



Vale production in 2Q17



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Production highlights

Rio de Janeiro, July 20, 2017 – Vale S.A. (Vale) iron ore production¹ achieved a record for a second quarter of 91.8 Mt in 2Q17, 5.8% higher than in 2Q16, mainly due to the ramp-up of S11D in the Northern System.

The Northern System, which comprises the Carajás, Serra Leste and S11D mining areas, achieved a production record of 41.5 Mt in 2Q17, 13.7% higher than in 2Q16 as a result of the S11D ramp-up, which is advancing according to plan.

Blended volumes in Asia totaled 14.8 Mt in 2Q17, 9.8 Mt and 3.7 Mt higher than in 2Q15 and 2Q16, respectively, as a result of the ongoing strategy to bring more flexibility to the integrated supply chain by increasing offshore blending capacity, thus enabling rapid responses to changes in market conditions.

Iron ore production will be within the lower end of the 360-380 Mt guidance range for 2017, and in line with the ongoing strategy to maximize margins.

Nickel production reached 65,900 t in 2Q17, 7.7% lower than in 1Q17 and 16.1% lower than in 2Q16, mainly due to the rebuilding of furnace #2 in advance of the transition to a single furnace operation and the scheduled maintenance shutdown in Sudbury.

Copper production was 100,700 t in 2Q17, being 6.2% and 4.6% lower than in 1Q17 and 2Q16, respectively. The decrease was mainly due to lower production in Sudbury as a result of the scheduled maintenance shutdown at the surface plants and mines.

Production of copper in concentrate at Salobo reached a record for a second quarter of 46,000 t, 13.0% higher than in 2Q16, mainly due to higher feed grades and stronger plant performance in 2Q17.

We are revising our nickel production guidance to 295,000 t in 2017, reflecting weaker than planned production results at our operations in Thompson, New Caledonia and Indonesia. For both finished production from New Caledonia and Indonesia, there is a lag in the impact of the weaker site production as the material is processed to finished product at our Asian refineries. Our revised copper production guidance is 447,000 t in 2017, reflecting the impact of unplanned maintenance in the mines in Sudbury, lower third party copper ore deliveries and higher than

¹ Including iron ore acquired from third parties.

planned grade variability in Salobo.

Coal production in Mozambique reached a quarterly record of 3.0 Mt in 2Q17, 24.8% and 101.8% higher than in 1Q17 and 2Q16, respectively, with two thirds of total production being of metallurgical coal. Logistics operations in Mozambique reached all-time records, with railed volume² reaching 3.1 Mt in 2Q17, 15% higher than in 1Q17.

Production summary

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
Iron ore ¹	91,849	86,198	86,823	6.6%	5.8%
Pellets	12,215	12,422	10,049	-1.7%	21.5%
Manganese Ore	507.2	544	552.5	-6.8%	-8.2%
Coal (Mozambique)	3,037	2,434	1,251	24.8%	142.8%
Nickel	65.9	71.4	78.5	-7.8%	-16.1%
Copper ²	102.7	109.0	107.4	-5.8%	-4.4%
Cobalt	1,413	1,259	1,312	12.2%	7.7%
Gold (000' oz troy)	105	137	118	-23.4%	-11.0%

¹ Including third party purchases.

² Including Lubambe's attributable production.

² Includes Sena-Beira and Nacala logistics corridors.



Iron Ore

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
Northern System	41,494	35,974	36,493	15.3%	13.7%
Southeastern System	27,450	28,165	25,166	-2.5%	9.1%
Itabira	9,076	8,821	8,491	2.9%	6.9%
Minas Centrais	9,642	10,337	10,008	-6.7%	-3.7%
Mariana	8,733	9,007	6,667	-3.0%	31.0%
Southern System	22,318	21,504	24,575	3.8%	-9.2%
Paraopeba	6,575	6,104	6,701	7.7%	-1.9%
Vargem Grande	6,325	6,466	7,362	-2.2%	-14.1%
Minas Itabirito	9,418	8,934	10,512	5.4%	-10.4%
Midwestern System	587	555	589	5.7%	-0.4%
IRON ORE¹	91,849	86,198	86,823	6.6%	5.8%

¹ Including third party purchases.

Production summary

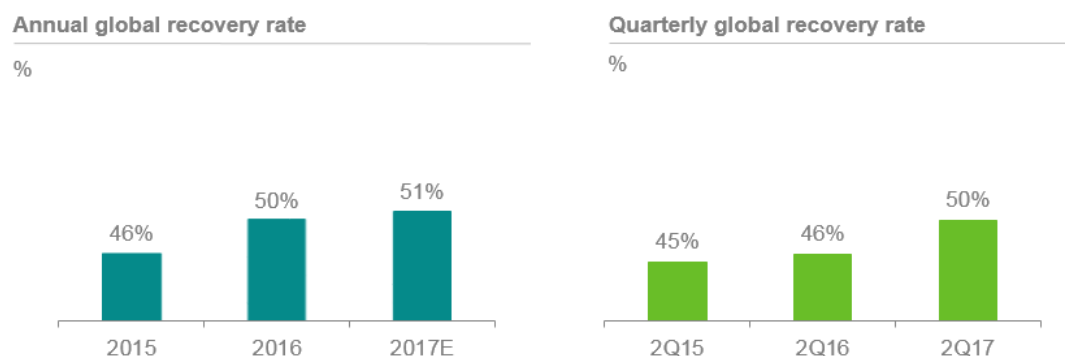
Vale's iron ore production achieved a record for a second quarter of 91.8 Mt in 2Q17, 5.6 Mt higher than in 1Q17 mainly due to the better operational performance in the Northern System and the weather-related seasonality. Production was 5.0 Mt higher than in 2Q16 due to the S11D ramp-up in the Northern System and the ramp-up of new beneficiation and crushing facilities in the Southeastern System.

The Brazilian Blend Fines (BRBF) specification has now been standardized and the silica (SiO₂) content has been limited to 5%. BRBF product is consolidating its brand as a baseload for several steel mills and being distributed out of eleven Chinese ports.

The production of high silica products from some mines will be reduced from the second half of 2017 onwards in the Southern and Southeastern Systems by an annualized rate of 19 Mt, together with the above mentioned adjustment in this BRBF quality. Production will therefore be within the lower end of the 360-380 Mt guidance range for 2017, in line with the ongoing strategy to maximize margins.

Vale reaffirms its long-term base case target of 400 Mt of total production per year.

Vale's Global Recovery (GR)³ increased from 45% in 2Q15 to 46% in 2Q16 and to 50% in 2Q17, with an estimate of 51% for 2017.



Iron ore and pellets shipments from Brazil and Argentina totaled 81.6 Mt in 2Q17, 6.9 Mt and 4.4 Mt higher than in 2Q15 and 2Q16, respectively, mainly due to higher production in the Northern and Southeastern Systems.

Blended volumes in Asia totaled 14.8 Mt in 2Q17, 9.8 Mt and 3.7 Mt higher than in 2Q15 and 2Q16, respectively, as a result of the ongoing strategy to bring more flexibility to the integrated supply chain.

The share of offshore inventories over total inventories increased from 15% in 2015 and 2016 to 28% in 2Q17, reflecting the ongoing strategy to shift inventories downstream along the supply chain and closer to the final customer. The expectation is to have about 30% of total inventories offshore by the end of 2017. The ongoing offshore blending activities require the build-up of offshore inventories and, as a result, temporarily leads to lower sales volumes when compared to shipment volumes from Brazil.

The average Fe content was 63.8% in 2Q17, remaining in line with the average Fe grade in 1Q17.

Northern System

The Northern System, which comprises Carajás, Serra Leste and S11D, achieved a record of 41.5 Mt in 2Q17, 15.3% higher than in 1Q17 as a result of the S11D ramp-up, which is advancing according to plan, and of the better operational performance as well as being influenced by the weather-related seasonality in 1Q17. Production was 13.7% higher than in 2Q16 mainly due to the start-up of S11D in 4Q16.

³ Measured by output of final production divided by the total tonnages extracted (ROM and waste).

Southeastern System

The Southeastern System, which encompasses the Itabira, Minas Centrais and Mariana mining hubs, produced 27.5 Mt in 2Q17, mainly in line with 1Q17. Production in 2Q17 was 2.3 Mt higher than in 2Q16 due to the ramp-up of production at a crushing facility at the Fazendão mine and the ramp-up of production at Conceição Itabiritos II.

Southern System

The Southern System, which encompasses the Paraopeba, Vargem Grande and Minas Itabirito mining hubs, produced 22.3 Mt in 2Q17, 3.2% higher than in 1Q17, mainly due to the resumption of production at the Mar Azul mine and the better operational performance of the Feijão mine. Production was 9.2% lower than in 2Q16 due to the conversion of some plants from wet to natural moisture processing and the reduction of production at the Aboboras mine, as a consequence of the reduction in the production of high silica products.

Midwestern System

The Midwestern System, which encompasses the Urucum and the Corumbá mines, produced 0.6 Mt in 2Q17, remaining in line with 1Q17 and 2Q16, as a result of Vale's continuing strategy to optimize margins.



Pellets

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
Southeastern System	7,748	7,514	6,657	3.1%	16.4%
Itabasco (Tubarão 3)	1,169	1,130	1,119	3.5%	4.5%
Hispanobras (Tubarão 4)	1,126	1,128	1,088	-0.2%	3.5%
Nibrasco (Tubarão 5 and 6)	2,378	2,401	1,715	-1.0%	38.7%
Kobrasco (Tubarão 7)	1,201	1,171	969	2.6%	24.0%
Tubarão 8	1,873	1,683	1,767	11.3%	6.0%
Southern System	2,518	2,545	1,544	-1.1%	63.1%
Fábrica	919	919	-	0.0%	n.m.
Vargem Grande	1,599	1,626	1,544	-1.7%	3.6%
Oman	1,948	2,364	1,848	-17.6%	5.4%
TOTAL PELLETS	12,215	12,422	10,049	-1.7%	21.5%

Production overview

Vale's pellet production totaled 12.2 Mt in 2Q17, 1.7% lower than in 1Q17 due to scheduled maintenance stoppages in one line of the Oman pellet plant, and 21.5% higher than in 2Q16 mainly as a result of maintenance stoppages in 2Q16 and the resumption of the Fábrica plant in July 2016.

Vale is advancing the project to re-start the São Luis pellet plant with its start-up envisioned for the first half of 2018 after the renewal of its operational license, the revamp of the plant and the upgrade of its automation system.

Southeastern system

Production at the Tubarão pellet plants – Tubarão 3, 4, 5, 6, 7 and 8 – reached a record of 7.7 Mt for a second quarter in 2Q17, 3.1% higher than in 1Q17 and 16.4% higher than in 2Q16, due to higher plant availability and better operational performance in plant 8.

Southern system

The Fábrica pellet plant achieved a production level of 0.9 Mt in 2Q17, in line with 1Q17. In 2Q16 the pellet plant was suspended due to delays in obtaining environmental permits.

The Vargem Grande pellet plant reached 1.6 Mt of production in 2Q17, in line with 1Q17, and 5.8% higher than in 2Q16, as a result of better operational performance of the plant.

Oman operations

The Oman pellet plant reached 1.9 Mt in 2Q17, 17.6% lower than in 1Q17 due to a 37-day scheduled maintenance stoppage in one of the plant's lines in April and May 2017, and 5.4% higher than in 2Q16 due to a 32-day scheduled maintenance stoppage, which occurred in May and June 2016.



Manganese ore and ferroalloys

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
MANGANESE ORE	507	544	552	-6.8%	-8.2%
Azul	318	367	397	-13.1%	-19.7%
Urucum	172	163	156	5.1%	10.1%
Morro da Mina	17	14	-	20.3%	n.m.
FERROALLOYS (Brazil)	40	36	29	12.3%	40.5%

Production overview

Manganese ore production totaled 507,000 t in 2Q17, 6.8% and 8.2% lower than in 1Q17 and 2Q16, respectively.

Ferroalloy production reached 40,000 t in 2Q17, 12.3% and 40.3% higher than in 1Q17 and 2Q16, respectively.

Manganese ore production

Production at the Azul manganese mine totaled 318,000 t in 2Q17, 13.1% and 19.7% lower than in 1Q17 and 2Q16, respectively, mainly due to the lower availability of high grade run of mine.

Production at the Urucum mine totaled 172,000 t in 2Q17, 5.1% and 10.2% higher than in 1Q17 and 2Q16, due to higher availability of ore, especially with the recovery of ore from pillars.

Production at the Morro da Mina mine totaled 17,000 t in 2Q17, 20.3% higher than in 1Q17 mainly due to an increase in production at the Barbacena ferroalloys plant, as a result of higher demand from customers. There was no production in 2Q16.

Ferroalloy production

Ferroalloy production in 2Q17 totaled 40,000 t, 12.3% and 40.3% higher than in 1Q17 and 2Q16, respectively, mainly due to the resumption to full operation at all 4 furnaces at the Simões Filho unit where 2 furnaces were under maintenance in previous quarters. Production was made up of 21,000 t of ferrosilicon manganese (FeSiMn), 13,000 t of high-carbon manganese (FeMnHC) and 6,000 t of medium-carbon manganese (FeMnMC).



Lucas Pupo / Agência Vale

Nickel

Finished production by source

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
Canada	27.3	36.2	38.3	-24.6%	-29.0%
Sudbury	7.9	17.9	18.9	-55.9%	-58.2%
Thompson	4.6	4.8	8.1	-4.2%	-43.2%
Voisey's Bay	14.8	13.5	11.3	9.6%	31.0%
Indonesia	19.7	16.3	20.7	20.9%	-4.8%
New Caledonia ¹	9.0	10.2	8.4	-11.8%	7.1%
Brazil	5.5	6.1	6.4	-9.8%	-14.1%
Feed from third parties ²	4.5	2.7	4.8	66.7%	-6.3%
TOTAL NICKEL	66.0	71.5	78.6	-7.7%	-16.0%

¹ Production at VNC reached 8,700 t in 2Q17, while production of finished nickel from VNC totaled 9,000 t in 2Q17; the differences stemming from the required time for processing into finished nickel.

² External feed purchased from third parties and processed into finished nickel in our Canadian and Asian operations.

Production overview

Production of nickel reached 66,000 t in 2Q17, 7.7% lower than in 1Q17 and 16.0% lower than in 2Q16, mainly due to the rebuilding of furnace #2 in preparation for the transitioning to a single furnace operation in Sudbury, and the scheduled maintenance shutdown in Sudbury.

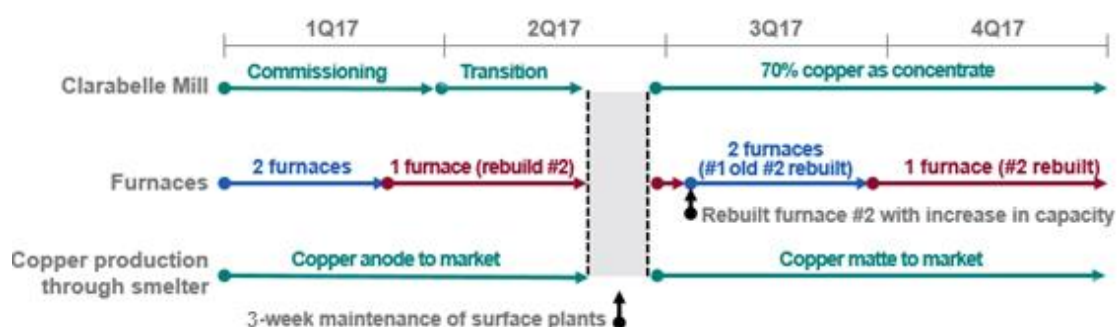
Canadian operations

Production from the Sudbury mines reached 7,900 t in 2Q17, 55.9% lower than in 1Q17 and 58.2% lower than in 2Q16. Sudbury source production was impacted in 2Q17 due to the scheduled rebuild and expansion in capacity of furnace #2 and the three-week scheduled maintenance in June for all surface operations. The scheduled maintenance in all surface operations happens every 18 months. Furnace #2 was off-line for the entire 2Q17 period and will resume operation in mid July. During 3Q17, the Sudbury smelter complex will transition to the new single furnace flowsheet and will commence operating as a single furnace operation in 4Q17. The transition to a single furnace is progressing well as we were able to transition to

scalping 70% of our copper as concentrate and the production of copper matte in April of this year.

As announced in March 2017, Stobie mine was placed on care and maintenance at the end of May.

Timeline of the transition to a single furnace operation in Sudbury



Production from the Thompson mines reached 4,600 t in 2Q17, 4.2% lower than in 1Q17 and 43.2% lower than in 2Q16. Production decreased relative to 1Q17 due to operational issues at the refinery. In 2Q17, production decreased relative to 2Q16 due to lower ore grades, operational issues at the refinery, and the drawdown of Thompson inventory during 2Q16. As announced earlier this quarter, Birchtree mine in Thompson will be placed on care and maintenance at the end of quarter three.

Production from Voisey's Bay sourced ore reached 14,800 t in 2Q17, 9.6% higher than in 1Q17 and 31.0% higher than in 2Q16. The increase vs. 1Q17 was mainly due to the higher production at the Long Harbour processing plant and the higher consumption of the Voisey's Bay sourced concentrate in Thompson. Production increase over 2Q16 was due to increased processing at Long Harbour.

Production at the Long Harbour processing plant reached a record of 7,200 t in 2Q17, 75.6% higher than in 1Q17 and 89.5% higher than in 2Q16 due to the strong production ramp-up and the utilization of the complete process flowsheet. For the second quarter of 2017, we achieved 58% of nameplate capacity at Long Harbour processing plant and 72% during the month of May.

Indonesian operation (PTVI)

PTVI nickel in matte production reached 20,100 t in 2Q17, 16.9% higher than in 1Q17 and 3.6% higher than in 2Q16. Production increase over 1Q17 was due to the impact of planned maintenance works in the kilns and furnaces in 1Q17.

Production of finished nickel from PTVI reached 19,700 t in 2Q17, 20.9% higher than in 1Q17 and 4.8% lower than in 2Q16. The production increase over 1Q17 was due to the impact of the scheduled annual maintenance shutdown at the Matsusaka refinery in 1Q17.

New Caledonia operation (VNC)

Production of finished products from VNC reached 9,000 t in 2Q17, 11.8% lower than in 1Q17 and 7.1% higher than in 2Q16.

Production of NiO and NHC at VNC was 8,700 t in 2Q17. Site production was in line with 1Q17 and 3.6% higher than in 2Q16. Production was impacted by operational issues, among which unscheduled acid plant outages, and two tropical cyclones that shut down operations for two days. NiO represented 87% and NHC 13% of VNC's 2Q17 site production.

Brazilian operation (Onça Puma)

Production at Onça Puma operation reached 5,500 t in 2Q17, 9.8% and 14.1% lower than in 1Q17 and in 2Q16, respectively, mainly due to a scheduled maintenance shutdown in 2Q17 and lower ore grades relative to 2Q16.



Copper

Finished production by source

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
BRAZIL	72.2	67.5	64.4	7.0%	12.1%
Sossego	26.2	24.9	23.6	5.2%	11.0%
Salobo	46.0	42.6	40.7	8.0%	13.0%
CANADA	28.6	40.0	41.3	-28.5%	-30.7%
Sudbury	17.0	26.5	28.9	-35.8%	-41.2%
Thompson	0.4	0.3	0.8	33.3%	-50.0%
Voisey's Bay	8.7	9.1	7.3	-4.4%	19.2%
Feed from third parties	2.5	4.1	4.3	-39.0%	-41.9%
TOTAL EX-LUBAMBE	100.8	107.5	105.7	-6.2%	-4.6%
Lubambe ¹	1.9	1.5	1.7	26.7%	11.8%
TOTAL COPPER	102.7	109.0	107.4	-5.8%	-4.4%

¹ Attributable production.

Production overview

Copper production⁴ reached 100,800 t in 2Q17, being 6.2% and 4.6% lower than in 1Q17 and 2Q16, respectively. The decrease was mainly due to lower production in Sudbury as a result of a scheduled maintenance shutdown in the surface plants and the mines.

Brazilian operations

Production of copper in concentrate at Sossego totaled 26,200 t in 2Q17, 5.2% and 11.0% higher than in 1Q17 and 2Q16, respectively, mainly due to higher feed grades and higher mill productivity in 2Q17.

⁴ Excluding Lubambe attributable production.

Production of copper in concentrate at Salobo reached a record for a second quarter at 46,000 t in 2Q17, 8.0% higher than in 1Q17 and 13.0% higher than in 2Q16, mainly due to higher feed grades and stronger plant performance in 2Q17.

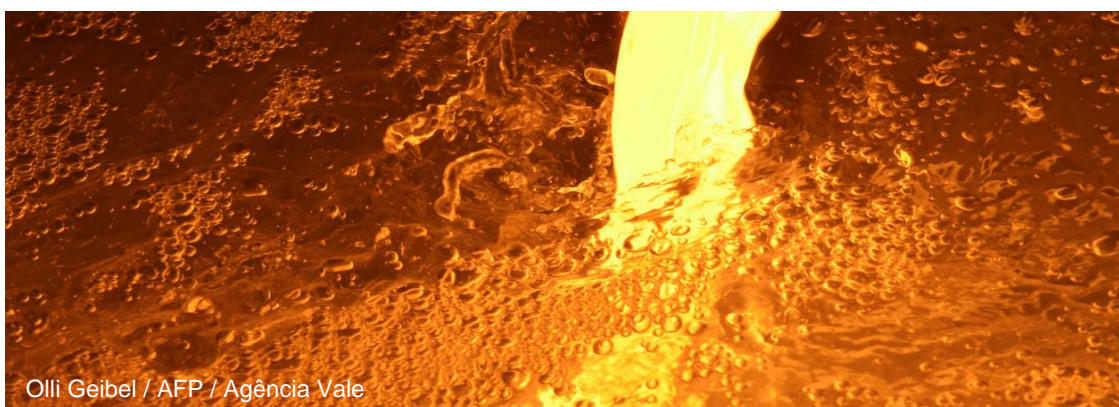
Canadian operations

Production of copper from the Sudbury mines reached 17,000 t in 2Q17, 35.8% and 41.2% lower than in 1Q17 and 2Q16, respectively. During 2Q17, the copper production at Sudbury was adversely impacted as a result of the scheduled three-week maintenance period at the surface plants and both planned and unplanned maintenance in the mines.

Production of copper from Voisey's Bay reached 8,700 t in 2Q17, 4.4% lower than in 1Q17 and 19.2% higher than in 2Q16. The production decrease relative to 1Q17 was due to the scheduled rebuild and expansion in capacity of furnace #2 and the three-week scheduled maintenance of all surface operations in June. Production increased over 2Q16 due to the ramp-up of copper production at the Long Harbour processing plant and the strong operational performance at the Voisey's Bay mine and mill.

African operation (Lubambe)

Lubambe delivered 4,800 t of copper in concentrate on a 100% basis (attributable production of 1,900 t).



Olli Geibel / AFP / Agência Vale

Nickel and copper by-products

Finished production by source

	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
COBALT (metric tons)	1,412	1,259	1,312	12.2%	7.6%
Sudbury	124	215	225	-42.3%	-44.9%
Thompson	111	138	171	-19.6%	-35.1%
Voisey's Bay	436	211	194	106.6%	124.7%
VNC	675	678	682	-0.4%	-1.0%
Others	66	17	40	288.2%	65.0%
PLATINUM (000' oz troy)	36	36	49	0.0%	-26.5%
Sudbury	36	36	49	0.0%	-26.5%
PALLADIUM (000' oz troy)	64	61	95	4.9%	-32.6%
Sudbury	64	61	95	4.9%	-32.6%
GOLD (000' oz troy)	110	105	109	4.8%	0.9%

Cobalt

Cobalt production totaled 1,412 t in 2Q17, 12.2% higher than in 1Q17 and 7.6% higher than in 2Q16, mainly driven by higher production from Voisey's Bay sourced ore at the Long Harbour processing plant.

Cobalt production from Sudbury was 124 t in 2Q17, 91 t lower than the 215 t in 1Q17 and 101 t lower than the 225 t in 2Q16. Production from Voisey's Bay was 436 t in 2Q17, 225 t higher than the 211 t in 1Q17 and 242 t higher than the 194 t in 2Q16.

Platinum and palladium

Platinum production was 36,000 oz, in line with 1Q17, and palladium production was 64,000 oz, 4.9% higher than in 1Q17.

Gold as a by-product of nickel and copper concentrates

The contained volume of gold as a by-product in the nickel and copper concentrates reached 110,000 oz in 2Q17, 4.8% higher than in 1Q17 and in line with 2Q16.



Coal

000' metric tons	2Q17	1Q17	2Q16	% change	
				2Q17/1Q17	2Q17/2Q16
MOZAMBIQUE	3,037	2,434	1,251	24.8%	142.7%
Metallurgical coal	2,049	1,632	808	25.6%	153.6%
Thermal coal	988	802	443	23.2%	122.9%
AUSTRALIA	-	-	254	-	-
Metallurgical coal	-	-	254	-	-
TOTAL COAL	3,037	2,434	1,505	24.8%	101.8%
Metallurgical coal	2,049	1,632	1,062	25.6%	92.9%
Thermal coal	988	802	443	23.2%	122.9%

Production overview

Coal production reached 3.0 Mt in 2Q17, a record production for a quarter, with production coming exclusively from the Moatize mine in Mozambique. Total coal production was 24.8% and 101.8% higher than in 1Q17 and 2Q16, respectively, with two thirds of total production being of metallurgical coal.

The production record resulted from the successive monthly records of the two Coal Handling and Preparation Plants (CHPP1 and CHPP2). CHPP2 continued its ramp-up consistently, increasing its production by 18% compared to 1Q17, reaching a new monthly production record of 511 kt in June, and pushing overall production to 1.1 Mt. Production increased for both metallurgical and thermal coal.

Production of metallurgical coal was 2.0 Mt in 2Q17, 25.6% and 153.6% higher than in 1Q17 and 2Q16, respectively, and production of thermal coal was 988 kt, 23.2% and 122.9% higher compared to the same quarters.

In 2Q17, our logistics operations in Mozambique reached all-time records, with railed volume⁵ of 3.1 Mt in 2Q17, 15% higher than the 2.7 Mt railed in 1Q17 and shipped volume⁵ of 3.1 Mt in 2Q17, 19% higher than the 2.6 Mt shipped in 1Q17.

⁵ Includes Sena-Beira and Nacala logistics corridors.