

Rio Tinto releases second quarter production results

16 July 2019

Rio Tinto chief executive J-S Jacques said “We saw a challenging operational performance across our portfolio in the first half, while also investing in future growth at Richards Bay Minerals and Resolution. Whilst we experienced operational and weather issues at our iron ore operations in Australia, pricing and market demand has remained robust. We remain focused on safely improving and optimising the performance and productivity of our assets in order to drive future cash flow. This, combined with our value over volume strategy and the disciplined allocation of capital, will continue to deliver superior returns to our shareholders in the short, medium and long term.”

| | | Q2 2019 | vs Q2 2018 | vs Q1 2019 | H1 2019 | vs H1 2018 |
|--|----|---------|------------|------------|---------|------------|
| Pilbara iron ore shipments (100% basis) | Mt | 85.4 | -3% | +24% | 154.6 | -8% |
| Pilbara iron ore production (100% basis) | Mt | 79.7 | -7% | +5% | 155.7 | -8% |
| Bauxite | kt | 13,407 | +1% | +5% | 26,171 | +1% |
| Aluminium | kt | 803 | 0% | +1% | 1,599 | 0% |
| Mined copper | kt | 137.1 | -13% | -5% | 281.0 | -5% |
| Titanium dioxide slag | kt | 303 | +31% | +2% | 599 | +14% |
| IOC iron ore pellets and concentrate | Mt | 2.5 | +191% | +2% | 5.0 | +55% |

Operational update

- Pilbara iron ore shipments of 85.4 million tonnes (100% basis) in the second quarter were 3% lower than the second quarter of 2018. Shipments were impacted in April due to recovery works following Tropical Cyclone Veronica.
- 2019 guidance for Pilbara shipments was revised on 19 June 2019 to between 320 and 330 million tonnes, 100% basis (previously between 333 and 343 million tonnes) due to mine operational challenges. Unit cost guidance has been revised to \$14 - \$15 per tonne (previously \$13 - \$14 per tonne).
- Lower iron ore production was the primary driver of a 2% reduction in copper equivalent production in the first half compared to the corresponding period of 2018.
- Bauxite production of 13.4 million tonnes in the second quarter was 1% higher than the same period of 2018.
- Aluminium production of 0.8 million tonnes was in line with the second quarter of 2018.
- Mined copper production of 137 thousand tonnes was 13% lower than the second quarter of 2018, with lower production from Escondida and Kennecott reflective of lower grades.
- Titanium dioxide slag production of 303 thousand tonnes was 31% higher than the second quarter of 2018, reflecting improved operational performance following operational challenges faced in the corresponding period of 2018.
- Second quarter production at Iron Ore Company of Canada was significantly higher than the corresponding quarter of 2018, which was impacted by a labour strike. However, guidance for Rio Tinto's share of iron ore pellets and concentrate production is revised to between 10.7 and 11.3 million tonnes (previously 11.3 to 12.3 million tonnes), due to adverse weather conditions in the first quarter and a flooding incident in June.
- Rio Tinto today released a separate announcement providing an update on the Oyu Tolgoi underground project.

- On 8 April 2019, Rio Tinto announced the approval of the construction of the Zulti South project at Richards Bay Minerals (RBM) in South Africa for \$463 million (Rio Tinto share \$343 million).
- On 15 April 2019, Rio Tinto announced it had committed \$302 million (\$166 million Rio Tinto share) of additional expenditure to advance its Resolution Copper project in Arizona.

All figures in this report are unaudited. All currency figures in this report are US dollars, and comments refer to Rio Tinto's share of production, unless otherwise stated. To allow production numbers to be compared on a like-for-like basis, production from asset divestments completed in 2018 is excluded from Rio Tinto share of production data.

IRON ORE

Rio Tinto share of production (million tonnes)

| | Q2 2019 | vs Q2 2018 | vs Q1 2019 | H1 2019 | vs H1 2018 |
|---|-------------|------------|-------------|--------------|------------|
| Pilbara Blend Lump | 19.8 | -9% | -1% | 39.8 | -7% |
| Pilbara Blend Fines | 28.5 | -9% | -1% | 57.2 | -6% |
| Robe Valley Lump | 1.2 | -16% | +89% | 1.8 | -39% |
| Robe Valley Fines | 2.1 | -19% | +72% | 3.4 | -41% |
| Yandicoogina Fines (HIY) | 14.0 | -2% | +4% | 27.4 | -3% |
| Total Pilbara production | 65.6 | -8% | +2% | 129.7 | -8% |
| Total Pilbara production (100% basis) | 79.7 | -7% | +5% | 155.7 | -8% |
| Total Pilbara shipments (a) (100% basis) | 85.4 | -3% | +24% | 154.6 | -8% |

(a) Pilbara Blend sales include 2.4 million tonnes of alternate products in Q2 2019 and 3.9 million tonnes in H1 2019

Pilbara operations

Pilbara operations produced 155.7 million tonnes (Rio Tinto share 129.7 million tonnes) in the first half of 2019, 8% lower than the same period in 2018.

As highlighted in our first quarter Operations Review, significant disruptions were caused by Tropical Cyclone Veronica, and a fire at Cape Lambert A. The impacts of Cyclone Veronica continued into the second quarter, with repairs to the Cape Lambert A port facilities impacting Robe Valley and Yandicoogina shipments and operations. All repairs are now complete.

As announced on 19 June 2019, mine operational challenges are being experienced, particularly at our Greater Brockman hub. This has seen shortfalls in planned material movement and impacted mine sequencing both in the Greater Brockman hub and in the broader system. Waste material movement will be increased over 2019 and 2020 to improve mine performance and pit sequencing. Cost guidance (below) has been revised to include these additional mining activities.

First half sales of 154.6 million tonnes (Rio Tinto share 129.6 million tonnes) were 8% lower than the first half of last year due to lower mine production and damage to the port facilities caused by the cyclone.

Approximately 16% of sales in the first half of 2019 were priced by reference to the prior quarter's average index lagged by one month. The remainder was sold either on current quarter average, current month average or on the spot market. We continue to prioritise meeting our long-term customer commitments.

Approximately 33% of sales in the first half were made free on board (FOB), with the remainder sold including freight.

Achieved average pricing in the first half of 2019 was \$78.5 per wet metric tonne on an FOB basis (2018 first half: \$57.9 per wet metric tonne) which equates to \$85.3 per dry metric tonne. Pilbara Blend sales included an additional 2.4 million tonnes of alternate products in the second quarter, bringing the total alternate product sales in the first half of 2019 to 3.9 million tonnes.

Pilbara projects

The Koodaideri iron ore mine is progressing to plan with engineering, procurement and construction activities on schedule, including the ramp-up of the mine bulk earthworks and commencement of rail bulk earthworks. First ore from Koodaideri is expected in late 2021, consistent with previous guidance.

The Robe River Joint Venture sustaining production projects (West Angelas C&D and Mesa B, C and H at Robe Valley) are progressing through the necessary environmental and heritage approval process. Mesa H environmental approvals have experienced some delays, with contingency plans being assessed in case required. Consistent with previous guidance, first ore from these projects is anticipated in 2021.

2019 guidance

As announced on 19 June 2019, Rio Tinto's Pilbara shipments in 2019 are expected to be between 320 and 330 million tonnes, 100% basis (previously between 333 and 343 million tonnes). Guidance will remain subject to weather. Major rail maintenance is scheduled to occur in October, and is reflected in the existing guidance.

Rio Tinto's Pilbara unit cost guidance in 2019 has been revised to \$14 - \$15 per tonne (previously \$13 - \$14 per tonne), which incorporates costs for the additional waste movement in the mines in the second half, and the overall reduction in shipments.

ALUMINIUM

Rio Tinto share of production ('000 tonnes)

| | Q2 2019 | vs Q2 2018 | vs Q1 2019 | H1 2019 | vs H1 2018 |
|-------------------------------|---------|------------|------------|---------|------------|
| Rio Tinto Aluminium | | | | | |
| Bauxite | 13,407 | +1% | +5% | 26,171 | +1% |
| Bauxite third party shipments | 9,477 | +8% | +7% | 18,318 | +8% |
| Alumina | 1,878 | -6% | -6% | 3,886 | -3% |
| Aluminium | 803 | 0% | +1% | 1,599 | 0% |

Bauxite

Second quarter bauxite production of 13.4 million tonnes was 1% higher than the same period of 2018. Production at managed operations increased by 2%, with the ramp-up of Amrun progressing despite weather related impacts in the first quarter. This was partly offset by lower production from the non-managed Porto Trombetas (MRN) JV in Brazil. The expansion project at CBG, a non-managed JV in Guinea, experienced a slower than expected ramp-up, but is now delivering at target run-rates.

9.5 million tonnes of bauxite were shipped to third parties in the second quarter, 8% higher than the same period of 2018.

Alumina

Alumina production in the second quarter of 2019 was 6% lower than the same period in 2018 due primarily to major maintenance activities at non-managed QAL and the lower bauxite supply from MRN impacting production at Vaudreuil.

Aluminium

Aluminium production of 0.8 million tonnes in the second quarter was in line with the corresponding period of 2018. Excluding the non-managed Becancour operation, where a lock-out constrained operations, aluminium production in the first half was 1% higher than the corresponding period in 2018, reflecting continued productivity improvement.

On 2 July 2019, management and unions at the Becancour smelter agreed a new labour arrangement which will lead to restart of production at the end of July, with full ramp-up expected by mid-2020.

Average realised aluminium prices in the first half of 2019 were \$2,174 per tonne (H1 2018: \$2,547 per tonne). This includes premiums for value-added products (VAP), which represented 54% of primary metal sold in the first half of 2018 (H1 2018: 58%) and generated attractive product premiums averaging \$242 per tonne of VAP sold (H1 2018: \$222 per tonne) on top of the physical market premiums. The mid-west premium duty paid increased from \$396 per tonne in the first half of 2018 to \$420 per tonne in the first half of 2019. A 10% tariff on aluminium imports into the United States under Section 232, which was effective for Canadian imports, was paid until the tariffs were removed on 19 May 2019.

There was some respite from cost inflation in Aluminium compared with 2018 for certain raw materials, in particular for caustic soda and petroleum coke albeit with a lag effect due to the pricing mechanism. However, this was partly offset by inflationary pressures on other costs.

Kemano

At the Kemano hydro-power facility at Kitimat, British Columbia, the tunnel boring machine has achieved a total of 828 metres excavated as at 30 June 2019. Current progress is slightly behind schedule, but cost forecasts remain on budget.

2019 guidance

2019 guidance is unchanged. Rio Tinto's expected share of bauxite production in 2019 is between 56 and 59 million tonnes. Aluminium production guidance is between 3.2 and 3.4 million tonnes and alumina production guidance is 8.1 to 8.4 million tonnes.

COPPER & DIAMONDS

Rio Tinto share of production ('000 tonnes)

| | Q2 2019 | vs Q2 2018 | vs Q1 2019 | H1 2019 | vs H1 2018 |
|-------------------------------|---------|------------|------------|---------|------------|
| Mined copper | | | | | |
| Rio Tinto Kennecott | 41.1 | -20% | -22% | 93.7 | +8% |
| Escondida | 82.9 | -10% | +9% | 158.9 | -13% |
| Oyu Tolgoi | 13.1 | -1% | -15% | 28.5 | +9% |
| Refined copper | | | | | |
| Rio Tinto Kennecott | 63.3 | +55% | +114% | 92.8 | +22% |
| Escondida | 19.0 | -9% | +2% | 37.7 | -10% |
| Diamonds ('000 carats) | | | | | |
| Argyle | 3,292 | -5% | +18% | 6,079 | -13% |
| Diavik | 1,188 | +3% | +18% | 2,198 | -1% |

Rio Tinto Kennecott

Second quarter mined copper production was 20% lower than the same period of 2018. Lower grades experienced as mining activity moved into lower levels of the pit were partially offset by increased mined ore.

Refined copper production was 55% higher than the second quarter of 2018, reflecting strong smelter performance and improved mining rates. Production was significantly higher than the prior quarter, when the anode furnace was shut for planned maintenance.

Rio Tinto Kennecott continues to toll and purchase third party concentrate to optimise smelter utilisation, with 31.8 thousand tonnes of concentrate received for processing in the second quarter of 2019, compared with 31.3 thousand tonnes in the second quarter of 2018. Purchased and tolled copper concentrate are excluded from reported production figures.

Grades were higher in the second quarter for molybdenum, with concentrate production more than two and a half times higher than the same quarter in 2018.

Escondida

Mined copper production at Escondida in the second quarter of 2019 was 10% lower than the same period of 2018 mainly due to lower copper grades feeding the concentrators.

Oyu Tolgoi

Mined copper production from the open pit in the second quarter of 2019 was 1% lower than the same period in 2018 and 15% lower than the prior quarter as ore sources move to lower grade areas of the pit, as planned.

Oyu Tolgoi Underground Project

On 16 July 2019, Rio Tinto released a separate announcement providing an update on the Oyu Tolgoi underground project.

Provisional pricing

At 30 June 2019, the Group had an estimated 287 million pounds of copper sales that were provisionally priced at 275 cents per pound. The final price of these sales will be determined during the second half of 2019. This compares with 240 million pounds of open shipments at 31 December 2018, provisionally priced at 277 cents per pound.

Resolution Copper

On 15 April 2019, Rio Tinto announced it had committed \$302 million (\$166 million Rio Tinto share) of additional expenditure to advance its Resolution Copper project in Arizona. The investment will fund

additional drilling, ore-body studies, infrastructure improvements and permitting activities as Rio Tinto looks to progress the project to the final stage of the project's permitting phase.

Diamonds

At Argyle, carat production in the second quarter of 2019 was 5% lower than the same period in 2018 due to lower recovered grade, partially offset by stronger mining rates.

At Diavik, carats recovered in the second quarter were 3% higher than the second quarter of 2018 due to slightly higher grades and ore processing throughput.

2019 guidance

2019 guidance is unchanged. Rio Tinto's share of mined copper production for 2019 is expected to be between 550 and 600 thousand tonnes, subject to grade availability. Refined copper production is expected to be between 220 and 250 thousand tonnes.

Diamond production guidance for 2019 is between 15 and 17 million carats.

ENERGY & MINERALS

Rio Tinto share of production

| | Q2 2019 | vs Q2 2018 | vs Q1 2019 | H1 2019 | vs H1 2018 |
|--|---------|------------|------------|---------|------------|
| Iron ore pellets and concentrate (million tonnes) | | | | | |
| IOC | 2.5 | +191% | +2% | 5.0 | +55% |
| Minerals ('000 tonnes) | | | | | |
| Borates – B ₂ O ₃ content | 138 | +4% | +20% | 253 | -1% |
| Titanium dioxide slag | 303 | +31% | +2% | 599 | +14% |
| Uranium ('000 lbs) | | | | | |
| Energy Resources of Australia | 620 | +3% | -22% | 1,413 | +11% |
| Rössing | 1,142 | +23% | +43% | 1,944 | +9% |

Iron Ore Company of Canada (IOC)

Second quarter production available for sale at IOC was significantly higher than the corresponding period of 2018, which was impacted by a labour strike, and 2% higher than the prior quarter. Although 55% higher than the corresponding period of 2018, first half production was impacted by adverse weather in the first quarter and a flooding incident in June.

Borates

Second quarter borates production was 4% higher than the second quarter of 2018, and production will continue to be aligned to customer demand.

Iron and Titanium

Titanium dioxide feedstock production in the second quarter was 31% higher than the same period of 2018, reflecting improved operational performance following challenges faced in the corresponding period of 2018.

Eight of nine furnaces at Rio Tinto Fer et Titane (RTFT) are currently in operation, with three of four furnaces currently in operation at Richards Bay Minerals (RBM). Reconstruction of the currently idled fourth furnace at RBM commenced in July, with the furnace expected to be in operation by the end of 2019. A decision to re-start the remaining idled furnace at RTFT will be based on maximising value over volume.

On 8 April 2019, Rio Tinto announced the approval of the construction of the Zulti South project at RBM in South Africa for \$463 million (Rio Tinto share \$343 million). First production is scheduled for late-2021.

Uranium

Energy Resources of Australia continues to process existing stockpiles. Second quarter production was 3% higher than the same period of 2018, with higher grade and recoveries partly offset by lower plant throughput.

Second quarter production at Rössing Uranium was 23% higher than the same quarter of 2018, reflecting higher grades and recoveries.

On 26 November 2018, Rio Tinto announced it had entered into a binding agreement with China National Uranium Corporation for the sale of its entire 68.62% stake in Rössing Uranium. Approval has now been received from the Namibian Competition Commission and final completion occurred in July.

2019 guidance

At IOC, guidance for Rio Tinto's expected share of 2019 iron ore pellets and concentrate production is revised to between 10.7 and 11.3 million tonnes (previously 11.3 to 12.3 million tonnes), due to the adverse weather conditions in the first quarter and the flooding incident in June.

Titanium dioxide slag production guidance is unchanged between 1.2 and 1.4 million tonnes, and boric oxide equivalent production guidance remains at 0.5 million tonnes.

EXPLORATION AND EVALUATION

Pre-tax and pre-divestment expenditure on exploration and evaluation charged to the profit and loss account in the first half of 2019 was \$287 million, compared with \$232 million in the first half of 2018, with increased spend on central exploration and at Resolution Copper. Approximately 51% of this expenditure was incurred by central exploration, 38% by Copper & Diamonds, 7% by Energy & Minerals and the remainder by Iron Ore and Aluminium.

There were no significant divestments of central exploration properties in the second quarter of 2019.

Exploration highlights

Rio Tinto has a strong portfolio of projects with activity in 18 countries across eight commodities. The bulk of the exploration expenditure in this quarter was focused on copper targets in Australia, Canada, Chile, Kazakhstan, Mongolia, Namibia, Papua New Guinea, Peru, Serbia, United States, Zambia and diamond projects in Canada. Mine-lease exploration continued at a number of Rio Tinto managed businesses including Pilbara Iron in Australia, Oyu Tolgoi in Mongolia, Weipa in Australia, Diavik in Canada, as well as Bingham, Resolution and Boron in the US.

At the Winu project in Western Australia, results continue to indicate relatively wide intersections of vein style copper mineralisation associated with gold and silver beneath relatively shallow cover which ranges from 50 to 100 metres. The mineralisation remains open at depth and to the east, north, and south. Reverse circulation (RC) and diamond drilling is continuing, with RC drilling primarily focused upon defining the extent and tenor of the supergene zone, and diamond drilling continuing to test the extents of the deposit. Drilling is ongoing with eight diamond rigs and three RC rigs drilling at Winu.

A summary of activity for the quarter is as follows:

| Product Groups | Studies stage | Advanced exploration projects | Greenfield/ Brownfield programmes |
|-----------------------|---|--|--|
| Aluminium | Cape York, Australia | Amargosa, Brazil Sanxai, Laos | Cape York, Australia |
| Copper & Diamonds | Copper/molybdenum: Resolution, US | Copper: Winu, Australia, La Granja, Peru Nickel: Tamarack, US Diamonds: FalCon, Canada | Copper Greenfield: Australia, Chile, China, Kazakhstan, Mongolia, Namibia, Papua New Guinea, Peru, Serbia, US, Zambia Copper Brownfield: Bingham, Resolution, US Oyu Tolgoi, Mongolia Nickel Greenfield: Canada, Finland, Uganda Diamonds Greenfield: Canada Diamonds Brownfield: Diavik, Canada |
| Energy & Minerals | Lithium borates: Jadar, Serbia Potash: KP405, Canada Heavy mineral sands: Mutamba, Mozambique | Uranium: Roughrider, Canada | Heavy mineral sands: Tanzania Industrial Minerals: Serbia |
| Iron Ore | Pilbara, Australia | Pilbara, Australia | Pilbara, Australia |

Forward-looking statements

This announcement may include "forward-looking statements" within the meaning of the US Private Securities Litigation Reform Act of 1995. All statements other than statements of historical facts included in this announcement, including, without limitation, those regarding Rio Tinto's production forecast or guidance, financial position, business strategy, plans and objectives of management for future operations (including development plans and objectives relating to Rio Tinto's products and reserve and resource positions), are forward-looking statements. The words "intend", "aim", "project", "anticipate", "estimate", "plan", "believes", "expects", "may", "should", "will", "target", "set to", "assumes" or similar expressions, commonly identify such forward looking statements.

Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual production, performance or results of Rio Tinto to be materially different from any future production, performance or results expressed or implied by such forward-looking statements. Such forward-looking statements could be influenced by such risk factors as identified in Rio Tinto's most recent Annual Report and Accounts in Australia and the United Kingdom and the most recent Annual Report on Form 20-F filed with the United States Securities and Exchange Commission (the "SEC") or Form 6-Ks furnished to, or filed with, the SEC. Forward-looking statements should, therefore, be construed in light of such risk factors and undue reliance should not be placed on forward-looking statements. These forward-looking statements speak only as of the date of this announcement. Rio Tinto expressly disclaims any obligation or undertaking (except as required by applicable law, the UK Listing Rules, the Disclosure and Transparency Rules of the Financial Conduct Authority and the Listing Rules of the Australian Securities Exchange) to release publicly any updates or revisions to any forward-looking statement contained herein to reflect any change in Rio Tinto's expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.

Nothing in this announcement should be interpreted to mean that future earnings per share of Rio Tinto plc or Rio Tinto Limited will necessarily match or exceed its historical published earnings per share.

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Rio Tinto production summary

Rio Tinto share of production

| | | Quarter | | | Half Year | | % Change | | |
|------------------------------------|------------|------------|------------|--------------------|--------------------|--------------------|----------------------|----------------------|----------------------|
| | | 2018 Q2 | 2019 Q1 | 2019 Q2 | 2018 H1 | 2019 H1 | Q2 19 vs Q2 18 | Q2 19 vs Q1 19 | H1 19 vs H1 18 |
| Principal Commodities | | | | | | | | | |
| Alumina | ('000 t) | 1,999 | 2,008 | 1,878 | 3,988 | 3,886 | -6% | -6% | -3% |
| Aluminium | ('000 t) | 805 | 796 | 803 | 1,600 | 1,599 | 0% | 1% | 0% |
| Bauxite | ('000 t) | 13,279 | 12,763 | 13,407 | 25,931 | 26,171 | 1% | 5% | 1% |
| Borates | ('000 t) | 132 | 115 | 138 | 256 | 253 | 4% | 20% | -1% |
| Copper - mined | ('000 t) | 156.8 | 143.9 | 137.1 | 296.1 | 281.0 | -13% | -5% | -5% |
| Copper - refined | ('000 t) | 61.7 | 48.3 | 82.3 | 117.9 | 130.6 | 33% | 70% | 11% |
| Diamonds | ('000 cts) | 4,626 | 3,796 | 4,481 | 9,241 | 8,277 | -3% | 18% | -10% |
| Iron Ore | ('000 t) | 72,336 | 66,581 | 68,141 | 143,773 | 134,723 | -6% | 2% | -6% |
| Titanium dioxide slag | ('000 t) | 232 | 296 | 303 | 525 | 599 | 31% | 2% | 14% |
| Uranium | ('000 lbs) | 1,531 | 1,595 | 1,762 | 3,046 | 3,357 | 15% | 11% | 10% |
| Other Metals & Minerals | | | | | | | | | |
| Gold - mined | ('000 oz) | 82.8 | 115.4 | 111.6 | 152.2 | 227.0 | 35% | -3% | 49% |
| Gold - refined | ('000 oz) | 48.4 | 41.7 | 52.9 | 89.2 | 94.6 | 9% | 27% | 6% |
| Molybdenum | ('000 t) | 0.7 | 1.9 | 2.6 | 2.2 | 4.4 | 258% | 37% | 104% |
| Salt | ('000 t) | 1,662 | 1,310 | 1,269 | 3,176 | 2,579 | -24% | -3% | -19% |
| Silver - mined | ('000 oz) | 1,448 | 1,481 | 1,403 | 2,686 | 2,883 | -3% | -5% | 7% |
| Silver - refined | ('000 oz) | 461 | 617 | 734 | 1,328 | 1,351 | 59% | 19% | 2% |

Throughout this report, figures in italics indicate adjustments made since the figure was previously quoted on the equivalent page. Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result between the total of the quarter figures and the year to date figures.

Rio Tinto share of production

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|---|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| ALUMINA | | | | | | | | |
| Production ('000 tonnes) | | | | | | | | |
| Jonqui re (Vaudreuil) | 100% | 365 | 363 | 354 | 373 | 336 | 727 | 709 |
| Jonqui re (Vaudreuil) specialty Alumina plant | 100% | 32 | 31 | 29 | 25 | 31 | 64 | 57 |
| Queensland Alumina | 80% | 752 | 748 | 742 | 711 | 668 | 1,469 | 1,378 |
| S o Luis (Alumar) | 10% | 87 | 85 | 92 | 86 | 86 | 174 | 172 |
| Yarwun | 100% | 763 | 744 | 803 | 813 | 757 | 1,556 | 1,570 |
| Rio Tinto total alumina production | | 1,999 | 1,972 | 2,020 | 2,008 | 1,878 | 3,988 | 3,886 |
| ALUMINIUM | | | | | | | | |
| Production ('000 tonnes) | | | | | | | | |
| Australia - Bell Bay | 100% | 47 | 48 | 48 | 45 | 47 | 94 | 92 |
| Australia - Boyne Island | 59% | 74 | 75 | 74 | 73 | 75 | 146 | 147 |
| Australia - Tomago | 52% | 76 | 78 | 77 | 74 | 76 | 151 | 150 |
| Canada - six wholly owned | 100% | 402 | 407 | 408 | 400 | 400 | 800 | 800 |
| Canada - Alouette (Sept- les) | 40% | 58 | 59 | 58 | 58 | 60 | 116 | 118 |
| Canada - B cancour | 25% | 9 | 8 | 8 | 4 | 4 | 19 | 8 |
| Iceland - ISAL (Reykjavik) | 100% | 53 | 53 | 54 | 52 | 52 | 105 | 105 |
| New Zealand - Tiwai Point | 79% | 67 | 68 | 70 | 71 | 69 | 133 | 140 |
| Oman - Sohar | 20% | 19 | 20 | 20 | 19 | 19 | 37 | 39 |
| Rio Tinto total aluminium production | | 805 | 814 | 817 | 796 | 803 | 1,600 | 1,599 |
| BAUXITE | | | | | | | | |
| Production ('000 tonnes) (a) | | | | | | | | |
| Gove | 100% | 3,274 | 2,893 | 3,250 | 3,004 | 2,957 | 6,398 | 5,960 |
| Porto Trombetas | 12% | 393 | 342 | 489 | 285 | 287 | 745 | 572 |
| Sangaredi | (b) | 1,657 | 1,261 | 1,204 | 1,558 | 1,630 | 3,403 | 3,189 |
| Weipa | 100% | 7,955 | 8,204 | 6,847 | 7,917 | 8,533 | 15,386 | 16,450 |
| Rio Tinto total bauxite production | | 13,279 | 12,700 | 11,790 | 12,763 | 13,407 | 25,931 | 26,171 |

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or dor  bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) Rio Tinto has a 22.95% shareholding in the Sangaredi mine but benefits from 45.0% of production.

Rio Tinto share of production

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|--------------------|---------|---------|---------|---------|---------|---------|---------|
| BORATES | | | | | | | | |
| Production ('000 tonnes B₂O₃ content) | | | | | | | | |
| Rio Tinto Borates - borates | 100% | 132 | 137 | 118 | 115 | 138 | 256 | 253 |
| COPPER | | | | | | | | |
| Mine production ('000 tonnes) (a) | | | | | | | | |
| Bingham Canyon | 100% | 51.2 | 59.1 | 58.3 | 52.5 | 41.1 | 86.6 | 93.7 |
| Escondida | 30% | 92.4 | 87.4 | 79.7 | 76.0 | 82.9 | 183.3 | 158.9 |
| Oyu Tolgoi (b) | 34% | 13.2 | 13.2 | 13.9 | 15.4 | 13.1 | 26.2 | 28.5 |
| Rio Tinto total mine production | | 156.8 | 159.7 | 151.9 | 143.9 | 137.1 | 296.1 | 281.0 |
| Refined production ('000 tonnes) | | | | | | | | |
| Escondida | 30% | 21.0 | 16.6 | 21.6 | 18.7 | 19.0 | 41.9 | 37.7 |
| Rio Tinto Kennecott | 100% | 40.7 | 54.2 | 64.6 | 29.6 | 63.3 | 76.0 | 92.8 |
| Rio Tinto total refined production | | 61.7 | 70.8 | 86.1 | 48.3 | 82.3 | 117.9 | 130.6 |
| <i>(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.</i> | | | | | | | | |
| <i>(b) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources Ltd.</i> | | | | | | | | |
| DIAMONDS | | | | | | | | |
| Production ('000 carats) | | | | | | | | |
| Argyle | 100% | 3,476 | 3,830 | 3,211 | 2,786 | 3,292 | 7,027 | 6,079 |
| Diavik | 60% | 1,150 | 1,066 | 1,078 | 1,010 | 1,188 | 2,214 | 2,198 |
| Rio Tinto total diamond production | | 4,626 | 4,896 | 4,290 | 3,796 | 4,481 | 9,241 | 8,277 |
| GOLD | | | | | | | | |
| Mine production ('000 ounces) (a) | | | | | | | | |
| Bingham Canyon | 100% | 45.6 | 56.6 | 57.1 | 53.0 | 65.1 | 83.0 | 118.0 |
| Escondida | 30% | 20.5 | 19.1 | 22.1 | 22.2 | 22.4 | 38.5 | 44.6 |
| Oyu Tolgoi (b) | 34% | 16.8 | 25.8 | 39.1 | 40.2 | 24.1 | 30.8 | 64.3 |
| Rio Tinto total mine production | | 82.8 | 101.4 | 118.4 | 115.4 | 111.6 | 152.2 | 227.0 |
| Refined production ('000 ounces) | | | | | | | | |
| Rio Tinto Kennecott | 100% | 48.4 | 50.3 | 58.6 | 41.7 | 52.9 | 89.2 | 94.6 |
| <i>(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.</i> | | | | | | | | |
| <i>(b) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources Ltd.</i> | | | | | | | | |

Rio Tinto share of production

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|---|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| IRON ORE | | | | | | | | |
| Production ('000 tonnes) (a) | | | | | | | | |
| Hamersley mines | (b) | 56,034 | 54,583 | 56,364 | 51,218 | 50,087 | 109,665 | 101,304 |
| Hamersley - Channar | 60% | 1,227 | 604 | 1,337 | 931 | 1,451 | 2,363 | 2,382 |
| Hope Downs | 50% | 5,783 | 5,713 | 5,845 | 5,957 | 6,051 | 11,126 | 12,007 |
| Iron Ore Company of Canada | 59% | 871 | 2,880 | 2,836 | 2,481 | 2,532 | 3,236 | 5,012 |
| Robe River - Pannawonica (Mesas J and A) | 53% | 4,048 | 4,208 | 4,004 | 1,870 | 3,329 | 8,720 | 5,200 |
| Robe River - West Angelas | 53% | 4,373 | 4,021 | 4,631 | 4,125 | 4,692 | 8,663 | 8,817 |
| Rio Tinto iron ore production ('000 tonnes) | | 72,336 | 72,010 | 75,018 | 66,581 | 68,141 | 143,773 | 134,723 |
| Breakdown of Production: | | | | | | | | |
| Pilbara Blend Lump | | 21,901 | 20,554 | 21,674 | 19,978 | 19,842 | 42,615 | 39,821 |
| Pilbara Blend Fines | | 31,239 | 29,921 | 31,652 | 28,779 | 28,463 | 61,009 | 57,242 |
| Robe Valley Lump | | 1,431 | 1,470 | 1,409 | 635 | 1,201 | 3,017 | 1,836 |
| Robe Valley Fines | | 2,617 | 2,738 | 2,595 | 1,235 | 2,128 | 5,703 | 3,363 |
| Yandicoogina Fines (HIY) | | 14,277 | 14,446 | 14,852 | 13,473 | 13,975 | 28,193 | 27,448 |
| Pilbara iron ore production ('000 tonnes) | | 71,465 | 69,129 | 72,182 | 64,101 | 65,610 | 140,537 | 129,711 |
| IOC Concentrate | | 572 | 1,131 | 1,433 | 890 | 1,193 | 1,370 | 2,083 |
| IOC Pellets | | 299 | 1,750 | 1,403 | 1,590 | 1,339 | 1,865 | 2,929 |
| IOC iron ore production ('000 tonnes) | | 871 | 2,880 | 2,836 | 2,481 | 2,532 | 3,236 | 5,012 |
| Breakdown of Sales: | | | | | | | | |
| Pilbara Blend Lump | | 19,424 | 17,967 | 18,439 | 15,772 | 18,644 | 37,485 | 34,416 |
| Pilbara Blend Fines | | 35,158 | 31,432 | 35,205 | 28,406 | 33,912 | 65,904 | 62,318 |
| Robe Valley Lump | | 1,264 | 1,174 | 1,219 | 457 | 1,037 | 2,487 | 1,494 |
| Robe Valley Fines | | 3,255 | 2,839 | 2,996 | 1,308 | 2,577 | 6,250 | 3,885 |
| Yandicoogina Fines (HIY) | | 14,388 | 14,583 | 14,831 | 12,294 | 15,212 | 27,966 | 27,505 |
| Pilbara iron ore sales ('000 tonnes) (c) | | 73,489 | 67,995 | 72,690 | 58,236 | 71,382 | 140,093 | 129,618 |
| IOC Concentrate | | 62 | 1,521 | 1,558 | 516 | 1,315 | 808 | 1,830 |
| IOC Pellets | | 202 | 1,659 | 1,516 | 1,576 | 1,423 | 1,776 | 2,999 |
| IOC Iron ore sales ('000 tonnes) | | 263 | 3,180 | 3,073 | 2,092 | 2,738 | 2,584 | 4,830 |
| Rio Tinto iron ore sales ('000 tonnes) | | 73,752 | 71,175 | 75,763 | 60,328 | 74,119 | 142,677 | 134,448 |

(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.

(b) Includes 100% of production from Paraburdoo, Mt Tom Price, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass and the Eastern Range mines. Whilst Rio Tinto owns 54% of the Eastern Range mine, under the terms of the joint venture agreement, Hamersley Iron manages the operation and is obliged to purchase all mine production from the joint venture and therefore all of the production is included in Rio Tinto's share of production.

(c) Pilbara Blend sales include 2.4 million tonnes of alternate products in Q2 2019 and 3.9 million tonnes in H1 2019

Rio Tinto share of production

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| MOLYBDENUM | | | | | | | | |
| Mine production ('000 tonnes) (a) | | | | | | | | |
| Bingham Canyon | 100% | 0.7 | 1.4 | 2.2 | 1.9 | 2.6 | 2.2 | 4.4 |
| <i>(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.</i> | | | | | | | | |
| SALT | | | | | | | | |
| Production ('000 tonnes) | | | | | | | | |
| Dampier Salt | 68% | 1,662 | 1,481 | 1,496 | 1,310 | 1,269 | 3,176 | 2,579 |
| SILVER | | | | | | | | |
| Mine production ('000 ounces) (a) | | | | | | | | |
| Bingham Canyon | 100% | 615 | 708 | 736 | 741 | 700 | 1,076 | 1,442 |
| Escondida | 30% | 758 | 599 | 771 | 657 | 622 | 1,460 | 1,279 |
| Oyu Tolgoi (b) | 34% | 75 | 77 | 80 | 83 | 80 | 149 | 163 |
| Rio Tinto total mine production | | 1,448 | 1,384 | 1,586 | 1,481 | 1,403 | 2,686 | 2,883 |
| Refined production ('000 ounces) | | | | | | | | |
| Rio Tinto Kennecott | 100% | 461 | 730 | 807 | 617 | 734 | 1,328 | 1,351 |
| <i>(a) Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore which represent production of marketable quantities of ore plus concentrates and pellets.</i> | | | | | | | | |
| <i>(b) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources Ltd.</i> | | | | | | | | |
| TITANIUM DIOXIDE SLAG | | | | | | | | |
| Production ('000 tonnes) | | | | | | | | |
| Rio Tinto Iron & Titanium (a) | 100% | 232 | 297 | 294 | 296 | 303 | 525 | 599 |
| <i>(a) Quantities comprise 100% of Rio Tinto Fer et Titane and Rio Tinto's 74% interest in Richards Bay Minerals (RBM).</i> | | | | | | | | |
| URANIUM | | | | | | | | |
| Production ('000 lbs U₃O₈) (a) | | | | | | | | |
| Energy Resources of Australia | 68% | 603 | 820 | 924 | 793 | 620 | 1,270 | 1,413 |
| Rössing (b) | 69% | 928 | 994 | 979 | 802 | 1,142 | 1,776 | 1,944 |
| Rio Tinto total uranium production | | 1,531 | 1,814 | 1,904 | 1,595 | 1,762 | 3,046 | 3,357 |
| <i>(a) ERA and Rössing production reported are drummed U₃O₈.</i> | | | | | | | | |
| <i>(b) On 26 November 2018, Rio Tinto signed a binding agreement to sell its 68.62% interest in the Rossing mine in Namibia to China National Uranium Corporation Limited.</i> | | | | | | | | |

Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result between the total of the quarter figures and the year to date figures.

The Rio Tinto percentage shown above is at 30 June 2019.

Rio Tinto's interest in the Kestrel, Hail Creek, Dunkerque and Grasberg operations were sold in 2018. No data for these operations are included in the Share of production table.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|--------------------|---------|---------|---------|---------|---------|---------|---------|
| ALUMINA | | | | | | | | |
| Smelter Grade Alumina - Aluminium Group | | | | | | | | |
| Alumina production ('000 tonnes) | | | | | | | | |
| <i>Australia</i> | | | | | | | | |
| Queensland Alumina Refinery - Queensland | 80.0% | 940 | 935 | 927 | 888 | 834 | 1,836 | 1,723 |
| Yarwun refinery - Queensland | 100.0% | 763 | 744 | 803 | 813 | 757 | 1,556 | 1,570 |
| <i>Brazil</i> | | | | | | | | |
| São Luis (Alumar) refinery | 10.0% | 869 | 851 | 918 | 859 | 864 | 1,740 | 1,723 |
| <i>Canada</i> | | | | | | | | |
| Jonquière (Vaudreuil) refinery - Quebec (a) | 100.0% | 365 | 363 | 354 | 373 | 336 | 727 | 709 |
| <i>(a) Jonquière's (Vaudreuil's) production shows smelter grade alumina only and excludes hydrate produced and used for specialty alumina.</i> | | | | | | | | |
| Specialty Alumina - Aluminium Group | | | | | | | | |
| Specialty alumina production ('000 tonnes) | | | | | | | | |
| <i>Canada</i> | | | | | | | | |
| Jonquière (Vaudreuil) plant – Quebec | 100.0% | 32 | 31 | 29 | 25 | 31 | 64 | 57 |

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| ALUMINIUM | | | | | | | | |
| Primary Aluminium | | | | | | | | |
| Primary aluminium production ('000 tonnes) | | | | | | | | |
| <i>Australia</i> | | | | | | | | |
| Bell Bay smelter - Tasmania | 100.0% | 47 | 48 | 48 | 45 | 47 | 94 | 92 |
| Boyne Island smelter - Queensland | 59.4% | 124 | 126 | 125 | 122 | 126 | 246 | 248 |
| Tomago smelter - New South Wales | 51.6% | 148 | 151 | 149 | 144 | 147 | 293 | 292 |
| <i>Canada</i> | | | | | | | | |
| Alma smelter - Quebec | 100.0% | 116 | 117 | 118 | 115 | 118 | 231 | 233 |
| Alouette (Sept-Îles) smelter - Quebec | 40.0% | 146 | 148 | 146 | 144 | 150 | 290 | 294 |
| Arvida smelter - Quebec | 100.0% | 43 | 43 | 44 | 43 | 44 | 86 | 86 |
| Arvida AP60 smelter - Quebec | 100.0% | 13 | 13 | 13 | 14 | 15 | 26 | 29 |
| Bécancour smelter - Quebec | 25.1% | 35 | 32 | 30 | 17 | 16 | 74 | 33 |
| Grande-Baie smelter - Quebec | 100.0% | 58 | 59 | 59 | 58 | 58 | 115 | 116 |
| Kitimat smelter - British Columbia | 100.0% | 109 | 110 | 109 | 106 | 102 | 217 | 208 |
| Laterrière smelter - Quebec | 100.0% | 64 | 65 | 65 | 64 | 64 | 127 | 128 |
| <i>France</i> | | | | | | | | |
| Dunkerque smelter (a) | 0% | 52 | 66 | 57 | - | - | 104 | - |
| <i>Iceland</i> | | | | | | | | |
| ISAL (Reykjavik) smelter | 100.0% | 53 | 53 | 54 | 52 | 52 | 105 | 105 |
| <i>New Zealand</i> | | | | | | | | |
| Tiwai Point smelter | 79.4% | 84 | 85 | 88 | 89 | 87 | 167 | 176 |
| <i>Oman</i> | | | | | | | | |
| Sohar smelter | 20.0% | 97 | 98 | 99 | 97 | 97 | 183 | 194 |

(a) On 14 December 2018, Rio Tinto completed the sale of its 100% interest in the Dunkerque smelter. Production is reported up to the date of completion.

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| BAUXITE | | | | | | | | |
| Bauxite production ('000 tonnes) | | | | | | | | |
| <i>Australia</i> | | | | | | | | |
| Gove mine - Northern Territory | 100.0% | 3,274 | 2,893 | 3,250 | 3,004 | 2,957 | 6,398 | 5,960 |
| Weipa mine - Queensland | 100.0% | 7,955 | 8,204 | 6,847 | 7,917 | 8,533 | 15,386 | 16,450 |
| <i>Brazil</i> | | | | | | | | |
| Porto Trombetas (MRN) mine | 12.0% | 3,273 | 2,848 | 4,073 | 2,372 | 2,393 | 6,212 | 4,765 |
| <i>Guinea</i> | | | | | | | | |
| Sangaredi mine (a) | 23.0% | 3,683 | 2,803 | 2,675 | 3,463 | 3,623 | 7,561 | 7,087 |
| Rio Tinto share of bauxite shipments | | | | | | | | |
| Share of total bauxite shipments ('000 tonnes) | | 12,936 | 12,427 | 11,622 | 12,725 | 13,122 | 25,487 | 25,847 |
| Share of third party bauxite shipments ('000 tonnes) | | 8,738 | 8,441 | 7,387 | 8,842 | 9,477 | 16,986 | 18,318 |

(a) Rio Tinto has a 22.95% shareholding in the Sangaredi mine but benefits from 45.0% of production.

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|---|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| BORATES | | | | | | | | |
| Rio Tinto Borates - borates | 100.0% | | | | | | | |
| <i>US</i> | | | | | | | | |
| Borates ('000 tonnes) (a) | | 132 | 137 | 118 | 115 | 138 | 256 | 253 |
| <i>(a) Production is expressed as B₂O₃ content.</i> | | | | | | | | |
| COAL | | | | | | | | |
| Rio Tinto Coal Australia | | | | | | | | |
| Hail Creek Coal mine (a) | 0.0% | | | | | | | |
| <i>Queensland</i> | | | | | | | | |
| Hard coking coal ('000 tonnes) | | 1,380 | 396 | - | - | - | 2,304 | - |
| Thermal coal ('000 tonnes) | | 1,018 | 449 | - | - | - | 2,311 | - |
| Kestrel Coal mine (b) | 0.0% | | | | | | | |
| <i>Queensland</i> | | | | | | | | |
| Hard coking coal ('000 tonnes) | | 1,303 | 484 | - | - | - | 1,733 | - |
| Thermal coal ('000 tonnes) | | 220 | 35 | - | - | - | 293 | - |
| Total hard coking coal production ('000 tonnes) | | 2,683 | 880 | - | - | - | 4,037 | - |
| Total thermal coal production ('000 tonnes) | | 1,238 | 485 | - | - | - | 2,605 | - |
| Total coal production ('000 tonnes) | | 3,921 | 1,365 | - | - | - | 6,642 | - |
| Total coal sales ('000 tonnes) | | 3,717 | 1,725 | - | - | - | 6,767 | - |
| Rio Tinto Coal Australia share (c) | | | | | | | | |
| Share of hard coking coal sales ('000 tonnes) | | 2,228 | 650 | - | - | - | 3,596 | - |
| Share of thermal coal sales ('000 tonnes) (d) | | 791 | 754 | - | - | - | 1,910 | - |

(a) On 1 August 2018, Rio Tinto completed the sale of its 82% interest in the Hail Creek mine. Production is reported up to the date of completion.

(b) On 1 August 2018, Rio Tinto completed the sale of its 80% interest in the Kestrel mine. Production is reported up to the date of completion.

(c) Kestrel and Hail Creek produce hard coking coal and thermal coal through their mining operations. Both mines may blend coal types at ports.

(d) Sales relate only to coal mined by the operations and exclude traded coal.

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|---|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| COPPER & GOLD | | | | | | | | |
| Escondida | 30.0% | | | | | | | |
| <i>Chile</i> | | | | | | | | |
| Sulphide ore to concentrator ('000 tonnes) | | 31,732 | 30,513 | 30,507 | 32,027 | 32,519 | 63,936 | 64,546 |
| Average copper grade (%) | | 0.96 | 0.94 | 0.87 | 0.82 | 0.86 | 0.96 | 0.84 |
| Mill production (metals in concentrates): | | | | | | | | |
| Contained copper ('000 tonnes) | | 253.6 | 241.9 | 219.9 | 216.9 | 231.7 | 506.2 | 448.6 |
| Contained gold ('000 ounces) | | 68 | 64 | 74 | 74 | 75 | 128 | 149 |
| Contained silver ('000 ounces) | | 2,527 | 1,997 | 2,570 | 2,189 | 2,074 | 4,866 | 4,263 |
| Recoverable copper in ore stacked for leaching ('000 tonnes) (a) | | 54.4 | 49.4 | 45.7 | 36.5 | 44.5 | 104.8 | 81.0 |
| Refined production from leach plants: | | | | | | | | |
| Copper cathode production ('000 tonnes) | | 70.1 | 55.4 | 71.9 | 62.4 | 63.5 | 139.5 | 125.8 |
| <i>(a) The calculation of copper in material mined for leaching is based on ore stacked at the leach pad.</i> | | | | | | | | |
| Freeport-McMoRan | | | | | | | | |
| Grasberg mine (a) | 0.0% (b) | | | | | | | |
| <i>Papua, Indonesia</i> | | | | | | | | |
| Ore treated ('000 tonnes) | | 17,101 | 17,535 | 14,049 | - | - | 32,725 | - |
| Average mill head grades: | | | | | | | | |
| Copper (%) | | 1.06 | 1.00 | 0.73 | - | - | 1.09 | - |
| Gold (g/t) | | 1.77 | 1.77 | 1.08 | - | - | 1.71 | - |
| Silver (g/t) | | 5.09 | 4.49 | 2.09 | - | - | 4.89 | - |
| Production of metals in concentrates: | | | | | | | | |
| Copper in concentrates ('000 tonnes) | | 165.7 | 158.7 | 85.4 | - | - | 325.6 | - |
| Gold in concentrates ('000 ounces) | | 842 | 842 | 402 | - | - | 1,535 | - |
| Silver in concentrates ('000 ounces) | | 1,548 | 1,439 | 545 | - | - | 3,061 | - |
| Sales of payable metals in concentrates: (c) | | | | | | | | |
| Copper in concentrates ('000 tonnes) | | 145.3 | 170.6 | 82.7 | - | - | 302.7 | - |
| Gold in concentrates ('000 ounces) | | 740 | 903 | 399 | - | - | 1,417 | - |
| Silver in concentrates ('000 ounces) | | 1,098 | 1,221 | 426 | - | - | 2,282 | - |

(a) Through a joint venture agreement with Freeport-McMoRan (FCX), Rio Tinto is entitled to 40% of additional material mined as a consequence of expansions and developments of the Grasberg facilities since 1998. The Q4 2018 results show the forecast from FCX's most recent five-year plan. On 21 December 2018, Rio Tinto completed the sale of its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum). Production is reported up to the date of completion.

(b) Rio Tinto share of Grasberg production is 40% of the expansion.

(c) Net of smelter deduction

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|---|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| COPPER & GOLD (continued) | | | | | | | | |
| Rio Tinto Kennecott | | | | | | | | |
| Bingham Canyon mine | 100.0% | | | | | | | |
| <i>Utah, US</i> | | | | | | | | |
| Ore treated ('000 tonnes) | | 8,974 | 11,173 | 10,853 | 10,685 | 10,123 | 18,234 | 20,808 |
| Average ore grade: | | | | | | | | |
| Copper (%) | | 0.63 | 0.58 | 0.59 | 0.55 | 0.46 | 0.53 | 0.50 |
| Gold (g/t) | | 0.26 | 0.26 | 0.26 | 0.25 | 0.33 | 0.25 | 0.29 |
| Silver (g/t) | | 2.73 | 2.62 | 2.76 | 2.76 | 2.84 | 2.49 | 2.80 |
| Molybdenum (%) | | 0.025 | 0.030 | 0.032 | 0.032 | 0.039 | 0.025 | 0.035 |
| Copper concentrates produced ('000 tonnes) | | 194 | 233 | 222 | 207 | 161 | 365 | 368 |
| Average concentrate grade (% Cu) | | 26.4 | 25.3 | 26.0 | 25.3 | 25.5 | 23.7 | 25.4 |
| Production of metals in copper concentrates: | | | | | | | | |
| Copper ('000 tonnes) (a) | | 51.2 | 59.1 | 58.3 | 52.5 | 41.1 | 86.6 | 93.7 |
| Gold ('000 ounces) | | 46 | 57 | 57 | 53 | 65 | 83 | 118 |
| Silver ('000 ounces) | | 615 | 708 | 736 | 741 | 700 | 1,076 | 1,442 |
| Molybdenum concentrates produced ('000 tonnes): | | 1.5 | 2.8 | 4.5 | 3.8 | 5.0 | 4.3 | 8.7 |
| Molybdenum in concentrates ('000 tonnes) | | 0.7 | 1.4 | 2.2 | 1.9 | 2.6 | 2.2 | 4.4 |
| Kennecott smelter & refinery | | | | | | | | |
| | 100.0% | | | | | | | |
| Copper concentrates smelted ('000 tonnes) | | 224 | 246 | 262 | 204 | 207 | 425 | 411 |
| Copper anodes produced ('000 tonnes) (b) | | 44.4 | 58.1 | 62.4 | 33.3 | 60.3 | 86.9 | 93.6 |
| Production of refined metal: | | | | | | | | |
| Copper ('000 tonnes) | | 40.7 | 54.2 | 64.6 | 29.6 | 63.3 | 76.0 | 92.8 |
| Gold ('000 ounces) (c) | | 48.4 | 50.3 | 58.6 | 41.7 | 52.9 | 89.2 | 94.6 |
| Silver ('000 ounces) (c) | | 461 | 730 | 807 | 617 | 734 | 1,328 | 1,351 |

(a) Includes a small amount of copper in precipitates.

(b) New metal excluding recycled material.

(c) Includes gold and silver in intermediate products.

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|-----------------------|------------|------------|------------|------------|---------------|------------|---------------|
| COPPER & GOLD (continued) | | | | | | | | |
| Turquoise Hill Resources | | | | | | | | |
| Oyu Tolgoi mine (a) | 33.5% | | | | | | | |
| <i>Mongolia</i> | | | | | | | | |
| Ore Treated ('000 tonnes) | | 10,164 | 9,652 | 9,361 | 9,255 | 10,394 | 19,725 | 19,649 |
| Average mill head grades: | | | | | | | | |
| Copper (%) | | 0.48 | 0.51 | 0.55 | 0.57 | 0.46 | 0.50 | 0.51 |
| Gold (g/t) | | 0.26 | 0.38 | 0.56 | 0.58 | 0.31 | 0.25 | 0.44 |
| Silver (g/t) | | 1.17 | 1.19 | 1.22 | 1.25 | 1.20 | 1.24 | 1.23 |
| Copper concentrates produced ('000 tonnes) | | 178.8 | 179.8 | 189.0 | 210.1 | 180.6 | 356.1 | 390.7 |
| Average concentrate grade (% Cu) | | 22.0 | 21.9 | 21.9 | 21.8 | 21.7 | 22.0 | 21.8 |
| Production of metals in concentrates: | | | | | | | | |
| Copper in concentrates ('000 tonnes) | | 39.4 | 39.4 | 41.5 | 45.8 | 39.2 | 78.2 | 85.0 |
| Gold in concentrates ('000 ounces) | | 50.0 | 77.0 | 116.7 | 120.1 | 71.8 | 91.7 | 191.9 |
| Silver in concentrates ('000 ounces) | | 225 | 230 | 238 | 247 | 239 | 446 | 486 |
| Sales of metals in concentrates: | | | | | | | | |
| Copper in concentrates ('000 tonnes) | | 46.1 | 36.0 | 40.2 | 38.5 | 46.6 | 80.4 | 85.1 |
| Gold in concentrates ('000 ounces) | | 51 | 55 | 111 | 98 | 116 | 82 | 213 |
| Silver in concentrates ('000 ounces) | | 250 | 201 | 216 | 200 | 245 | 456 | 445 |

(a) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources.

DIAMONDS

| | | | | | | | | |
|--------------------------------------|--------|-------|-------|-------|-------|--------------|-------|--------------|
| Argyle Diamonds | 100.0% | | | | | | | |
| <i>Western Australia</i> | | | | | | | | |
| AK1 ore processed ('000 tonnes) | | 1,428 | 1,465 | 1,292 | 1,248 | 1,427 | 2,688 | 2,674 |
| AK1 diamonds produced ('000 carats) | | 3,476 | 3,830 | 3,211 | 2,786 | 3,292 | 7,027 | 6,079 |
| Diavik Diamonds | 60.0% | | | | | | | |
| <i>Northwest Territories, Canada</i> | | | | | | | | |
| Ore processed ('000 tonnes) | | 652 | 670 | 651 | 620 | 671 | 1,208 | 1,291 |
| Diamonds recovered ('000 carats) | | 1,916 | 1,776 | 1,797 | 1,683 | 1,980 | 3,690 | 3,663 |

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--|--------------------|---------|---------|---------|---------|---------------|---------|----------------|
| IRON ORE | | | | | | | | |
| Rio Tinto Iron Ore | | | | | | | | |
| <i>Western Australia</i> | | | | | | | | |
| Pilbara Operations | | | | | | | | |
| Saleable iron ore production ('000 tonnes) | | | | | | | | |
| Hamersley mines | (a) | 56,034 | 54,583 | 56,364 | 51,218 | 50,087 | 109,665 | 101,304 |
| Hamersley - Channar | 60.0% | 2,045 | 1,007 | 2,228 | 1,552 | 2,419 | 3,939 | 3,971 |
| Hope Downs | 50.0% | 11,567 | 11,426 | 11,691 | 11,913 | 12,101 | 22,252 | 24,015 |
| Robe River - Pannawonica (Mesas J and A) | 53.0% | 7,637 | 7,940 | 7,555 | 3,529 | 6,282 | 16,453 | 9,811 |
| Robe River - West Angelas | 53.0% | 8,252 | 7,587 | 8,738 | 7,783 | 8,853 | 16,346 | 16,635 |
| Total production ('000 tonnes) | | 85,534 | 82,542 | 86,576 | 75,995 | 79,741 | 168,654 | 155,736 |
| Breakdown of total production: | | | | | | | | |
| Pilbara Blend Lump | | 26,253 | 24,461 | 26,084 | 24,068 | 24,291 | 51,084 | 48,359 |
| Pilbara Blend Fines | | 37,368 | 35,696 | 38,085 | 34,924 | 35,194 | 72,924 | 70,118 |
| Robe Valley Lump | | 2,699 | 2,774 | 2,659 | 1,198 | 2,266 | 5,693 | 3,465 |
| Robe Valley Fines | | 4,937 | 5,166 | 4,896 | 2,331 | 4,015 | 10,760 | 6,346 |
| Yandicoogina Fines (HIY) | | 14,277 | 14,446 | 14,852 | 13,473 | 13,975 | 28,193 | 27,448 |
| Breakdown of total sales: | | | | | | | | |
| Pilbara Blend Lump | | 22,954 | 21,644 | 22,161 | 18,968 | 22,287 | 44,410 | 41,255 |
| Pilbara Blend Fines | | 42,638 | 38,100 | 42,497 | 34,558 | 41,105 | 79,957 | 75,663 |
| Robe Valley Lump | | 2,386 | 2,215 | 2,301 | 863 | 1,957 | 4,693 | 2,820 |
| Robe Valley Fines | | 6,141 | 5,356 | 5,652 | 2,468 | 4,862 | 11,793 | 7,330 |
| Yandicoogina Fines (HIY) | | 14,388 | 14,583 | 14,831 | 12,294 | 15,212 | 27,966 | 27,505 |
| Total sales ('000 tonnes) (b) (c) | | 88,506 | 81,898 | 87,442 | 69,150 | 85,423 | 168,820 | 154,573 |
| <i>(a) Includes 100% of production from Paraburdoo, Mt Tom Price, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass and the Eastern Range mines. Whilst Rio Tinto owns 54% of the Eastern Range mine, under the terms of the joint venture agreement, Hamersley Iron manages the operation and is obliged to purchase all mine production from the joint venture and therefore all of the production is included in Rio Tinto's share of production.</i> | | | | | | | | |
| <i>(b) Pilbara Blend sales include 2.4 million tonnes of alternate products in Q2 2019 and 3.9 million tonnes in H1 2019</i> | | | | | | | | |
| <i>(c) Sales represent iron ore exported from Western Australian ports.</i> | | | | | | | | |
| Iron Ore Company of Canada 58.7% | | | | | | | | |
| <i>Newfoundland & Labrador and Quebec in Canada</i> | | | | | | | | |
| Saleable iron ore production: | | | | | | | | |
| Concentrates ('000 tonnes) | | 974 | 1,926 | 2,441 | 1,516 | 2,031 | 2,334 | 3,547 |
| Pellets ('000 tonnes) | | 510 | 2,979 | 2,389 | 2,709 | 2,280 | 3,177 | 4,989 |
| IOC Total production ('000 tonnes) | | 1,484 | 4,905 | 4,830 | 4,225 | 4,311 | 5,510 | 8,536 |
| Sales: | | | | | | | | |
| Concentrates ('000 tonnes) | | 105 | 2,590 | 2,653 | 878 | 2,239 | 1,376 | 3,117 |
| Pellets ('000 tonnes) | | 343 | 2,825 | 2,581 | 2,684 | 2,424 | 3,024 | 5,108 |
| IOC Total Sales ('000 tonnes) | | 449 | 5,415 | 5,234 | 3,562 | 4,663 | 4,400 | 8,225 |
| Global Iron Ore Totals | | | | | | | | |
| Iron Ore Production ('000 tonnes) | | 87,018 | 87,448 | 91,406 | 80,219 | 84,052 | 174,164 | 164,272 |
| Iron Ore Sales ('000 tonnes) | | 88,954 | 87,314 | 92,676 | 72,712 | 90,085 | 173,220 | 162,798 |

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

| | Rio Tinto interest | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 | H1 2018 | H1 2019 |
|--------------------------------------|-----------------------|------------|------------|------------|------------|------------|------------|------------|
| SALT | | | | | | | | |
| Dampier Salt | 68.4% | | | | | | | |
| <i>Western Australia</i> | | | | | | | | |
| Salt production ('000 tonnes) | | 2,431 | 2,167 | 2,188 | 1,917 | 1,856 | 4,646 | 3,773 |
| TITANIUM DIOXIDE SLAG | | | | | | | | |
| Rio Tinto Iron & Titanium | 100.0% | | | | | | | |
| <i>Canada and South Africa</i> | | | | | | | | |
| <i>(Rio Tinto share) (a)</i> | | | | | | | | |
| Titanium dioxide slag ('000 tonnes) | | 232 | 297 | 294 | 296 | 303 | 525 | 599 |

(a) Quantities comprise 100% of Rio Tinto Fer et Titane and Rio Tinto's 74% interest in Richards Bay Minerals' production. Ilmenite mined in Madagascar is being processed in Canada.

| | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| URANIUM | | | | | | | | |
| Energy Resources of Australia Ltd | | | | | | | | |
| Ranger mine (a) | 68.4% | | | | | | | |
| <i>Northern Territory, Australia</i> | | | | | | | | |
| U ₃ O ₈ Production ('000 lbs) | | 881 | 1,199 | 1,351 | 1,160 | 906 | 1,856 | 2,066 |
| <i>(a) ERA production data are drummed U₃O₈.</i> | | | | | | | | |
| Rössing Uranium Ltd (a) (b) | 68.6% | | | | | | | |
| <i>Namibia</i> | | | | | | | | |
| U ₃ O ₈ Production ('000 lbs) | | 1,352 | 1,449 | 1,427 | 1,168 | 1,665 | 2,589 | 2,833 |

(a) Rössing production data are drummed U₃O₈.

(b) On 26 November 2018, Rio Tinto signed a binding agreement to sell its 68.62% interest in the Rössing mine in Namibia to China National Uranium Corporation Limited.

Rio Tinto percentage interest shown above is at 30 June 2019. The data represent full production and sales on a 100% basis unless otherwise stated.