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BHP OPERATIONAL REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2019

- Group copper equivalent production decreased by 3% in the September 2019 quarter largely due to planned maintenance across a number of operations and natural field decline in Petroleum. Volumes for the 2020 financial year are expected to be slightly higher than last year.
- All production and unit cost guidance (based on exchange rates of AUD/USD 0.70 and USD/CLP 683) remains unchanged for the 2020 financial year.
- All major projects under development are tracking to plan, with the Ruby oil and gas development in Trinidad and Tobago approved during the September 2019 quarter.
- In Petroleum, the Trion 3-DEL appraisal well in Mexico encountered oil in the reservoirs up dip from all previous well intersections. Phase 4 of our deepwater drilling campaign in Trinidad and Tobago was completed, evaluation and development planning studies of the discoveries are ongoing.
- Further high-grade mineralised intercepts of copper, with associated gold, uranium and silver, were confirmed during the second phase of the drilling program at Oak Dam in South Australia. The next drilling phase is expected to commence in November 2019.

Production	Sep YTD19 (vs Sep YTD18)	Sep Q19 (vs Jun Q19)	Sep Q19 commentary
Petroleum (MMboe)	29 (11%)	29 (1%)	Impact of Tropical Storm Barry in the Gulf of Mexico and planned maintenance at North West Shelf, partially offset by higher seasonal demand and less maintenance activity at Bass Strait.
Copper (kt)	430 5%	430 (3%)	Record concentrator throughput at Escondida offset by planned maintenance related to the refinery crane replacement at Olympic Dam.
Iron ore (Mt)	61 (1%)	61 (3%)	Volumes at Western Australia Iron Ore (WAIO) lower due to the significant planned maintenance at Port Hedland.
Metallurgical coal (Mt)	9 (10%)	9 (21%)	Lower volumes reflected significant planned wash plant maintenance activities.
Energy coal (Mt)	6 (15%)	6 (24%)	Volumes impacted by higher strip ratios and a change in strategy to focus on higher quality products at New South Wales Energy Coal (NSWEC), and the impact of adverse weather at Cerrejón.
Nickel (kt)	22 1%	22 (25%)	Volumes reflected the impact of planned maintenance and transition to new ore bodies.

BHP Chief Executive Officer, Andrew Mackenzie, said: “We delivered a solid start to the 2020 financial year through ongoing strong operational performance across our portfolio. While Group production for the quarter decreased slightly due to the expected impacts of planned maintenance and natural field decline in Petroleum, guidance remains unchanged and we are on track to deliver slightly higher volumes than last financial year. The South Flank iron ore project is 50 per cent complete, with all our major projects on schedule and budget. We achieved further encouraging exploration results in Petroleum and at the Oak Dam copper prospect.”

Summary

Operational performance

Production and guidance are summarised below.

Production	Sep Q19	Sep Q19 vs Sep Q18	Sep Q19 vs Jun Q19	FY20 guidance
Petroleum (MMboe)	29	(11%)	(1%)	110 - 116
Copper (kt)	430	5%	(3%)	1,705 - 1,820
Escondida (kt)	293	(1%)	2%	1,160 - 1,230
Other copper ⁽ⁱ⁾ (kt)	137	20%	(13%)	545 - 590
Iron ore (Mt)	61	(1%)	(3%)	242 - 253
WAIO (100% basis) (Mt)	69	0%	(3%)	273 - 286
Metallurgical coal (Mt)	9	(10%)	(21%)	41 - 45
Queensland Coal (100% basis) (Mt)	16	(10%)	(22%)	73 - 79
Energy coal (Mt)	6	(15%)	(24%)	24 - 26
NSWEC (Mt)	4	(10%)	(34%)	15 - 17
Cerrejón (Mt)	2	(23%)	2%	~9
Nickel (kt)	22	1%	(25%)	~87

(i) Other copper comprises Pampa Norte, Olympic Dam and Antamina.

Major development projects

During the September 2019 quarter, the BHP Board approved an investment of US\$283 million (BHP share) for the development of the Ruby oil and gas project in Trinidad and Tobago.

At the end of the September 2019 quarter, BHP had six major projects under development in petroleum, copper, iron ore and potash, with a combined budget of US\$11.4 billion over the life of the projects.

The Jansen Stage 1 potash project in Canada will be presented to the Board for final investment decision by February 2021. In order to make a final investment decision, work on engineering to support project planning and on finalising the port solution is required, and the Board has approved US\$144 million for these activities. An additional US\$201 million in funding was approved to further derisk the project, focussing on the mine's scope of work, advancing other engineering and procurement activities, and preparation works for underground infrastructure. This will enable an efficient transition of the project team between the study and execution phase, should the project be approved. The release of funding to the project will be staged over this period.

Corporate update

As outlined in our 2019 financial year results announcement, we expect a US\$3.8 billion increase in net debt over the 2020 financial year from the application of IFRS 16 'Leases', new leases commencing in the year and a change in our definition of net debt to include fair value of derivatives related to net debt.

Susan Kilsby has been appointed as the Chairman of the Remuneration Committee and John Mogford has been appointed as the Chairman of the Sustainability Committee, both with effect from the conclusion of the BHP Group Limited Annual General Meeting on 7 November 2019. Susan has been a Non-executive Director of BHP since April 2019 and John has been a Non-executive Director of BHP since October 2017.

Petroleum

Production

	Sep Q19	Sep Q19 vs Sep Q18	Sep Q19 vs Jun Q19
Crude oil, condensate and natural gas liquids (MMboe)	13	(11%)	(6%)
Natural gas (bcf)	100	(11%)	3%
Total petroleum production (MMboe)	29	(11%)	(1%)

Petroleum – Total petroleum production decreased by 11 per cent to 29 MMboe. Guidance for the 2020 financial year remains unchanged at between 110 and 116 MMboe.

Crude oil, condensate and natural gas liquids production declined by 11 per cent to 13 MMboe due to the impact of Tropical Storm Barry in the Gulf of Mexico and natural field decline across the portfolio. This decline was partially offset by higher uptime at Pyrenees following the 70 day dry dock maintenance during the same period last year.

Natural gas production decreased by 11 per cent to 100 bcf, reflecting a decrease in tax barrels at Trinidad and Tobago in accordance with the terms of our Production Sharing Contract, planned maintenance at North West Shelf and natural field decline across the portfolio.

Projects

Project and ownership	Capital expenditure US\$M	Initial production target date	Capacity	Progress
Atlantis Phase 3 (US Gulf of Mexico) 44% (non-operator)	696	CY20	New subsea production system that will tie back to the existing Atlantis facility, with capacity to produce up to 38,000 gross barrels of oil equivalent per day.	On schedule and budget. The overall project is 17% complete.
Ruby (Trinidad & Tobago) 68.46% (operator)	283	CY21	Five production wells tied back into existing operated processing facilities, with capacity to produce up to 16,000 gross barrels of oil per day and 80 million gross standard cubic feet of natural gas per day.	Project approved on 7 August 2019. The overall project is 6% complete.
Mad Dog Phase 2 (US Gulf of Mexico) 23.9% (non-operator)	2,154	CY22	New floating production facility with the capacity to produce up to 140,000 gross barrels of crude oil per day.	On schedule and budget. The overall project is 58% complete.

The Bass Strait West Barracouta project is tracking to plan and is expected to achieve first production in the 2021 calendar year.

On 3 September 2019, the Minerva gas field reached end-of-field life and production ceased at the Minerva Gas Plant. As announced in the June 2018 quarter, BHP agreed to sell its 90 per cent interest in the Minerva Gas Plant to the Casino Henry Joint Venture after the cessation of gas processing from the Minerva gas field. The sale is subject to customary closing conditions and is expected to close during the December 2019 quarter.

Petroleum exploration

Exploration and appraisal wells drilled during the September 2019 quarter are summarised below.

Well	Location	Target	Formation age	BHP equity	Spud date	Water depth	Total well depth	Status
Trion-3DEL	Mexico Block AE-0093	Oil	Eocene	60% (BHP Operator)	9 July 2019	2,596 m	4,615 m	Hydrocarbons encountered; Plugged and abandoned
Boom-1	Trinidad & Tobago Block 14	Gas	Late Miocene	70% (BHP Operator)	28 August 2019	2,207 m	5,035 m	Hydrocarbons encountered; Plugged and abandoned
Carnival-1	Trinidad & Tobago Block 14	Gas	Late Miocene	70% (BHP Operator)	30 September 2019	2,119 m	2,391m ⁽¹⁾	Drilling ahead ⁽¹⁾

In Mexico, we spud the Trion 3-DEL appraisal well on 9 July 2019. We are encouraged by the preliminary results, with the well encountering oil in the reservoirs up dip from all previous well intersections. Evaluation and analysis is ongoing. No further appraisal wells are anticipated.

In Trinidad and Tobago, we drilled two additional exploration wells in our Northern licences as a part of Phase 4 of our deepwater drilling campaign. The Boom-1 well was spud on 28 August 2019 and encountered hydrocarbons. Evaluation and analysis is ongoing. The Carnival-1 well was spud on 30 September 2019 and reached total depth after the end of the September 2019 quarter. The well was a dry hole. This completed the exploration program on our Trinidad and Tobago Northern licences. Evaluation and development planning studies of the discoveries in the North are ongoing. Following Carnival-1, the Deepwater Invictus rig will return to the US Gulf of Mexico to complete regulatory abandonment work on Shenzi appraisal and exploration boreholes.

In the US Gulf of Mexico, in August 2019, we were the apparent high bidder on blocks GC124 and GC168 in the central Gulf of Mexico, building on our Green Canyon position. Additionally, we were the apparent high bidder on 18 additional blocks⁽²⁾, which would expand our position in the western Gulf of Mexico.

In Australia, the National Offshore Petroleum Titles Administrator approved the surrender of the WA-255-P exploration permit, following our technical assessment of remaining potential.

Petroleum exploration expenditure for the September 2019 quarter was US\$162 million, of which US\$69 million was expensed. A US\$0.7 billion exploration and appraisal program is being executed for the 2020 financial year.

Copper

Production

	Sep Q19	Sep Q19 vs Sep Q18	Sep Q19 vs Jun Q19
Copper (kt)	430	5%	(3%)
Zinc (t)	20,454	(33%)	(9%)
Uranium (t)	937	69%	(4%)

Copper – Total copper production increased by five per cent to 430 kt. Guidance for the 2020 financial year remains unchanged at between 1,705 and 1,820 kt.

Escondida copper production decreased by one per cent to 293 kt, with record concentrator throughput of 369 ktpd in the quarter offsetting expected grade decline. Ongoing improvements in maintenance implemented as part of our Transformation agenda contributed to the higher throughput, with the rate increasing to 377 ktpd in September 2019. Guidance for the 2020 financial year remains unchanged at between 1,160 and 1,230 kt, underpinned by an expected uplift in concentrator throughput performance versus the prior year, partly offset by an approximately five per cent reduction in copper grade of concentrator feed.

Pampa Norte copper production increased by 47 per cent to 64 kt, reflecting the impact of a fire at the electro-winning plant at Spence in the September 2018 quarter. Guidance for the 2020 financial year remains unchanged at between 230 and 250 kt, including expected grade decline of approximately 10 per cent.

Olympic Dam copper production increased by five per cent to 35 kt as a result of the prior period acid plant outage, partially offset by the impact of planned preparatory work undertaken in the September 2019 quarter related to the replacement of the refinery crane. The preparatory work is the most significant part of the project, with the physical replacement and commissioning of the refinery crane scheduled for the March 2020 quarter. Underground operations, the mill and the smelter performed to plan, enabling the build of anode stocks for processing through the refinery in the subsequent three quarters. Guidance for the 2020 financial year remains unchanged at between 180 and 205 kt.

Antamina copper production increased by two per cent to 38 kt and zinc production decreased by 33 per cent to 20 kt, reflecting higher copper head grades and lower zinc head grades. Guidance for the 2020 financial year remains unchanged at approximately 135 kt for copper and approximately 110 kt for zinc.

Projects

Project and ownership	Capital expenditure US\$M	Initial production target date	Capacity	Progress
Spence Growth Option (Chile) 100%	2,460	H1 FY21	New 95 ktpd concentrator is expected to increase Spence's payable copper in concentrate production by approximately 185 ktpa in the first 10 years of operation and extend the mining operations by more than 50 years.	On schedule and budget. The overall project is 74% complete.

Iron Ore

Production

	Sep Q19	Sep Q19 vs Sep Q18	Sep Q19 vs Jun Q19
Iron ore production (kt)	61,005	(1%)	(3%)

Iron ore – Total iron ore production decreased by one per cent to 61 Mt (69 Mt on a 100 per cent basis). Guidance for the 2020 financial year remains unchanged at between 242 and 253 Mt (273 and 286 Mt on a 100 per cent basis).

At WAIO, lower volumes reflected significant planned maintenance at Port Hedland, including a major car dumper maintenance program, to further improve port reliability and provide a stable base for our tightly coupled supply chain. Major planned car dumper maintenance was completed on 16 October 2019, while the port maintenance program continues through the 2020 financial year. Mine operations continued to deliver consistent performance during the quarter.

Mining and processing operations at Samarco remain suspended following the failure of the Fundão tailings dam and Santarém water dam on 5 November 2015.

In September 2019, BHP divested its 45.5 per cent interest in the Nimba iron ore project in Guinea to High Power Exploration Inc. (HPX).

Projects

Project and ownership	Capital expenditure US\$M	Initial production target date	Capacity	Progress
South Flank (Australia) 85%	3,061	CY21	Sustaining iron ore mine to replace production from the 80 Mtpa (100 per cent basis) Yandi mine.	On schedule and budget. The overall project is 50% complete.

Coal

Production

	Sep Q19	Sep Q19 vs Sep Q18	Sep Q19 vs Jun Q19
Metallurgical coal (kt)	9,358	(10%)	(21%)
Energy coal (kt)	5,647	(15%)	(24%)

Metallurgical coal – Metallurgical coal production was down 10 per cent to 9 Mt (16 Mt on a 100 per cent basis). Guidance for the 2020 financial year remains unchanged at between 41 and 45 Mt (73 and 79 Mt on a 100 per cent basis) with volumes weighted to the last three quarters of the financial year.

At Queensland Coal, production was impacted by the planned major wash plant shutdowns at Goonyella, Peak Downs and Caval Ridge. This was partially offset by increased feed rates at the Peak Downs wash plant following a change in mine sequencing.

Energy coal – Energy coal production decreased by 15 per cent to 6 Mt. Guidance for the 2020 financial year remains unchanged at between 24 and 26 Mt.

New South Wales Energy Coal production decreased by 10 per cent as a result of the change in product strategy to focus on higher quality products. Guidance for the 2020 financial year remains unchanged at between 15 and 17 Mt.

Cerrejón production decreased by 23 per cent due to the impact of adverse weather. Guidance for the 2020 financial year remains unchanged at approximately 9 Mt.

Other

Nickel production

	Sep Q19	Sep Q19 vs Sep Q18	Sep Q19 vs Jun Q19
Nickel (kt)	21.6	1%	(25%)

Nickel – Nickel West production increased by one per cent to 22 kt, reflecting higher volumes at the Kalgoorlie smelter following the fire in September 2018.

Major quadrennial maintenance shutdowns at the Kwinana refinery and the Kalgoorlie smelter are scheduled for the December 2019 quarter. Guidance for the 2020 financial year remains unchanged, with production expected to be broadly in line with the 2019 financial year.

Potash – The Jansen Stage 1 potash project in Canada will be presented to the Board for final investment decision by February 2021. In order to make a final investment decision, work on engineering to support project planning and on finalising the port solution is required, and the Board has approved US\$144 million for these activities. An additional US\$201 million in funding was approved to further derisk the project, focussing on the mine's scope of work, advancing other engineering and procurement activities, and preparation works for underground infrastructure. This will enable an efficient transition of the project team between the study and execution phase, should the project be approved. The release of funding to the project will be staged over this period.

Potash project

Project and ownership	Investment US\$M	Scope	Progress
Jansen Potash (Canada) 100%	2,700	Investment to finish the excavation and lining of the production and service shafts, and to continue the installation of essential surface infrastructure and utilities.	The project is 84% complete and within the approved budget. Preparation work for final shaft lining is continuing.

Minerals exploration

Minerals exploration expenditure for the September 2019 quarter was US\$44 million, of which US\$38 million was expensed. Greenfield minerals exploration is predominantly focused on advancing copper targets within Chile, Ecuador, Mexico, Peru, Canada, South Australia and the south-west United States.

At Oak Dam in South Australia, the second phase of the drilling program delivered encouraging results. Further high-grade mineralised intercepts of copper, with associated gold, uranium and silver, were confirmed. Multiple intervals ranging between 0.25 and 5.77 per cent copper were identified by laboratory assay results from 10 diamond drill holes, totalling 12,441 metres. For further details refer to Appendix 1. The exploration project remains at an early stage with large parts of the target still to be drill tested. The next phase of the drilling program is expected to commence in November 2019.

Variance analysis relates to the relative performance of BHP and/or its operations during the September 2019 quarter compared with the September 2018 quarter, unless otherwise noted. Production volumes, sales volumes and capital and exploration expenditure from subsidiaries are reported on a 100 per cent basis; production and sales volumes from equity accounted investments and other operations are reported on a proportionate consolidation basis. Numbers presented may not add up precisely to the totals provided due to rounding. Copper equivalent production based on 2019 financial year average realised prices.

The following footnotes apply to this Operational Review:

- (1) Well depth and status as at 30 September 2019.
- (2) We were the apparent high bidder on 18 additional blocks: GB630, GB574, GB575, GB619, GB676, GB677, EB655, EB656, EB701, GB762, GB805, GB806, GB851, GB852, GB895, GB672, GB716 and GB760.

The following abbreviations may have been used throughout this report: barrels (bbl); billion cubic feet (bcf); cost and freight (CFR); cost, insurance and freight (CIF); dry metric tonne unit (dmtu); free on board (FOB); grams per tonne (g/t); kilograms per tonne (kg/t); kilometre (km); metre (m); million barrels of oil equivalent (MMboe); million cubic feet per day (MMcf/d); million tonnes (Mt); million tonnes per annum (Mtpa); ounces (oz); pounds (lb); thousand barrels of oil equivalent (Mboe); thousand barrels of oil equivalent per day (Mboe/d); thousand ounces (koz); thousand standard cubic feet (Mscf); thousand tonnes (kt); thousand tonnes per annum (ktpa); thousand tonnes per day (ktpd); tonnes (t); and wet metric tonnes (wmt).

In this release, the terms 'BHP', 'Group', 'BHP Group', 'we', 'us', 'our' and 'ourselves' are used to refer to BHP Group Limited, BHP Group plc and, except where the context otherwise requires, their respective subsidiaries as defined in note 28 'Subsidiaries' in section 5.1 of BHP's 30 June 2019 Annual Report and Form 20-F, unless stated otherwise. Notwithstanding that this release may include production, financial and other information from non-operated assets, non-operated assets are not included in the BHP Group and, as a result, statements regarding our operations, assets and values apply only to our operated assets unless stated otherwise.

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Production summary

		Quarter ended					Year to date	
BHP interest		Sep 2018	Dec 2018	Mar 2019	Jun 2019	Sep 2019	Sep 2019	Sep 2018
Petroleum ⁽¹⁾								
Petroleum								
Conventional								
Crude oil, condensate and NGL (Mboe)		14,087	14,497	13,236	13,366	12,507	12,507	14,087
Natural gas (bcf)		112.3	93.9	92.9	97.8	100.4	100.4	112.3
Total (Mboe)		32,804	30,147	28,719	29,666	29,240	29,240	32,804
Copper ⁽²⁾								
Copper								
Payable metal in concentrate (kt)								
Escondida ⁽³⁾		57.5%	240.0	212.6	205.4	224.1	237.0	240.0
Antamina		33.8%	37.0	38.3	34.5	37.4	37.6	37.0
Total			277.0	250.9	239.9	261.5	274.6	277.0
Cathode (kt)								
Escondida ⁽³⁾		57.5%	55.4	71.9	62.4	63.5	55.9	55.4
Pampa Norte ⁽⁴⁾		100%	43.4	61.8	67.2	74.1	63.9	43.4
Olympic Dam		100%	33.3	31.6	50.2	45.2	35.1	33.3
Total			132.1	165.3	179.8	182.8	154.9	132.1
Total copper (kt)			409.1	416.2	419.7	444.3	429.5	409.1
Lead								
Payable metal in concentrate (t)								
Antamina		33.8%	563	600	456	770	405	563
Total			563	600	456	770	405	563
Zinc								
Payable metal in concentrate (t)								
Antamina		33.8%	30,558	24,237	20,848	22,469	20,454	30,558
Total			30,558	24,237	20,848	22,469	20,454	30,558
Gold								
Payable metal in concentrate (troy oz)								
Escondida ⁽³⁾		57.5%	63,578	73,726	73,998	74,704	48,801	63,578
Olympic Dam (refined gold)		100%	23,471	17,856	28,609	37,032	43,205	23,471
Total			87,049	91,582	102,607	111,736	92,006	87,049
Silver								
Payable metal in concentrate (troy koz)								
Escondida ⁽³⁾		57.5%	1,997	2,570	2,189	2,074	1,626	1,997
Antamina		33.8%	1,309	1,178	1,062	1,209	1,101	1,309
Olympic Dam (refined silver)		100%	213	212	230	268	245	213
Total			3,519	3,960	3,481	3,551	2,972	3,519
Uranium								
Payable metal in concentrate (t)								
Olympic Dam		100%	555	929	1,106	975	937	555
Total			555	929	1,106	975	937	555
Molybdenum								
Payable metal in concentrate (t)								
Antamina		33.8%	464	417	82	178	405	464
Total			464	417	82	178	405	464

Production summary

		Quarter ended					Year to date	
BHP interest		Sep 2018	Dec 2018	Mar 2019	Jun 2019	Sep 2019	Sep 2019	Sep 2018
Iron Ore								
Iron Ore								
Production (kt) ⁽⁵⁾								
Newman	85%	16,378	17,578	15,608	17,058	16,316	16,316	16,378
Area C Joint Venture	85%	11,696	10,280	11,627	13,837	12,620	12,620	11,696
Yandi Joint Venture	85%	16,870	15,627	15,214	17,486	17,827	17,827	16,870
Jimblebar ⁽⁶⁾	85%	16,353	14,326	13,658	14,209	14,239	14,239	16,353
Wheelarra	85%	114	30	10	5	3	3	114
Samarco	50%	-	-	-	-	-	-	-
Total		61,411	57,841	56,117	62,595	61,005	61,005	61,411
Coal								
Metallurgical coal								
Production (kt) ⁽⁷⁾								
BMA	50%	7,744	7,694	7,608	9,090	6,905	6,905	7,744
BHP Mitsui Coal ⁽⁸⁾	80%	2,614	2,578	2,269	2,804	2,453	2,453	2,614
Total		10,358	10,272	9,877	11,894	9,358	9,358	10,358
Energy coal								
Production (kt)								
Australia	100%	3,982	4,311	4,552	5,412	3,592	3,592	3,982
Colombia	33.3%	2,658	2,356	2,199	2,017	2,055	2,055	2,658
Total		6,640	6,667	6,751	7,429	5,647	5,647	6,640
Other								
Nickel								
Saleable production (kt)								
Nickel West ⁽⁹⁾	100%	21.4	18.1	19.2	28.7	21.6	21.6	21.4
Total		21.4	18.1	19.2	28.7	21.6	21.6	21.4
Cobalt								
Saleable production (t)								
Nickel West	100%	249	154	194	302	211	211	249
Total		249	154	194	302	211	211	249

- (1) LPG and ethane are reported as natural gas liquids (NGL). Product-specific conversions are made and NGL is reported in barrels of oil equivalent (boe). Total boe conversions are based on 6 bcf of natural gas equals 1 MMboe.
- (2) Metal production is reported on the basis of payable metal.
- (3) Shown on a 100% basis. BHP interest in saleable production is 57.5%.
- (4) Includes Cerro Colorado and Spence.
- (5) Iron ore production is reported on a wet tonnes basis.
- (6) Shown on a 100% basis. BHP interest in saleable production is 85%.
- (7) Metallurgical coal production is reported on the basis of saleable product. Production figures include some thermal coal.
- (8) Shown on a 100% basis. BHP interest in saleable production is 80%.
- (9) Production restated to include other nickel by-products.

Throughout this report figures in italics indicate that this figure has been adjusted since it was previously reported.

Production and sales report

		Quarter ended					Year to date	
		Sep	Dec	Mar	Jun	Sep	Sep	Sep
		2018	2018	2019	2019	2019	2019	2018
Petroleum - Conventional ⁽¹⁾								
Bass Strait								
Crude oil and condensate	(Mboe)	1,653	1,401	893	1,246	1,409	1,409	1,653
NGL	(Mboe)	1,840	1,447	849	1,299	1,810	1,810	1,840
Natural gas	(bcf)	35.1	25.2	21.0	30.6	36.6	36.6	35.1
Total petroleum products	(MMboe)	9.3	7.0	5.2	7.6	9.3	9.3	9.3
North West Shelf								
Crude oil and condensate	(Mboe)	1,514	1,520	1,431	1,357	1,337	1,337	1,514
NGL	(Mboe)	242	206	193	189	202	202	242
Natural gas	(bcf)	36.6	37.5	36.6	34.8	32.1	32.1	36.6
Total petroleum products	(MMboe)	7.9	8.0	7.7	7.3	6.9	6.9	7.9
Pyrenees								
Crude oil and condensate	(Mboe)	282	1,101	940	1,001	979	979	282
Total petroleum products	(MMboe)	0.3	1.1	0.9	1.0	1.0	1.0	0.3
Other Australia ⁽²⁾								
Crude oil and condensate	(Mboe)	7	8	6	7	8	8	7
Natural gas	(bcf)	13.8	13.9	13.0	12.2	12.0	12.0	13.8
Total petroleum products	(MMboe)	2.3	2.3	2.2	2.0	2.0	2.0	2.3
Atlantis ⁽³⁾								
Crude oil and condensate	(Mboe)	3,190	3,802	3,888	3,607	2,759	2,759	3,190
NGL	(Mboe)	215	268	275	248	192	192	215
Natural gas	(bcf)	1.5	1.9	2.0	2.2	1.4	1.4	1.5
Total petroleum products	(MMboe)	3.7	4.4	4.5	4.2	3.2	3.2	3.7
Mad Dog ⁽³⁾								
Crude oil and condensate	(Mboe)	1,270	1,158	1,258	1,246	1,096	1,096	1,270
NGL	(Mboe)	61	54	58	23	49	49	61
Natural gas	(bcf)	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total petroleum products	(MMboe)	1.4	1.2	1.3	1.3	1.2	1.2	1.4
Shenzi ⁽³⁾								
Crude oil and condensate	(Mboe)	2,016	2,024	1,881	1,725	1,345	1,345	2,016
NGL	(Mboe)	122	121	112	(2)	70	70	122
Natural gas	(bcf)	0.4	0.4	0.4	0.4	0.2	0.2	0.4
Total petroleum products	(MMboe)	2.2	2.2	2.1	1.8	1.4	1.4	2.2
Trinidad/Tobago								
Crude oil and condensate	(Mboe)	447	200	284	235	175	175	447
Natural gas	(bcf)	24.0	14.0	19.5	17.3	17.9	17.9	24.0
Total petroleum products	(MMboe)	4.4	2.5	3.5	3.1	3.2	3.2	4.4
Other Americas ^{(3) (4)}								
Crude oil and condensate	(Mboe)	207	218	284	272	185	185	207
NGL	(Mboe)	3	4	18	3	2	2	3
Natural gas	(bcf)	-	0.1	0.2	0.1	-	-	-
Total petroleum products	(MMboe)	0.2	0.2	0.3	0.3	0.2	0.2	0.2
UK ⁽⁵⁾								
Crude oil and condensate	(Mboe)	36	36	-	-	-	-	36
NGL	(Mboe)	21	21	-	-	-	-	21
Natural gas	(bcf)	0.7	0.7	-	-	-	-	0.7
Total petroleum products	(MMboe)	0.2	0.2	-	-	-	-	0.2
Algeria								
Crude oil and condensate	(Mboe)	961	908	866	910	889	889	961
Total petroleum products	(MMboe)	1.0	0.9	0.9	0.9	0.9	0.9	1.0

Production and sales report

Quarter ended					Year to date	
Sep	Dec	Mar	Jun	Sep	Sep	Sep
2018	2018	2019	2019	2019	2019	2018

Petroleum - Total ⁽¹⁾

Conventional								
Crude oil and condensate	(Mboe)	11,583	12,376	11,731	11,606	10,182	10,182	11,583
NGL	(Mboe)	2,504	2,121	1,505	1,760	2,325	2,325	2,504
Natural gas	(bcf)	112.3	93.9	92.9	97.8	100.4	100.4	112.3
Total	(Mboe)	32,804	30,147	28,719	29,666	29,240	29,240	32,804

- (1) Total boe conversions are based on 6 bcf of natural gas equals 1 MMboe. Negative production figures represent finalisation adjustments.
- (2) Other Australia includes Minerva and Macedon.
- (3) Gulf of Mexico volumes are net of royalties.
- (4) Other Americas includes Neptune, Genesis and Overriding Royalty Interest.
- (5) BHP completed the sale of its interest in the Bruce and Keith oil and gas fields on 30 November 2018. The sale has an effective date of 1 January 2018.

Production and sales report

Quarter ended					Year to date	
Sep 2018	Dec 2018	Mar 2019	Jun 2019	Sep 2019	Sep 2019	Sep 2018

Copper

Metals production is payable metal unless otherwise stated.

Escondida, Chile ⁽¹⁾

Material mined	(kt)	107,260	105,580	103,936	100,693	101,026	101,026	107,260
Sulphide ore milled	(kt)	30,513	30,507	32,027	32,519	33,956	33,956	30,513
Average concentrator head grade	(%)	0.94%	0.87%	0.82%	0.86%	0.86%	0.86%	0.94%
Production ex mill	(kt)	241.9	219.9	216.9	230.9	245.0	245.0	241.9

Production

Payable copper	(kt)	240.0	212.6	205.4	224.1	237.0	237.0	240.0
Copper cathode (EW)	(kt)	55.4	71.9	62.4	63.5	55.9	55.9	55.4
- Oxide leach	(kt)	19.5	23.4	20.9	23.4	21.9	21.9	19.5
- Sulphide leach	(kt)	35.8	48.5	41.5	40.1	34.1	34.1	35.8
Total copper	(kt)	295.4	284.5	267.8	287.6	292.9	292.9	295.4

Payable gold concentrate	(troy oz)	63,578	73,726	73,998	74,704	48,801	48,801	63,578
Payable silver concentrate	(troy koz)	1,997	2,570	2,189	2,074	1,626	1,626	1,997

Sales

Payable copper	(kt)	216.5	229.2	212.0	223.4	222.2	222.2	216.5
Copper cathode (EW)	(kt)	53.2	72.3	56.6	67.5	52.3	52.3	53.2
Payable gold concentrate	(troy oz)	63,578	73,726	73,999	74,704	48,801	48,801	63,578
Payable silver concentrate	(troy koz)	1,997	2,570	2,189	2,074	1,626	1,626	1,997

(1) Shown on a 100% basis. BHP interest in saleable production is 57.5%.

Pampa Norte, Chile

Cerro Colorado

Material mined	(kt)	18,488	19,875	15,561	13,534	15,071	15,071	18,488
Ore milled	(kt)	4,802	5,069	4,277	4,740	3,995	3,995	4,802
Average copper grade	(%)	0.53%	0.62%	0.63%	0.64%	0.54%	0.54%	0.53%

Production

Copper cathode (EW)	(kt)	14.2	19.4	18.2	23.4	16.4	16.4	14.2
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Sales

Copper cathode (EW)	(kt)	13.8	19.0	15.5	26.8	14.5	14.5	13.8
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Spence

Material mined	(kt)	23,007	21,661	18,632	19,213	21,040	21,040	23,007
Ore milled	(kt)	5,642	5,428	4,376	5,224	5,635	5,635	5,642
Average copper grade	(%)	1.21%	1.10%	1.03%	1.02%	0.95%	0.95%	1.21%

Production

Copper cathode (EW)	(kt)	29.2	42.4	49.0	50.7	47.5	47.5	29.2
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Sales

Copper cathode (EW)	(kt)	29.7	39.1	46.1	55.0	46.7	46.7	29.7
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Production and sales report

Quarter ended					Year to date	
Sep	Dec	Mar	Jun	Sep	Sep	Sep
2018	2018	2019	2019	2019	2019	2018

Copper (continued)

Metals production is payable metal unless otherwise stated.

Antamina, Peru

Material mined (100%)	(kt)	62,470	62,850	57,900	58,994	59,299	59,299	62,470
Sulphide ore milled (100%)	(kt)	13,197	12,912	11,466	12,864	13,121	13,121	13,197
Average head grades								
- Copper	(%)	0.96%	1.02%	1.04%	1.02%	0.99%	0.99%	0.96%
- Zinc	(%)	1.10%	0.85%	0.87%	0.86%	0.80%	0.80%	1.10%

Production

Payable copper	(kt)	37.0	38.3	34.5	37.4	37.6	37.6	37.0
Payable zinc	(t)	30,558	24,237	20,848	22,469	20,454	20,454	30,558
Payable silver	(troy koz)	1,309	1,178	1,062	1,209	1,101	1,101	1,309
Payable lead	(t)	563	600	456	770	405	405	563
Payable molybdenum	(t)	464	417	82	178	405	405	464

Sales

Payable copper	(kt)	33.6	40.7	33.3	36.0	33.1	33.1	33.6
Payable zinc	(t)	31,822	26,072	20,595	21,750	20,196	20,196	31,822
Payable silver	(troy koz)	1,193	1,236	1,027	937	954	954	1,193
Payable lead	(t)	612	649	749	296	844	844	612
Payable molybdenum	(t)	208	535	256	127	173	173	208

Olympic Dam, Australia

Material mined ⁽¹⁾	(kt)	2,044	2,434	2,191	2,425	2,477	2,477	2,044
Ore milled	(kt)	1,242	2,157	2,371	2,195	2,200	2,200	1,242
Average copper grade	(%)	2.05%	2.10%	2.22%	2.30%	2.31%	2.31%	2.05%
Average uranium grade	(kg/t)	0.62	0.62	0.65	0.65	0.65	0.65	0.62

Production

Copper cathode (ER and EW)	(kt)	33.3	31.6	50.2	45.2	35.1	35.1	33.3
Payable uranium	(t)	555	929	1,106	975	937	937	555
Refined gold	(troy oz)	23,471	17,856	28,609	37,032	43,205	43,205	23,471
Refined silver	(troy koz)	213	212	230	268	245	245	213

Sales

Copper cathode (ER and EW)	(kt)	33.9	26.6	47.4	50.5	32.1	32.1	33.9
Payable uranium	(t)	765	828	550	1,427	778	778	765
Refined gold	(troy oz)	21,145	17,812	27,574	36,133	40,073	40,073	21,145
Refined silver	(troy koz)	216	177	241	257	250	250	216

(1) Material mined refers to run of mine ore mined and hoisted.

Production and sales report

Quarter ended					Year to date	
Sep	Dec	Mar	Jun	Sep	Sep	Sep
2018	2018	2019	2019	2019	2019	2018

Iron Ore

Iron ore production and sales are reported on a wet tonnes basis.

Pilbara, Australia

Production

Newman	(kt)	16,378	17,578	15,608	17,058	16,316	16,316	16,378
Area C Joint Venture	(kt)	11,696	10,280	11,627	13,837	12,620	12,620	11,696
Yandi Joint Venture	(kt)	16,870	15,627	15,214	17,486	17,827	17,827	16,870
Jimblebar ⁽¹⁾	(kt)	16,353	14,326	13,658	14,209	14,239	14,239	16,353
Wheelarra	(kt)	114	30	10	5	3	3	114
Total production	(kt)	61,411	57,841	56,117	62,595	61,005	61,005	61,411
Total production (100%)	(kt)	69,342	65,515	63,609	71,133	69,257	69,257	69,342

Sales

Lump	(kt)	15,014	14,020	13,603	15,568	14,785	14,785	15,014
Fines	(kt)	46,527	44,059	41,981	48,064	45,509	45,509	46,527
Total	(kt)	61,541	58,079	55,584	63,632	60,294	60,294	61,541
Total sales (100%)	(kt)	69,421	65,758	62,853	72,173	68,291	68,291	69,421

(1) Shown on a 100% basis. BHP interest in saleable production is 85%.

Samarco, Brazil ⁽¹⁾

Production	(kt)	-	-	-	-	-	-	-
Sales	(kt)	-	10	-	-	-	-	-

(1) Mining and processing operations remain suspended following the failure of the Fundão tailings dam and Santarém water dam on 5 November 2015.

Production and sales report

Quarter ended					Year to date	
Sep	Dec	Mar	Jun	Sep	Sep	Sep
2018	2018	2019	2019	2019	2019	2018

Coal

Coal production is reported on the basis of saleable product.

Queensland Coal

Production ⁽¹⁾

BMA								
Blackwater	(kt)	1,704	1,680	1,484	1,735	1,045	1,045	1,704
Goonyella	(kt)	1,989	1,813	2,141	2,620	1,489	1,489	1,989
Peak Downs	(kt)	1,131	1,685	1,468	1,649	1,423	1,423	1,131
Saraji	(kt)	1,111	1,288	1,250	1,243	1,214	1,214	1,111
Daunia	(kt)	620	419	470	669	556	556	620
Caval Ridge	(kt)	1,189	809	795	1,174	1,178	1,178	1,189
Total BMA	(kt)	7,744	7,694	7,608	9,090	6,905	6,905	7,744
Total BMA (100%)	(kt)	15,488	15,388	15,216	18,180	13,810	13,810	15,488

BHP Mitsui Coal ⁽²⁾

South Walker Creek	(kt)	1,505	1,636	1,429	1,624	1,378	1,378	1,505
Poitrel	(kt)	1,109	942	840	1,180	1,075	1,075	1,109
Total BHP Mitsui Coal	(kt)	2,614	2,578	2,269	2,804	2,453	2,453	2,614
Total Queensland Coal	(kt)	10,358	10,272	9,877	11,894	9,358	9,358	10,358
Total Queensland Coal (100%)	(kt)	18,102	17,966	17,485	20,984	16,263	16,263	18,102

Sales

Coking coal	(kt)	7,356	7,514	7,221	7,932	7,299	7,299	7,356
Weak coking coal	(kt)	2,813	3,058	3,282	2,942	2,466	2,466	2,813
Thermal coal	(kt)	141	157	379	350	94	94	141
Total	(kt)	10,310	10,729	10,882	11,224	9,859	9,859	10,310
Total (100%)	(kt)	18,102	18,818	19,176	19,789	17,145	17,145	18,102

(1) Production figures include some thermal coal.

(2) Shown on a 100% basis. BHP interest in saleable production is 80%.

NSW Energy Coal, Australia

Production	(kt)	3,982	4,311	4,552	5,412	3,592	3,592	3,982
Sales								
Export thermal coal	(kt)	3,549	4,809	3,529	5,181	3,075	3,075	3,549
Inland thermal coal	(kt)	332	393	302	975	567	567	332
Total	(kt)	3,881	5,202	3,831	6,156	3,642	3,642	3,881

Cerrejón, Colombia

Production	(kt)	2,658	2,356	2,199	2,017	2,055	2,055	2,658
Sales thermal coal - export	(kt)	2,589	2,297	2,200	2,245	2,069	2,069	2,589

Production and sales report

Quarter ended					Year to date	
Sep 2018	Dec 2018	Mar 2019	Jun 2019	Sep 2019	Sep 2019	Sep 2018

Other

Nickel production is reported on the basis of saleable product

Nickel West, Australia

Mt Keith

Nickel concentrate	(kt)	50.2	44.9	52.5	52.8	43.7	43.7	50.2
Average nickel grade	(%)	18.9	19.8	19.2	19.5	18.3	18.3	18.9

Leinster

Nickel concentrate	(kt)	78.8	65.3	51.8	48.3	67.2	67.2	78.8
Average nickel grade	(%)	8.4	8.4	9.3	10.8	10.0	10.0	8.4

Saleable production

Refined nickel ^{(1) (2)}	(kt)	19.8	16.3	17.6	19.9	17.4	17.4	19.8
Intermediates and nickel by-products ^{(1) (3)}	(kt)	1.6	1.8	1.6	8.8	4.2	4.2	1.6
Total nickel ⁽¹⁾	(kt)	21.4	18.1	19.2	28.7	21.6	21.6	21.4

Cobalt by-products	(t)	249	154	194	302	211	211	249
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Sales

Refined nickel ^{(1) (2)}	(kt)	19.3	17.3	17.9	19.9	17.0	17.0	19.3
Intermediates and nickel by-products ^{(1) (3)}	(kt)	2.2	2.1	0.1	8.4	5.7	5.7	2.2
Total nickel ⁽¹⁾	(kt)	21.5	19.4	18.0	28.3	22.7	22.7	21.5

Cobalt by-products	(t)	249	154	194	302	212	212	249
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(1) Production and sales restated to include other nickel by-products.

(2) High quality refined nickel metal, including briquettes and powder.

(3) Nickel contained in matte and by-product streams.

Appendix 1

Project status update

Between February and June 2019, a 10 diamond hole follow-up drilling program totalling 12,441 metres was completed at Oak Dam, located 65 kilometres to the south east of BHP's operations at Olympic Dam in South Australia (Figure 1). Figure 2 describes the location of the new drilling and Figure 3 shows the new drilling on cross sections.

Laboratory assay results confirm further high-grade mineralised intercepts of copper with associated gold, uranium and silver, as per the table below, with further detail included within this appendix.

Hole ID	From	To	Length ⁽ⁱ⁾ m	Cu %	Au g/t	U ppm	Ag g/t
AD26	1247	1452	205	2.04	0.43	441	3.8
including	1408	1452	44	5.77	1.20	643	14.0
AD26W1	1209	1289	80	2.73	0.44	391	5.3
including	1251	1275	24	4.70	0.41	305	9.7
AD27	1100	1197	97	1.51	1.04	270	4.0
AD27W1	1250	1355	105	1.59	0.85	234	5.3
AD27W2	952	1007	55	2.34	0.39	397	5.6
AD27W3	1071	1301	230	1.79	0.52	308	6.7
including	1071	1113	42	3.06	0.92	266	13.6
AD28	1150	1234	84	0.63	0.40	140	2.7
AD28W1	1185	1274	89	0.82	0.48	56	3.2
AD28W2	810	881	71	2.20	0.28	338	2.7
AD28W3	930	1018	88	1.27	0.21	125	4.1

(i) Not true widths.

Geology and mineralisation

Recent drilling continues to confirm IOCG-style alteration and mineralisation described previously (BHP Copper Exploration Update¹ dated 27 November 2018), with a core of barren hematite-quartz breccias approximately central to the gravity anomaly, surrounded by high-grade chalcocite and bornite mineralisation, which grades outwards to more dominant chalcopyrite and pyrite mineralisation towards the contact with the host granite.

Further work

BHP's Minerals exploration team continues to evaluate the results reported to date to inform a follow up drilling program to begin in November 2019.

¹ <https://www.bhp.com/media-and-insights/news-releases/2018/11/bhp-copper-exploration-program-update>

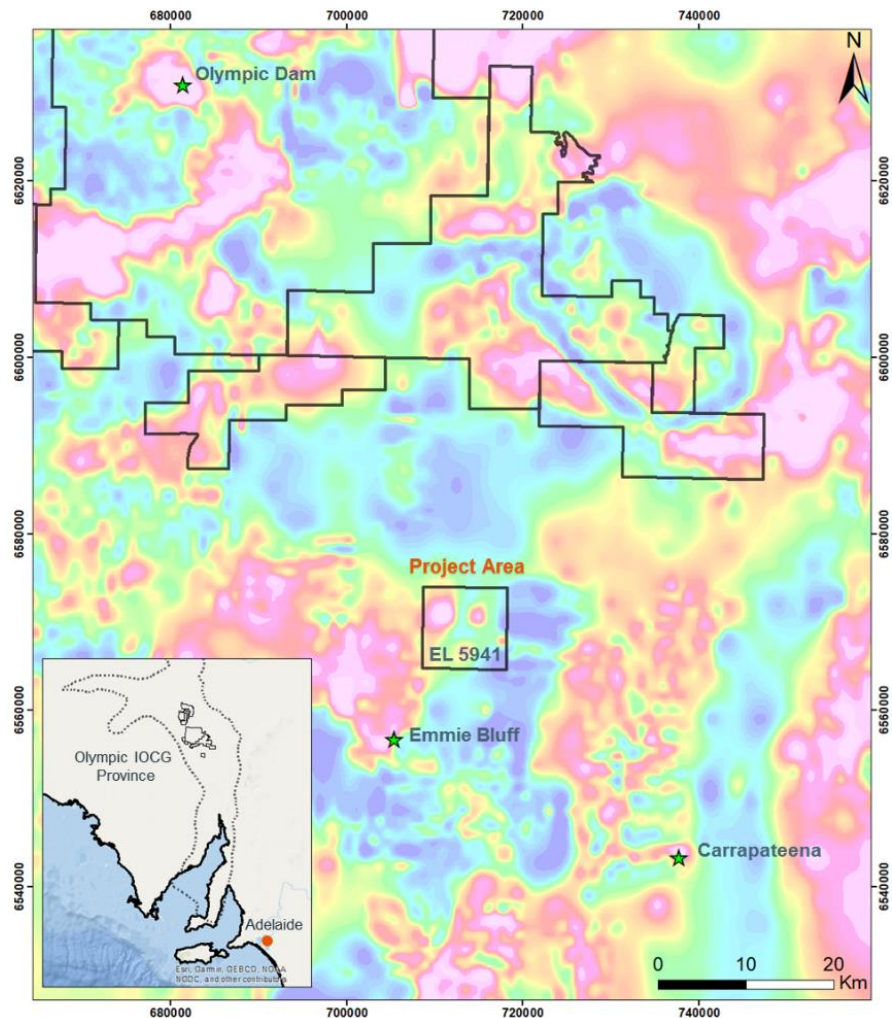


Figure 1: Location map of the project within EL 5941 over public domain gravity map.

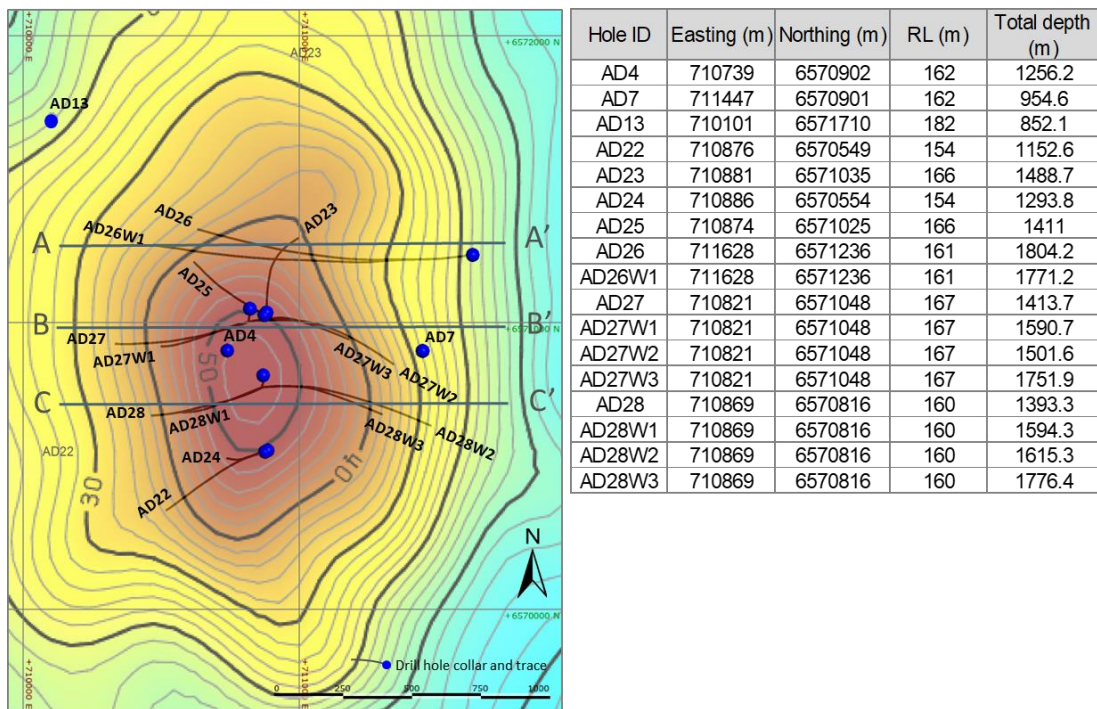


Figure 2: Left: Drill hole traces projected to surface and cross section locations displayed on high resolution ground gravity. Right: Drill hole collar locations and depths in Geocentric Datum of Australia (GDA 94, zone 53)².

² The coordinates of unmineralised historical holes, AD4, 7 and 13 were incorrectly reported in the BHP Copper Exploration Program Update dated 27 November 2018, due to inaccuracies in historic data. Verified locations of historic drill sites are now shown as measured by digital GPS.

BHP Operational Review for the quarter ended 30 September 2019 – Appendix

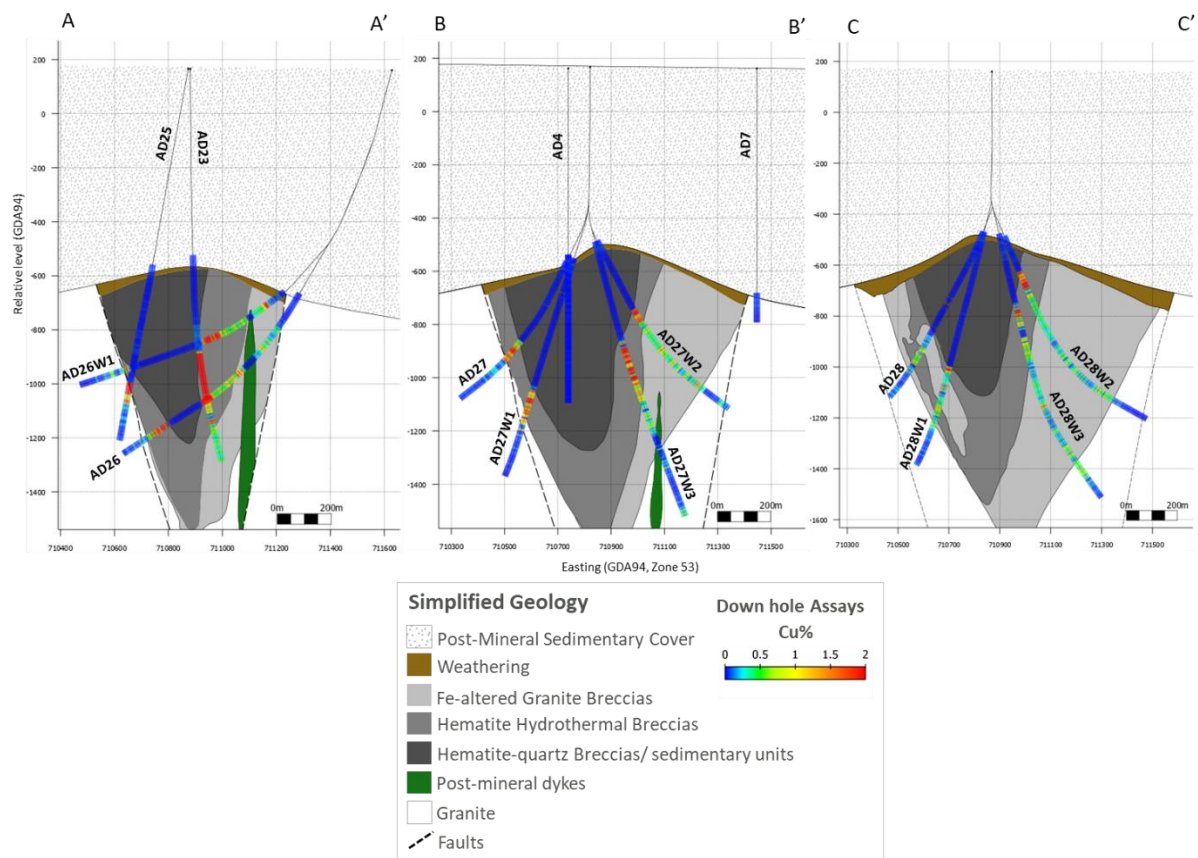


Figure 3: Cross-sections showing simplified geology and down hole Cu assays.

Hole ID	From	To	Length m	Cu %	Au g/t	U ppm	Ag g/t	SG
AD26	1047	1188	141	0.40	0.15	200	1.0	3.49
	1247	1452	205	2.04	0.43	441	3.8	3.76
	1247	1396	149	0.83	0.15	381	0.6	3.64
	1396	1408	12	1.25	0.68	326	1.4	3.62
	1408	1452	44	5.77	1.20	643	14.0	4.22
	1593	1597	4	3.33	0.34	102	7.6	3.19
	1605	1695	90	1.63	0.56	209	2.5	3.10
	1605	1633	28	2.44	0.71	281	3.6	3.25
	1633	1695	62	1.24	0.49	174	1.9	3.03
AD26W1	1005	1075	70	1.26	0.05	222	2.3	3.69
	1005	1025	20	3.35	0.07	350	7.8	3.71
	1025	1075	50	0.42	0.05	170	0.1	3.68
	1101	1289	188	1.55	0.25	444	3.0	3.49
	1101	1209	108	0.59	0.10	490	1.0	3.35
	1209	1289	80	2.73	0.44	391	5.3	3.68
	inc. 1251	1275	24	4.70	0.41	305	9.7	3.82
	1572	1613	41	0.95	0.50	105	2.9	2.99
AD27	1100	1197	97	1.51	1.04	270	4.0	3.18
	1100	1133	33	0.88	0.42	309	3.0	2.96
	1133	1158	25	2.25	1.57	289	4.9	3.46
	1158	1197	39	1.50	1.16	227	4.1	3.20
AD27W1	1250	1355	105	1.59	0.85	234	5.3	3.28
	1250	1280	30	1.21	0.76	264	7.2	3.25
	1280	1304	24	2.44	1.42	269	7.7	3.40
	1304	1355	51	1.38	0.62	198	3.0	3.25
	1362	1384	22	1.27	0.69	173	4.6	3.27
	1402	1410	8	1.26	0.43	139	4.9	3.15
AD27W2	952	1374	422	0.80	0.23	233	2.5	3.33
	952	1007	55	2.34	0.39	397	5.6	3.57
	inc. 952	974	22	3.36	0.58	488	9.0	3.78
	inc. 974	1007	33	1.58	0.24	329	3.2	3.43
	1007	1374	367	0.54	0.20	205	2.0	3.29
AD27W3	1052	1061	9	1.57	1.42	183	8.7	3.70
	1071	1406	335	1.38	1.29	160	8.2	3.55
	1071	1301	230	1.79	0.52	308	6.7	3.61
	inc. 1071	1113	42	3.06	0.92	266	13.6	3.75
	inc. 1113	1135	22	1.92	0.59	367	9.4	3.37
	1150	1200	50	2.47	0.81	380	10.3	3.62
	1200	1301	101	0.98	0.17	284	1.6	3.64
	1303	1318	15	0.36	0.13	144	1.6	3.47
	1328	1406	78	0.49	0.20	135	2.0	3.48
AD28	1150	1234	84	0.63	0.40	140	2.7	2.97
AD28W1	1185	1274	89	0.82	0.48	56	3.2	2.97
	1185	1210	25	1.54	0.66	91	7.6	3.07
	1210	1265	55	0.32	0.16	40	0.8	3.11
	1265	1274	9	1.59	1.70	46	4.7	3.66
	1298	1437	139	0.49	0.37	34	3.2	3.13
AD28W2	810	1110	300	0.83	0.14	686	6.9	3.71
	810	881	71	2.20	0.28	338	2.7	3.68
	881	1110	229	0.41	0.10	232	1.4	3.71
	1132	1329	197	0.36	0.18	238	1.4	3.13
	1356	1447	91	0.54	0.34	91	2.3	3.03
AD28W3	930	1018	88	1.27	0.21	125	4.1	3.61
	930	936	6	1.43	0.29	389	7.2	3.32
	936	948	12	0.25	0.36	901	10.4	3.21
	948	976	28	2.31	0.18	1461	10.5	3.62
	976	1018	42	0.82	0.19	462	1.0	3.76
	1061	1169	108	0.61	0.20	281	0.9	3.46
	1188	1680	492	0.40	0.22	111	2.1	3.20

Table 1: Length and density weighted mineralised intercepts for 2019 drilling reported as apparent (down hole) widths. The complete breakdown of each reported intersection is shown and includes high and low grade intervals to demonstrate grade. Intervals with assays not reported here have <0.2% Cu. Reported mineralised intervals contain no more than 10 consecutive meters of <0.2%Cu.

Drilling techniques

- All drilling was diamond drilling from surface.
- Parent holes were collared in HWT to a depth of 6m and continued in PQ until the Tregalona Shale unit in the post mineral cover (between 100m and 150m downhole depth). From the Tregalona Shale, drilling continued in HQ to the depth chosen to begin navigational drilling (dependent on various factors such as cover depth, rock competency and target coordinates). Navigational drilling was completed on the parent hole (and or subsequent wedges) to setup for one wedge off parent AD26 and three wedges off parents AD27 and AD28. Drilling below navigational drilling was in NQ2 to the end of hole.
- Directional surveys using a north seeking gyroscope were completed on each hole inside the NQ2 rods.

Location of data points

- All drill hole collar locations (historic and recent) have been surveyed with Trimble R8s and manually entered into acQuire database.
- All coordinates provided are measured and provided in Geocentric Datum of Australia 1994 (GDA94 Zone 53).

Geological logging

- 100% of new drill holes were logged in qualitative detail for the basement rocks.
- The following observations were recorded: lithology composition and texture, alteration minerals and sulphide distribution.
- Structural measurements have been recorded from orientated core measuring alpha and beta angles of structures of interest.
- Core was photographed both wet and dry.
- Qualitative geotechnical logging (rock-quality designation and micro defects) was completed for 2019 drilling (AD26, AD26W1, AD27, AD27W1, AD27W2, AD27W3, AD28, AD28W1, AD28W2 and AD28W3).

Sampling techniques

- Sample recoveries are visually estimated to be >97%.
- Sample recovery is not considered material to reported grades.
- Diamond core was split by core saw, with half the core submitted for assay and the other half stored in trays at Olympic Dam. Samples are submitted as 1m or 2m intervals.
- Specific gravity measurements were taken for all assayed samples.
- 6-8 kg samples were submitted to an analytical laboratory for final drying, staged crushing to 2mm, splitting to approximately 3 kg portion, followed by pulverisation to 90% passing 75 micron particle size pulp.
- Duplicate samples were collected at each preparation stage where a reduction in sample mass occurred.

Quality of assay data and laboratory tests

- All samples were submitted to Intertek/Genalysis Laboratory in Adelaide.
- All new drill holes reported here were analysed for Cu, Ag, As, Bi, Co, Zn, Ni, Pb, Al, Ca, Cr, Fe, K, Mg, Mn, Na, P, Sc, Si, Ti, V, Ba, Mo, Sb, Sr, U, Y, Zr, Au, S, Ce, La, using 3-acid digest, total fusion, fire assay and induction furnace digestions followed by ICP-OES/MS or infrared methods.
- Three acid digestion followed by ICP-OES/MS was used to measure Cu, Ag, As, Co, Zn, Ni, Pb.
- Lithium borate fusion followed by ICP-OES/MS was to measure Al, Ca, Bi, Cr, Fe, K, Mg, Mn, Na, P, Sc, Si, Ti, V, Ba, Mo, Sb, Sr, U, Y, Zr.
- Comparative analysis between four and three acid digest methods, for a reduced suite of thirty-three elements, demonstrates that equally accurate and representative geochemistry and characterisation of the mineral system, was possible compared to the four acid digest method and sixty-three element suite, reported previously (BHP Exploration Results Update dated November 27 2018).
- 25g fire assay with an ICP-OES finish was used to measure Au.
- Induction furnace combustion followed by infrared analyser was used to measure C and S.
- Quality control samples consisted of duplicates (1:25), analytical blanks (1:50) and certified standards (1:25). QC results reviewed when results are received, all performed within acceptable accuracy and precision limits.

Verification of sampling and assaying

- Significant intersections were validated via visual inspection of drill core, followed up by optical microscopy by BHP personnel not involved with the initial geological logging of the drill core. There has been no adjustments to the assay data that is electronically uploaded to the database from the commercial laboratory.
- All drill hole data is managed internally using computerised geological logging, a comprehensive SQL server relational database, and strict validation rules.
- The database has a security model which requires user access to have supervisor approval. The database is backed up regularly by standard backup procedures.
- No twinned holes have been drilled.

Sample security

- A reconciliation is completed between the sampling request and drilling plods to ensure that any lost core is accurately recorded prior to sampling. Sample numbers are automatically generated directly from the database once the sampling request is visually validated against the drill core. Laboratory sample receipts are recorded in the database. The laboratory reconciles samples received against samples requested on the assay request sheet.

Audits or reviews

- The drill hole database is periodically and independently audited. No material issues or risks have been identified.

Orientation of data in relation to geological structure

- Mineralisation at this stage is still not well defined as per the irregular nature in IOCG-type deposits.
- New holes have been angled approximately east-west, from inside the hydrothermal system towards the outside (host rock), with the exception of the northern section (AD26 and AD26W1), drilled from east to west, collaring the host rock drilling towards the hydrothermal system.

Data aggregation methods

- All intersections are length and density weighted represented in apparent (downhole) widths. True widths of intersections are unknown.
- There is insufficient drilling to provide any mineral inventory estimate (including Exploration Target).

Mineral tenement and land tenure status

- The project is located within the Exploration Licence 5941 (EL5941), 100% owned by BHP.
- EL5941 was successfully renewed in February 2019 within the current five year term, which expires on 21 February 2021, when a subsequent application will be lodged.
- All BHP exploration tenure including EL5941 is in 'good standing' with recent historic minimum expenditure met or exceeded.

Exploration done by other parties

- The project has a long exploration history, dating back to 1976 by Western Mining Corporation and BHP.
- All drilling information prior to 2018 has not been through the same quality control and processes described in this release and uncertainties exist in respect to the survey (dip, azimuth).
- Historic drill holes have been re-sampled using the same methodologies and processes as the 2018 drill holes.

'The information in the report to which this statement is attached that relates to Exploration Results is based on information compiled by Dr Kathy Ehrig, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy (FAusIMM(CP)). Dr Ehrig is a full-time employee of BHP. Dr Ehrig has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. Dr Ehrig consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.'