	131	0.9	0.01	0.04	0.1	0.02	0.9	0.2
TH734	131	132	1	0.06	0.03	0.04	0.03	3.6	0.38
TH734	132	133	1	0.22	0.12	0.19	0.02	3.5 9.6	1.13
TH734	133	134	1	0.31	0.46	0.78	0.04		2.49
TH734	134 135	135	1	0.2	0.62	1.66	0.14	30.4 22.1	3.71 5.07
TH734 TH734	135	135.8	0.8 0.8	0.5 0.36	0.53	1.78 1.24	0.05	15.2	3.3
TH734	135.8	136.6				0.04	0.00	0.7	3.3 0.1
11734	0.0C1	137.7	1.1	0.01	0.01	0.04	0.00	0.7	0.1



BHID	FROM	то	LENGTH	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)	
TH734	137.7	138.8	1.1	0	0	0.02	0.00	bdl	0.04	
TH734	138.8	139.9	1.1	0	0	0.03	0.00	bdl	0.04	
TH736	161	162.1	1.1	0	0.01	0.02	0.00	bdl	0.04	
TH736	162.1	163.2	1.1	0.14	0.69	1.22	0.09	17	2.79	
TH736	163.2	164.3	1.1	0.29	1.59	2.99	0.14	23.9	6.03	
TH736	164.3	165.4	1.1	0.24	0.9	3.01	0.12	23.5	5.26	
TH736	165.4	166.6	1.2	0.44	0.21	1.13	0.11	20.9	3.36	
TH736	166.6	167.9	1.3	0.45	1.96	5.26	0.20	61.1	10.12	
TH736	167.9	169.1	1.2	0.02	0.03	0.05	0.00	1.7	0.18	
TH736	169.1	170.4	1.3	0	0.02	0.04	0.00	1.6	0.11	
bdl – bel	bdl – below detection limit									