



## Record Quarterly Production at Thalanga

Red River Resources Limited (ASX: RVR) is pleased to report record operating performance from its Thalanga Operations during the December quarter.

- Record quarterly production of 96kt ore mined at West 45
- Record quarterly concentrate production - zinc concentrate (7,695 tonnes), lead concentrate (3,007 tonnes), and copper concentrate (725 tonnes)
- Copper recoveries continue to improve – 54.1% recovery to copper concentrate for the quarter, and 73.2% recovery to copper concentrate for the December period

Table 1 Thalanga Operations Summary for the December 2018 Quarter (Q2 FY19)

	Units	Q2 FY18	Q3 FY18	Q4 FY18	Q1 FY19	Q2 FY19	YTD FY19
<b>Ore Mined</b>	kt	67	65	84	90	96	187
Copper grade	%	0.3	0.4	0.3	0.3	0.4	0.3
Lead grade	%	2.5	2.5	1.9	2.2	2.4	2.3
Zinc grade	%	5.7	4.8	4.3	5.0	5.4	5.2
Gold grade	g/t	0.3	0.2	0.2	0.2	0.2	0.2
Silver grade	g/t	59	43	30	31	39	35
Zinc equivalent grade	%	10.7	9.4	8.1	8.8	9.9	9.4
<b>Ore Processed</b>	kt	79	62	70	98	95	193
Copper grade	%	0.5	0.4	0.4	0.3	0.4	0.4
Lead grade	%	3.2	2.1	2.2	2.2	2.6	2.4
Zinc grade	%	6.2	4.7	4.7	4.3	5.2	4.7
Gold grade	g/t	0.2	0.2	0.2	0.1	0.2	0.2
Silver grade	g/t	52	37	40	30	46	38
Zinc equivalent grade	%	12.0	9.0	9.1	8.2	10.1	9.1
<b>Zinc Concentrate Produced</b>	DMT	6,398	4,428	5,477	6,800	7,695	14,495
Zinc grade	%	57.6	57.9	56.0	55.0	56.8	56.0
Zinc recovery	%	75.6	86.5	88.0	89.2	87.8	88.5
<b>Lead Concentrate Produced</b>	DMT	2,859	1,523	2,065	2,747	3,007	5,754
Lead grade	%	61.9	65.1	58.2	62.2	65.7	64.1
Copper grade	%	4.0	4.6	4.5	4.3	2.9	3.6
Gold grade	g/t	4.4	4.1	3.9	3.6	2.6	3.1
Silver grade	g/t	978	944	984	787	786	787
Lead recovery	%	70.5	73.5	77.3	80.1	80.6	80.4
Copper recovery	%	29.4	26.1	34.2	36.0	22.6	28.8
<b>Copper Concentrate Produced</b>	DMT	555	484	330	417	725	1,142
Copper grade	%	25.5	27.1	28.2	27.9	28.6	28.3
Gold grade	g/t	1.7	2.3	2.8	2.3	7.6	5.7
Silver grade	g/t	438	494	540	225	1,311	915
Copper recovery	%	36.6	50.6	34.3	35.1	54.1	45.3

Red River's Managing Director Mel Palancian commented: *"It's great to see the site team continue to improve production from both the mine and the processing plant. We are looking forward to continued improvements in the March quarter."*

The Company will release the full December 2018 Quarterly Report before the end of January 2019.

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

RVR is a leading ASX base metal producer, with its key asset being the high quality Thalanga Operation in Northern Queensland. RVR commenced copper, lead and zinc concentrate production at the Thalanga Operation in September 2017.

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

On behalf of the Board,

**Mel Palancian**  
**Managing Director**  
Red River Resources Limited

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## 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 West 45 deposit. 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	70%	US\$0.90/lb
Zinc	88%	US\$1.00/lb
Gold	15%	US\$1,200/oz
Silver	65%	US\$17.00/oz
FX Rate: A\$0.85: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:

$$\text{Zn Eq.} = (\text{Zn}\% \times 1.0) + (\text{Cu}\% \times 3.3) + (\text{Pb}\% \times 0.9) + (\text{Au ppm} \times 0.5) + (\text{Ag ppm} \times 0.025)$$

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