

**June 2017 Quarterly Report** 

27 July 2017

# New high grade gold zone at Boorara

At the Boorara Gold Project, potentially new high grade quartz vein gold mineralisation associated with faults and visible gold now identified in three drill holes at Crown Jewel (CJ) and Southern Stockwork (SSW) is a new distinctly different style of gold mineralisation from the dolerite hosted quartz vein arrays.

•	<b>BODH 033 (SSW)</b>	452 - 455m	3m	@	4.06 g/t
	Incl	452 - 453m	1m	@	10.25 g/t laminated quartz vein
٠	<b>BORCD 184 (CJ)</b>	200 - 201m	1m	@	105 g/t fault hosted quartz vein
•	<b>BORCD 185 (CJ)</b>	173 - 174m	1m	@	8.33 g/t fault hosted quartz vein

Strong drill results continue at Boorara with gold assay intersections reported in all diamond and reverse circulation drill holes drilled within the dolerite hosted quartz veins:

•	BODH 042 (SSW)	31 - 49m	18m	@	2.46 g/t
		184 - 215	31m	@	3.56 g/t
	Incl	214 - 215	1m	@	68.2 g/t
•	<b>BODH 043 (SSW)</b>	230 - 250m	20m	@	2.58 g/t
	Incl	243 - 248m	5m	@	6.97 g/t
•	BORC 176 (CJ)	42 - 59m	17m	@	1.48 g/t
		70 - 72m	2m	@	3.77 g/t
		107-125m	18m	@	2.1 g/t

- MRP is pleased to announce excellent Gold Recoveries of 89 to 96% has been achieved from test work using ALS Laboratory in Perth.
- The company is confident it will grow Boorara Mineral Resource of 232,000 ounces (0.4 g/t cut).
- Cash balance at 30 June 2017 was A\$2.8m.



### **Boorara Drilling Summary**

MacPhersons Resources Limited (ASX: MRP) is pleased to announce the total number of holes drilled at Boorara is now 35 for 9,811 metres (20 diamond holes (BODH) for 5481 metres, 15 Reverse Circulation (RC) holes for 4330 metres of which seven (7) had diamond tails) since 22nd of January 2017. We believe that we have discovered a significant gold system and a series of drill hole intercepts suggest there is at least two styles of gold mineralisation (refer to discussion on BORCD 184 and BORCD 185).

The Boorara Gold Project is 10 kilometres east of Kalgoorlie, Western Australia. The Boorara Project contains over 1.5 kilometres of gold mineralisation striking north-west at 330 degrees. The project is divided into Southern Stockwork (SSW), Crown Jewel (CJ) and Northern Stockwork (NSW) deposits.

Your company has since confirmed an extension of the Boorara Southern Stock Work deposit at a vertical depth below 200 metres from the surface and some 330 metres along strike.

Located about one kilometre to the North West of BODH 025 and BORC 173 is the historic Cataract Gold Mine (30,000 oz; 1897-1907) that is hosted within the Boorara dolerite. The deposit has two major stope geometries, one striking 040° dipping to the North West and the other striking 330° and dipping near vertical. The significance of these stope geometries is that structural controls on historically mined high-grade gold veins is the same as the NW dipping quartz vein arrays encountered in the current drilling program.

A recent reinterpretation of the geometry of mineralisation at Boorara is due to structural mapping and interpretation of the Boorara gold project. The new Boorara structural geological model has allowed MacPhersons to make a better estimate of the true gold grade and size of the existing Boorara resource based on an interpretation of mineralised NW-dipping quartz vein arrays. From the structural mapping and the quartz veins exposed within the trial pit completed in October 2016, the drill orientation must be 115 degrees.

The ongoing drilling strategy continued to test the geology model and scope out the extent of mineralisation associated with the two styles of gold mineralisation:

- Dolerite hosted NW dipping quartz vein arrays with associated weak to strong pervasive hematite alteration, iron carbonate alteration, with >1% pyrite and >1% arsenopyrite mineralisation, and
- High grade narrow vein gold mineralisation with >1% pyrite and >1% arsenopyrite. A laminated high grade gold quartz vein was previously identified in diamond hole BODH 033 (452-453m) 1m @ 10.25 g/t with visible gold, recent RC holes BORCD 184 (200-201m) 1m @ 105 g/t & BORCD 185 (173-174m) 1m @ 8.33 g/t have both intercepted high grade gold mineralisation that is distinctly different to the quartz vein arrays and appear to be quartz veins associated with faults. This new high grade gold mineralisation is potentially a significant host for future gold mineralisation and will be targeted by future diamond drilling.

The scale of alteration and mineralisation intercepted by drilling to date is typical and indicative of a large-scale gold mineralised system. The iron carbonate alteration and pyrite mineralisation -dolerite host -can be traced for 1.2 km along strike from the current Southern Stockwork drilling to the north at the historical Cataract gold mine workings situated within the Northern Stockwork deposit.

#### **Southern Stockwork Drilling**

During the quarter the focus of drilling has been at SSW continuing to expand the strike and depth extension of gold mineralisation associated with discovery hole BODH 025 163m @ 1.94 g/t (cut). Drilling undertaken during the quarter has resulted in exceptional drill intercepts confirming the Boorara geological model (see figure 7).



# Results from the drilling include:

•	BODH 029	35 - 102m	67m	@	1.07 g/t
		107 - 151m	44m	@	0.83 g/t
		215 - 287m	<b>72</b> m	@	0.96 g/t
•	BODH 030	31- 59m	28m	@	1.59 g/t
		67 - 74m	<b>12</b> m	@	1.06 g/t
		79 - 118m	39m	@	0.78 g/t
		121 - 129m	8m	@	1.12 g/t
		146 - 165m	19m	@	1.23 g/t
•	BODH 031	2 - 11m	9m	@	0.95 g/t
		14 -19m	5m	@	1.96 g/t
		75 - 93m	18m	@	1.54 g/t
	Incl	76 - 77m	1m	@	10.25 g/t
		106 - 109m	3m	@	2.68 g/t
		124 - 126m	2m	@	3.92 g/t
		169 - 198m	29m	@	1.22 g/t
	Incl	171 - 172m	1m	@	10.95 g/t
		201 - 238m	37m	@	1.12 g/t
		246 - 288m	42m	@	1.32 g/t
	Incl	265 - 266m	1m	@	9.84 g/t
	Incl	285 -286m	1m	@	10.05 g/t
•	BODH 032	35 - 65m	30m	@	1.72 g/t
		79 - 86m	7m	@	1.27 g/t
		124 - 133m	9m	@	0.86 g/t
•	BODH 033	336 - 367m	1m	@	2.3 g/t
		452 - 455m	3m	@	4.06 g/t
	Incl	452 - 453m	1m	@	10.25 g/t (visible gold in laminated
qι	ıartz vein)				
•	BODH 034	347 - 356m	9m	@	3.61 g/t
	Incl	352 - 353m	1m	@	21.8 g/t
÷	BODH 035	106 - 117m	11m	@	0.47 g/t
		132 - 138m	6m	@	0.62 g/t



		162 - 167m	4m	@	0.84 g/t
		170 - 177m	7m	@	0.84 g/t
		180 - 203m	<b>22</b> m	@	2.22 g/t
	Incl	190 - 191m	1m	@	13.05 g/t
	BODH 038	36 - 53m	17m	@	1.28 g/t
		57 - 78m	<b>21</b> m	@	1.09 g/t
	Incl.	61 - 62m	1m	@	7.05 g/t
٠	BODH 039	20 - 21m	1m	@	5.35 g/t
٠	BODH 040	85 - 92m	7m	@	1.14 g/t
		104 - 109m	5m	@	3.67 g/t
	Incl.	108 - 109m	1m	@	14.75 g/t
		154 - 176m	22m	@	1.06 g/t
		233 - 249m	16m	@	1.08 g/t
	BODH 041	109 - 113m	4m	@	1.14 g/t
٠	BODH 042	0 - 6m	6m	@	1.85 g/t
		9 - 12m	3m	@	2.33 g/t
		15 - 27m	<b>12</b> m	@	1.23 g/t
		31 - 49m	18m	@	2.46 g/t
		112 - 123m	11m	@	1.55 g/t
		157 - 181m	24m	@	1.26 g/t
		184 - 211m	31m	@	3.56 g/t
	Incl	214 - 215m	1m	@	68.2 g/t
٠	BODH 043	230 - 250m	20m	@	2.58 g/t
		243 - 248m	5m	@	6.97 g/t
٠	BORC 180	0 - 14m	14m	@	1.13 g/t
		99 - 104m	5m	@	2.23 g/t
	Incl.	99 - 100m	1m	@	7.98 g/t
•	BORC 181B	0 - 21m	<b>21</b> m	@	1.39 g/t
٠	BORC 182	12 - 53m	43m	@	1.41 g/t
	Incl.	34 - 35m	1m	@	22.8 g/t
		61 - 76m	15m	@	1.19 g/t



165 - 180m	15m	@	1.29 g/t
230 - 233m	3m	@	1.94 g/t

We have reported up to BODH 043 with assay results of BODH 044-047 all expected by the end of July/early August.

# **Crown Jewel Drilling**

Recently completed RC drill hole BORCD 184 with a HQ diamond tail has intersected significant high grade gold mineralisation in a RC sample from 200 metres downhole: 1 m @ 105 g/t. This intersection and others from recent drilling highlight the potential of the historic Crown Jewel gold mine to be a significant new high grade gold discovery at Boorara. Strike and depth extensions of this high-grade gold intersection will be the future focus of drilling at Crown Jewel.

Significant Crown Jewel composite intersections and drill holes drilled are below:

i.	BODH 036	<b>Drilled in Sediment</b>			
	BORC 176	49 - 52m	17m	@	1.48 g/t
		70 - 72m	2m	@	3.77 g/t
	Incl	70 - 71m	1m	@	5.91 g/t
		91 - 102m	11m	@	0.61 g/t
		107 - 125m	18m	@	2.1 g/t
•	BORCD 177	7 - 59m	<b>52</b> m	@	0.78 g/t
		242 - 260m	18m	@	0.63 g/t
	Incl	242 - 243m	1m	@	3.09 g/t
•	BORC 178	<b>Drilled in Sediment</b>			
•	BORCD 179	335 - 336m	1m	@	4.2 g/t
		344 - 354m	10m	@	6.2 g/t (visible gold)
	Incl	344 - 345m	1m	@	17.85 g/t
	Incl	349 - 350m	1m	@	25.4 g/t
	Incl	350 - 351m	1m	@	10.9 g/t
٠	BORCD 183	0 - 15m	15m	@	0.96 g/t
		41 - 46m	5m	@	1.42 g/t
		186 - 195m	9m	@	0.79 g/t
		209 - 215m	6m	@	0.84 g/t
		237 - 239m	2m	@	4.72 g/t
		281 - 282m	1m	@	3.59 g/t
		319 - 339m	20m	@	1.19 g/t



٠	BORCD 184		56 - 77m	<b>21</b> m	@	0.72 g/t
			200 -201m	1m	@	105 g/t (visible gold)
			201-202m	1m	@	1.78 g/t
٠	BORCD 185		160 - 178m	18m	@	1.00g/t
		Incl	173 - 174m	1m	@	8.33 g/t

#### **Northern Stockwork deposit**

As reported in the December and March quarters, seven RC drill holes (BORC 163-170) were drilled into the newly identified <u>Western Contact</u> confirming this trend as being gold mineralised with a number of reverse circulation holes and three air-core holes intercepting significant gold mineralisation.

There was no further RC drilling in the Western Contact for the June quarter as the focus has been on the Southern Stockwork and Crown Jewel deposits.

The western contact is a lithological contact of the Boorara dolerite and sediments that has a potential strike length of 750 metres. Initial observations of mineralised drill intervals indicate that gold mineralisation is shear zone hosted with associated quartz veining, the true width of mineralisation is unclear at this stage.

A diamond drill hole BODH 037 was drilled at the 115° azimuth in the Northern Stockwork near the western contact to better understand controls on gold mineralisation associated with the Zani Shoot which is part of the historic Cataract Underground Gold Mine. Significant BODH 037 composite intersections are below:

•	BODH 037	59 - <b>71</b> m	<b>12m</b>	@	1.16 g/t
		101 - 104m	3m	@	1.81 g/t
		147 - 150m	3m	@	8.6 g/t
	Incl.	148 - 149m	1m	@	22.1 g/t

#### **Drilling Progress on site**

The Company has contracted the diamond drill rig to continue diamond drilling on the same azimuth 115° and dip-60° to test the strike extent of mineralisation, test the current geology model and scope out the extent of mineralisation associated with the first successful diamond hole BODH 025 (163 metres grading 1.94 g/t cut). The company has commenced BODH 048 and BODH 049 at the Crown Jewel to test for high grade quartz vein gold mineralisation.

#### **Diamond Core Re-logging**

A re-logging program has been undertaken on all MRP Boorara diamond drill hole core and RC drill chips at the Southern Stockwork and Crown Jewel areas. Key outcomes have been previously unrecognised lithological and structural complexity with cross faulting resulting in movement of mineralised ore blocks in the order of 10's of metres horizontally and vertically. Previously unrecognised ultramafic and sediment lithologies have been logged adjacent to the Boorara dolerite. It is expected that future diamond drill holes will enable faulting to be better understood. The Boorara faulting is not dissimilar to that seen at the Mt Charlotte gold mine at Kalgoorlie (see figure



2 below) note the scale the Reward quartz vein array orebody has strike length of approximately 150 metres on the three level. Although the Mt Charlotte orebody has a short strike length it extends vertically for over 1200 metres depth and again faulting has resulted in the orebodies being moved considerable distances (see figure 3 below). The iron enrichment present within the Boorara quartz dolerite provides an oxidised chemical composition favourable to wall rock reaction with reduced gold fluids, this is a well-known host rock setting for major gold deposits in the Eastern Goldfields such as Mt Charlotte (6 Moz) and Darlot-Centenary (3.2 Moz). Reverse fault controlled quartz veins are interpreted for Boorara that is similar to the sub-horizontal quartz veins that are controlled by reverse faults at the Darlot-Centenary gold deposit (3.2 Moz).

During the structural relogging visible gold was observed in most diamond drill holes.

Structural logging and measurements of quartz veins taken from current diamond holes and previous MRP drilled holes has determined three dominant quartz vein geometries (see figure 1 below);

- 1. Striking 020° and dipping 48° west
- 2. Striking 060° and dipping 40° north west
- 3. Striking 100° and dipping 43° north

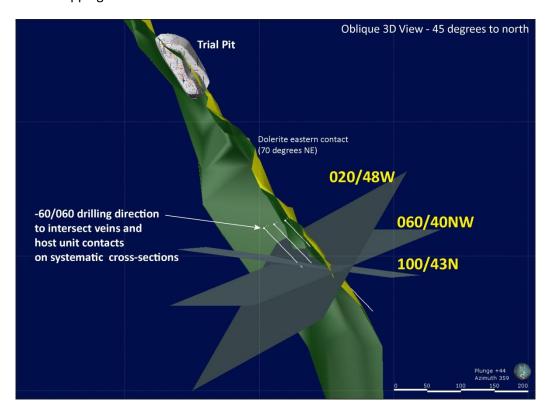


Figure 1: 3D view of Boorara dolerite contact with schematic of 3 dominant quartz vein orientation planes with 060° drill azimuth –quartz planes are for illustration purposes only.

#### **Mt Charlotte History**

The Mt Charlotte mine is located close to the original gold discovery at Kalgoorlie by Paddy Hannan in June 1893 and it is most probable that Hannan's original gold originated from the Mt Charlotte orebody (Haycraft 1979). Mining by open methods at Mt Charlotte from 1893 -1916 produced 71,000 ounces of gold and then mining ceased shortly after reaching the pyritic ores.



It was in 1962 after a detailed evaluation by Western Mining Corporation Ltd (WMC) and its associated company Gold Mines of Kalgoorlie (Australia) Limited that an ore reserve of 2.97 Mt @ 4.9 g/t and a large scale underground mining operation was considered viable (Haycraft 1979). The work in 1962 involved dewatering the mine and structural mapping that identified the three principle sets of veins within the quartz dolerite host. Based on this work it was determined by WMC that to estimate the true grade of the orebody close spaced drilling was required using a drill azimuth of 156.5° to intersect all 3 principle vein sets. This strategy has proved to be the only method of accurately determining the grade of the Mt Charlotte orebody to this day.

It took from discovery of gold near Mt Charlotte in 1893 to 1962 -over 69 years for the Mt Charlotte orebody to be recognised and its gold endowment now is 6 million ounces.

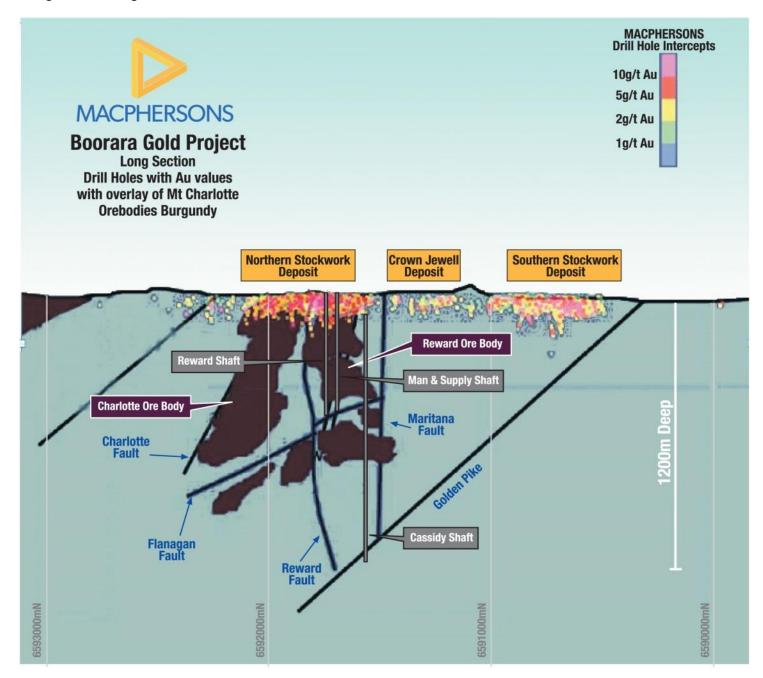


Figure 2: Boorara Project Long Section with current MRP drilling hole values with Mt Charlotte ore bodies in background to illustrate the depth extent of the Mt Charlotte mine compared to strike extent.



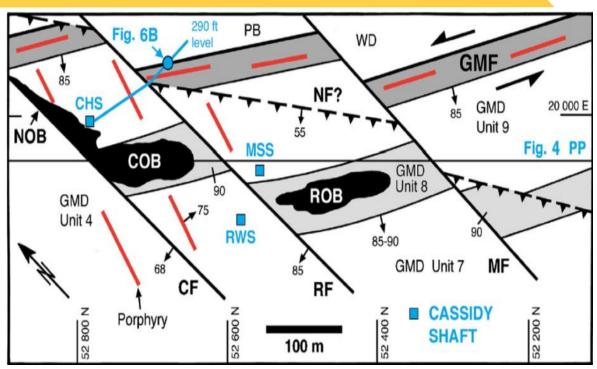


Figure 3: Mt Charlotte 3 level structural plan (Mueller 2015) showing the GMF (Golden Mile Fault) the quartz dolerite host (GMD unit 8), Golden Mile Dolerite (GMD units 4, 7, 8 & 9), Paringa Basalt (PB) and the Williamstown Dolerite (WD). The quartz vein array orebodies are the Charlotte (COB), Reward (ROB) and Northern (NOB). The Cassidy Shaft is shown along with the Charlotte Shaft (CHS), Reward Shaft (RWS) and the Man and Supply Shaft (MSS). Porphyry dykes and shown as red lines. Faults are shown as black lines including the Charlotte Fault (CF), Reward Fault (RF) and Maritana Fault (MF).

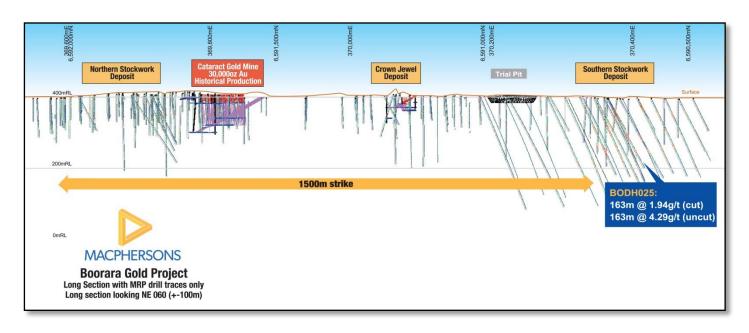


Figure 4: Long section of current Boorara drilling



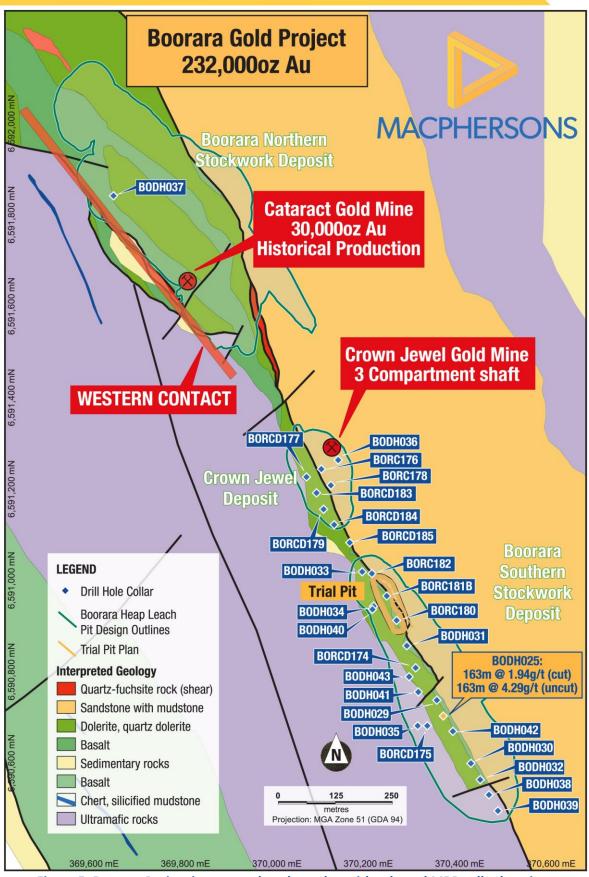


Figure 5: Boorara Project interpreted geology plan with selected MRP collar locations



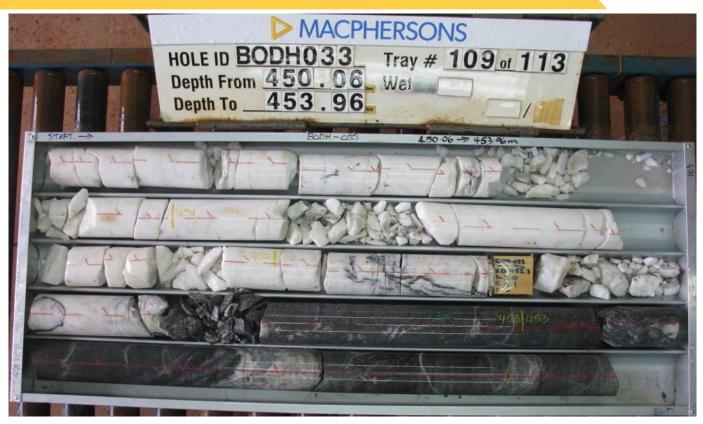


Figure 6: Diamond Drill Core BODH 033 – Laminated Quartz Vein with visible gold 452-453m (10.25 g/t Au)

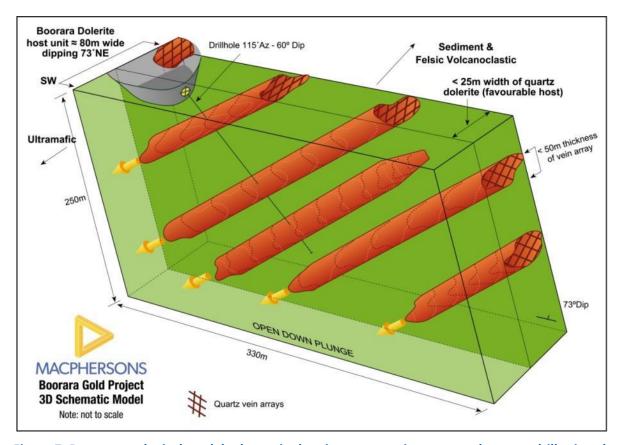


Figure 7: Boorara geological model schematic showing quartz vein arrays and current drill azimuth



## Metallurgical Test Work, Comminution Test Work and Geotechnical Update

CIL metallurgical sighter test work was conducted at ALS Metallurgy Balcatta and resulted in excellent gold recoveries on Boorara oxide, transition and fresh composite samples from Southern Stockwork (SSW), Crown Jewel (CJ) and Northern Stockwork (NSW) deposits with excellent recoveries of up to 99%. The grind size of samples was 80% passing 106 microns.

#### ALS Metallurgy CIL Test Work Recoveries:

Northern Stockwork Fresh Ore	95%
Northern Stockwork Transition Ore	97%
Northern Stockwork Oxide Ore	93%
Crown Jewel Transition Ore	99%
Crown Jewel Oxide Ore	98%
Southern Stockwork Fresh Ore	96%
Southern Stockwork Transition Ore	94%
Southern Stockwork Oxide Ore	98%

Further sighter CIL metallurgical test work has been undertaken on a RC composite fresh ore sample from SSW (BORC 171: 171 -209 metres downhole) at Bureau Veritas Kalgoorlie that resulted in 89% gold recovery. The grind size of the composite sample was 80% passing 75 microns.

Comminution test work was undertaken on Boorara composite samples at ALS Metallurgy last year that indicates Boorara gold ore has very favourable comminution properties potentially resulting in lower crushing costs due to the low wear rates of crushing consumables. The results of the comminution test work are below:

Bond Impact Crushing Work Index (CWI)	Boorara Oxide Composite	1.7 (kWh/t)
	Boorara Transitional Composite	5.8 (kWh/t)
	Boorara Fresh Composite	9.1 (kWh/t)
Unconfined Compressive Strength (UCS)	Boorara Oxide Average	6 (MPa)
	Boorara Transitional Average	73 (MPa)
	Boorara fresh Average	123(MPa)
Bond Abrasion Index (Ai)	Boorara Oxide Composite	0.0301
	Boorara Transitional Composite	0.0899
	Boorara Fresh Composite	0.0957
Bond Ball Mill Work Index (BWI)	Boorara Oxide Composite Boorara Transitional Composite	8.71 (kWh/t) 16.9 (kWh/t)
	Boorara Fresh Composite	17.7 (kWh/t)

Geotechnical studies were completed last year based on the shallow open pit designs at NSW, CJ and SSW and it is intended that further geotechnical work will be undertaken to incorporate potentially deeper pit designs.



#### **Corporate**

#### Cash balance at 30 June 2017 was A\$2.8m

Cash used during the quarter amounted to A\$1.8m, representing mainly payments for exploration drilling at Boorara and administration costs. The cash balance as at 30th June 2017 stood at A\$2.8m. Forecast expenditure for the next quarter is about A\$2.0m. A further and final payment of A\$1.5m from the sale of the Coolgardie gold assets is due on 7 December 2017.

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#### **About MacPhersons**

MacPhersons Resources Ltd (MRP) is a Western Australian resource company with a number of advanced gold, silver and zinc projects.

The company's long term objective is the development of its existing assets and unlocking the full potential of its 100% owned highly prospective Boorara/Nimbus and Coolgardie projects.

For more information on MacPhersons Resources Limited and to subscribe for regular updates, please visit our website at: <a href="https://www.mrpresources.com.au">www.mrpresources.com.au</a> or contact our Kalgoorlie office on <a href="mailto:info@mrpresources.com.au">info@mrpresources.com.au</a> or - 08 9068 1300





#### **Competent Person's Statement**

The information is this report that relates to exploration results is based on information compiled by Andrew Pumphrey who is a Member of the Australian Institute of Geoscientists and is a Member of the Australasian Institute of Mining and Metallurgy. Andrew Pumphrey is a full time employee of Macphersons Resources Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Pumphrey has given his consent to the inclusion in this report of the matters based on the information in the form and context in which it appears.

Full details of results of the Boorara Gold Project drill holes can be found in the below announcements:

ASX Announcement Date	Drill Hole Reference
14 February 2017	BODH 25
1 March 2017	BORC 171, BORC 172, BORC 173
28 March 2017	BORCD 174, BORCD 175, BODH 27, BODH 28
27 April 2017	BODH 29, BODH 30, BODH 31, BODH 32
30 May 2017	BODH 33, BODH 34, BODH 35, BORC 176
3 July 2017	BODH 36, BODH 37, BODH 38, BODH 39, BODH 40, BORDC 177, BORCD 178, BORCD 179, BORCD 180, BORCD 181B, BORDC 182
19 July 2017	BORCD 183, BORC 184, BORCD 185, BODH 41, BODH 42, BODH 43