

#### **Coziron Resources Limited**

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The Company Announcements Office ASX Limited Via E Lodgement

31 January 2019

# QUARTERLY ACTIVITIES REPORT TO

# **31 DECEMBER 2018**

#### Buddadoo Project – West Yilgarn

- Metallurgical studies to determine mass-yield and composition of vanadiferous magnetite concentrates from RC samples are approaching completion.
- Geochemical results from soil and rock-chip sampling generated significant additional results with Edamurta West, Copper Valley and North-trending splays from the Copper Valley structure requiring follow-up for gold and/or copper mineralisation.
- Edamurta West hosts a 1.2km long geochemical anomaly with soils reporting gold (Au) to 200ppb, arsenic (As) to 100 ppm and elevated antinomy (Sb). The prospect overlies a magnetic feature against the eastern margin of the regional-scale Salt Creek Shear-zone and is along strike from the Deflector Gold Mine operated by Doray Minerals Limited.
- Copper Valley is part of a 500m wide, NW-trending structural corridor that extends towards the Deflector Gold Mine with soils anomalous in copper (Cu) and rock-chips reporting copper (Cu) to 15.2% and gold (Au) to 0.6 g/t along a 5km interval.
- Rock-chips along North-trending splays from the Copper Valley structure report gold (Au) to 1.2g/t and tungsten (W) to 4.5%.

### Croydon Top Camp Project (CTCP) – North Pilbara

• High-resolution magnetic and radiometric survey over the entire Croydon Top-Camp Project provides significant new information to interpret bedrock geology and the structural setting of mineralised prospects beneath alluvial and colluvial detritus.



- Rock chip results from the newly named Martin Prospect report copper (Cu) to 12%, gold (Au) to 2g/t, silver (Ag) to 118g/t, zinc (Zn) to 6%, cobalt (Co) to 0.34% and anomalous tin (Sn) and indium (In). This prospect is now drill-ready.
- Auger re-assay results from the Top Camp Prospect include gold (Au) to 25g/t Au, soils with gold (Au) to 5g/t and rock-chips with gold (Au) to 2.5 g/t. The infill results identify priority targets for drilling, while samples extending from the gridded area have identified new zones of gold, arsenic and antinomy anomalism for follow up work.
- Bottom Camp Prospect has first-pass soils reporting gold (Au) to 78 ppb and rock-chips with gold (Au) to 225 ppb. The results outline an area anomalous in arsenic (As) and antinomy (Sb) that requires infill and extensional sampling.

# **Project Summaries**

Coziron Resources is advancing exploration on five projects, but the focus of activities this quarter has been the Buddadoo Project in the mid-west region of Western Australia and the Croydon Top Camp Project in the Pilbara. Details of each project and a summary of the activities and results obtained are presented in the sections below.

#### **Buddadoo Project – Murchison Province**

The 192 km<sup>2</sup> Buddadoo Project (E59/1350), which covers part of the Gullewa Greenstone Belt (Fig 1). The tenement contains gabbroic rocks that are mineralised with bands of massive and disseminated vanadiferous titanomagnetite and there is widespread prospectivity for gold and copper mineralisation (Fig 1). The project is located about 200 km east of Geraldton Port and 60 km from a rail siding at Morawa that connects to Geraldton. The most advanced prospects on the tenement are accessible using a bitumen-road between the towns of Morawa and Yalgoo, then a road with a made surface for about 10km, and 5 km of station tracks.

The Company is currently focussed on exploring the gabbro-hosted vanadium-magnetite in the Buddadoo Hills. In early 2018, a first round of RC drilling was completed and reported geological and geochemical results from 28 holes for a total of 2795 m (full details to the CZR:ASX on 28<sup>th</sup> Feb 2018, 21<sup>st</sup> March 2018 and 5<sup>th</sup> April 2018). The holes were drilled across two targets. Ten holes inclined at - 60 to 250, each to a depth of 200 m were located on four cross-sections to sample the geology underlying a 350 m wide high-order magnetic anomaly with outcropping bands of coarse grained, massive and disseminated vanadiferous titanomagnetite mineralisation now attributed to Budd\_Gabbro\_04 (Fig 1). Eighteen holes, inclined -60 to 070°, each to a depth of 100 m were located on three cross-sections to sample the geology underlying two second-order magnetic structures reported vanadiferous magnetite mineralisation in a suite of mafic and felsic gneisses (Fig 1). In the later part of 2018 (CZR:ASX on 22/8/2018 and 19/11/2018), CZR spear-sampled residual bags stored onsite from BUDRC027 and the 52-74 m interval of BUDRC013 for a metallurgical programme (Fig 1). The work to determine mass-yield and concentrate quality is progressing and results will be reported as they become available.

During the quarter, the Company completed the fieldwork programme as outlined by CZR:ASX on 22/8/2018 with some results reported by CZR:ASX on 19/11/2018. The follow-up soil and rock-chip sampling was undertaken over targets with the potential to be associated with copper and gold mineralisation in response to the emergence of the Deflector Gold Mine operated by Doray Minerals to the west of Buddadoo emerging as a +1 Moz high-grade gold deposit.



In-fill and extensional sampling was completed at Edamurta West which is located approximately 10 km north-east of the Deflector Gold Mine and covers the extension of a highly magnetic interval in the Gullewa Greenstone Belt against the eastern margin of the north-trending Salt Creek Shear Zone. Results from the E-W lines spaced 200m apart and sample on intervals of either 20 or 40 m outlined anomalism in gold (Au) to 200ppb, arsenic (As) to 100 ppm and anomalous antinomy. The anomaly extends over a distance of about 1.2 km and is open to the north and south (Fig 3). The next stage of work will include the extension of the soil sample grid to cover more of the magnetic target and some first-stage, gridded air-core or RC drilling to sample the underlying rocks for geochemistry and evidence of mineralisation.

Copper Valley at the southern end of the Buddadoo tenement has historical occurrences of copper mineralisation that are located towards the eastern end of a 500 m wide NW-trending regional structure (Fig 2). Recent rock chips collected at intervals where mineralisation was detected along a strike length of about 5 km report assays of copper (Cu) to 15.2% and gold (Au) to 0.6g/t (Table 1). The western extension of the Copper Valley structure remains to be sampled and the eastern extension represents a drill-ready-target to obtain bed-rock samples. In addition, mapping of the Buddadoo Hills has shown that the 200-500m wide gabbro with the coarse-grained, bands of massive and disseminated vanadiferous magnetite is hosted by a suite of felsic and mafic schists and gneisses with greenstone affinities. This has increased the prospectivity on the southern portion of the tenement for gold and copper mineralisation.

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Sample Number	Easting	Northing	Au ppb	Au	Ag	As	Bi	Cu %	Te	W
	Z50 GDA	Z50 GDA		rpt	ppm	ppm	ppm		ppm	ppm
Copper Valley										
AE2018-009	449498	6821997	598	470	18.4	1.2	15.6	11.4	22.4	15.5
AE2018-010	449498	6821972	267	252	68.4	1	21.5	15.2	16.4	3.5
AE2018-011	451134	6822002	193		6	0.4	9.38	2.64	4.8	1.5
PK2018-014	451648	6820852	8		1.4	15.2	5.06	3.48	0.6	3.9
PK2018-015	451640	6820844	5		2.1	-0.2	8.38	10.4	1.4	0.3
PK2018-016	451642	6820834	-1		24.7	5.6	19.4	9.41	3.6	0.6
PK2018-017	451646	6820799	1		0.4	3.2	1.36	5.72	0.4	21.5
PK2018-018	451650	6820809	12		0.8	0.8	6.34	3.69	2.4	16.4
PK2018-019	451643	6820831	1		0.9	-0.2	13.3	6.24	1	1
PK2018-020	451600	6820888	21		0.8	-0.2	10.9	8.51	1.4	4.65
PK2018-021	451587	6820900	10		2.6	3	6.62	5.39	1.6	5.5
PK2018-024	449509	6822000	155		18.4	1	23.8	6.03	22.4	2
RR2018-007	449752	6821996	314	343	4.2	2.8	12.1	5.67	12.4	116
Buddadoo Hills										
PK2018-003	449653	6824220	-1		-0.1	1.6	21.5	-0.01	-0.2	15900
PK2018-010	449625	6824235	1160		0.7	3.2	1510	-0.01	157	45500
PK2018-032	449860	6823818	-1		-0.1	1.4	8.16	-0.01	-0.2	18700

Table 1 Rock-chip samples from Copper Valley with copper (Cu) greater than 1% and Buddadoo Hills with tungsten (W) greater than 1% (full assay details are reported ASX:CZR 19/11/2018).

Within the newly defined area of "greenstone" there are NNW-trending splays from the Copper Valley area that pass along the eastern side of the Buddadoo Hills and are sometimes covered by alluvial and colluvial material. At those sites where sampling is regarded as being an effective reflection of the bedrock, the soils show anomalism in pathfinder elements for gold mineralisation that includes arsenic, tungsten and molybdenum. Follow-up rock-chips from areas with tungsten anomalism in soils of 50 to 500 ppm on the eastern flank of the Buddadoo Hills have now reported gold to 1.2 g/t and tungsten to 4.5% (Table 1). The magnetic data suggests that broader zones of



structural disturbance are present beneath detrital cover to the east of the Buddadoo Hills and follow-up work is being planned.



Fig 1 Location of the completed 2018 RC drill-holes with yellow triangles intersecting bands of massive and disseminated vanadiferous titanomagnetite in gabbro (Budd\_Gabbro\_04) and green triangles in the area of Budd\_Gabbro\_06 reporting vanadiferous magnetite in a mafic and felsic gneiss sequence overlain on high resolution Quickbird satellite imagery.





Figure 2. Location and main exploration prospects for the Buddadoo Project (E59/1350 and E59/2349 under application) on the Geological Survey of Western Australia summary map of the regional geology.





Figure 3. Edamurta West soil sample locations with gold by fire-assay in ppb overlain on the total magnetic intensity.

### Croydon Top-Camp Project (CTTP) – Pilbara

CZR is acquiring from Creasy Group a 70% interest in the 317 km<sup>2</sup> Croydon Top-Camp project (CTTP) located about 100km south-east of Karratha in the Pilbara (CTCP, E45/2150). The tenement is subdivided into three blocks that cover a crustal-scale north-east trending fault-system which separates granitic rocks of the Pilbara Craton from deformed, metasedimentary rocks of the De Grey Superbasin (Fig 3). These rocks are then overlain in parts by a significantly younger suite of conglomeratic sediments and volcanics of the Fortescue Group.

The eastern block of the tenement, that includes coverage of granitic rocks, has reported occurrences of gold, copper and cobalt that require follow-up. The western block of the tenement has a long history of gold prospecting and small-scale mining activity centred on the Top Camp Prospect within a 100 km<sup>2</sup> area of the Constantine Sandstone in the De Grey Basin. The region has widespread areas with significant soil disturbance from prospector activity that continue to report gold particles with morphological features ascribed to a primary lode-style origin (CZR:ASX 20<sup>th</sup> September 2018). The region has also in part been more systematically sampled using soils, rock-chip and auger methods with geochemical results reported annually to the Geological Survey of



Western Australia (described in detail CZR:ASX on 24-May-2018). The compilation of historical and current results is being used to outline priority prospects and plan future fieldwork activities.

During the Quarter, CZR acquired a detailed airborne magnetic and radiometric survey from MagSpec Airborne Surveys Ltd and completed the comprehensive re-assay of 187 auger-pulps on six cross-sections and a field visit to CTTP with results fully reported CZR:ASX 10/10/2018 and 6/12/2018. Initial processing of the aero-magnetic data outlines a structural framework and highlights the contrast between weakly magnetic sedimentary rocks in the Mallina Basin and the more magnetic granitic rocks and their extent under the extensive sheets of thin colluvial and alluvial cover in the centre of the project area (Fig 4). The high-resolution data-set provides new information on the setting and responses from areas with mineralisation and was used in the field to select the orientation of soil sample lines (Fig 4).

On the eastern portion of CTTP, work focussed on the Martin Prospect which has two shallow historical pits into an iron-oxide rich gossan that has traces of secondary copper minerals. The gossan is hosted by a unit of schistose and equigranular mafic rocks that are in parts anomalous with chromium and nickel. Rock-chips from the gossan report copper (Cu) to 12%, gold (Au) to 2g/t, zinc (Zn) to 6%, cobalt (Co) to 0.34%, tin (Sn) to 0.1% and are anomalous in indium (Table 1). Soil sampling shows that the gossan is located within a zone at least 40m wide in the mafic rocks, where copper (Cu) ranges 500 to 1000 ppm and zinc (Zn) from 400 to 3000 ppm against a background of copper and zinc at less than 100ppm (Fig 5).

Sample	Easting	Northing	Au g/t	Ag g/t	Cu%	Zn%	Co%	Sn ppm	In ppm
No									
PK2018-									
036	594,566	7,666,647	1.03	118	10.9	6.03	0.34	1780	14.6
PK2018-									
038	594,577	7,666,643	0.704	8.8	7.02	1.3	0.03	199	19.9
PK2018-									
039	594,586	7,666,643	0.51	21.2	0.36	0.58	0.12	231	15.8
PK2018-									
042	594,583	7,666,637	2.78	30.8	11.6	7.36	0.24	537	25.7

Table 1. Rock-chip samples from the ferruginous gossan and adjacent mafic schists on the Martin Prospect (fully reported CZR:ASX 6/12/2018).

Eastings and Northings are GDA94 zone 50.

On the western block of the tenement, the Top-Camp Prospect is hosted by carbonate-rich sediments of the Mallina Formation in the De Grey Basin. These are tightly folded but only weakly metamorphosed. Soil and rock-chip sampling focussed on infilling and extending from a 20m by 20m auger grid completed by Creasy Group in 2012 from which 182 samples were re-assayed and reported by CZR to ASX on 10<sup>th</sup> of October 2018. The maximum reported gold (Au) result was 25g/t.

An additional 62 gridded soil samples were collected to cover three small hills within the augerpattern are these all report anomalous geochemistry with gold (Au) to 1.08g/t, arsenic (As) typically 50 to 200 ppm, and antinomy (Sb) from 20 to 50 ppm. Rock-chips from historical workings on the hills report gold (Au to 2.5g/t, arsenic (As) to 80 ppm and antinomy (Sb) to 30 ppm (Table 2). A further 24 soil samples collected along an access track to the south and west of the auger-grid provided additional data on the pathfinder element distribution. These report gold (Au) to 5.03g/t and demonstrate that the soil anomalism in arsenic (As>10ppm) and detectable antinomy is more widespread than historical exploration results indicate (Fig 6).



The new assays highlight areas in the core of the auger-grid as being ready for an initial RC drilling programme to delineate the subsurface rock-types and down-hole geochemistry. There are also new targets emerging distal to the core of the auger-grid that have the potential to host zones of mineralisation and these areas require infill and extensional soil and rock-chip sampling.

Table 2 Rock-chips from veins and breccias within the core of the Top Camp Prospect (fully reported CZR:ASX 6/12/2018).

Sample No	Easting	Northing	Au g/t	As ppm	Sb ppm
AE2018-015	569,739	7,658,559	2.5	78.2	29.9
PK2018-046	569,741	7,658,562	1.6	61.8	7.8

Eastings and Northings are GDA94 zone 50.

Also located on the western block of the CTTP, the Bottom Camp prospect covers a portion of the Mallina Formation with carbonate-rich rocks in the De Grey Basin. First pass soil and rock-chip sampling was completed across a ridge with pits and costeans between drainages that show extensive evidence of artisanal mining activity. The assay results outline a soil-anomaly with gold (Au) to 78 ppb (Fig 7), copper (Cu) to 200 ppm, arsenic (As) from 150 to 400 ppm and antinomy (Sb) from 50 to 100 ppm. A rock-chip sample from a quartz vein reports gold (Au) at 0.2g/t, arsenic (As) at 24 ppm and antinomy at 22 ppm, while a brecciated zone in the Mallina Formation reports gold (Au) at 76 ppb, copper (Cu) at 0.13%, arsenic (As) at 450 ppm and antinomy (Sb) at 600 ppm (Table 3). The next phase of work will infill and extend the gridded zone with a focus on outlining the most prospective zones for drilling.

Table 3 Rock-chips from veins and breccias within the core of the Bottom Camp Prospect

Sample No	Easting	Northing	Au ppb	As ppm	Cu ppm	Sb ppm
AE2018-013	573,223	7,663,140	76	399	1,130	599
PK2018-045	573,354	7,663,352	213	24.2	10	22.2

Eastings and Northings are GDA94 zone 50.





Fig 4. Simplified geology of the Croydon Top Camp Project overlain onto the recently acquired image of total magnetic intensity.





Fig 5. Distribution of copper (Cu) in soil from the first-pass orientation sampling over the mafic rocks hosting the Martin copper-zinc gossan overlain on the ESRI satellite imagery.





Fig 6. Gold (Au) results from re-assayed auger samples and new soil samples from the Top Camp Prospect overlain onto the ESRI satellite imagery highlighting the lighter coloured, carbonate-rich sediments from the Mallina Formation in the DeGrey Basin.





Fig 7. Gold (Au) assays from the 2018 soil samples on the Bottom Camp Prospect overlain onto the ESRI satellite imagery of the Mallina Formation in the DeGrey Basin.

#### Yarraloola Project – West Pilbara

Yarraloola is CZR's most advanced iron-ore project, located about 100km southwest of Karratha and covers an area of 896km<sup>2</sup>. The tenements include JORC-compliant resources in the Robe Mesa, Robe East Extension and P529 channel iron deposits. It also hosts a new style of volcanic-hosted magnetite mineralisation that has been previously drilled by the Company (Fig 8).

No field activities have been undertaken during the Quarter.

### Shepherds Well Project – West Pilbara

Shepherds Well (E08/2361), in the West of the Pilbara, is located about 60km south-west of Karratha. The project covers an area that is 25-50km from a new proposed public access port at Cape Preston East, serviced by tracks from the Great Northern Highway and is crossed in part by an easement for the proposed West Pilbara railway. The region has a basement of basaltic, felsic and metasedimentary rocks that are unconformably overlain by predominantly mafic volcanics from the Fortescue Group and sediments of the Hamersley Basin. Programmes of soil and rock-chip sampling and mapping have identified nickel (Ni), copper (Cu) and gold (Au) anomalism associated with an outcrop of talc-carbonate rock at Dorper Rise and lead (Pb), zinc (Zn) and silver (Ag) associated with



a linear magnetic anomaly at Suffolk Ridge. In addition, where soil and drainage samples have been collected near the base of the Fortescue Basalt, they typically report anomalous gold.

No fieldwork was undertaken during the Quarter.

#### Yarrie Project – North Pilbara

The Yarrie Project consists of six granted exploration licences (E45/3725, E45/3728, E45/4065, E45/4433, E45/4604, and E45/4605) that cover a total of 419km<sup>2</sup>, about 160km east of Port Hedland. Yarrie is serviced by bitumen and gravel roads and a natural gas pipeline between Pt Hedland and the Telfer copper-gold mine. The BHPB-owned rail connection between the Yarrie mining area and Port Hedland also services this area.

The Yarrie tenements have the potential to host high-grade (+62% Fe) iron-ore deposits within the magnetically active Archaean-age Nimingarra Iron Formation. Historical RC drill intercepts with Fe greater than 62% from the Cabbage Tree and Kennedy Gap prospects require follow-up. There is also the potential for gold and base-metals associated with the strongly deformed, mixed mafic to ultramafic volcanic rocks that have interbedded metasediments in the Pilbara basement. In addition, E45/3278 covers a portion of the basal interval of the Fortescue Group that is prospective for gold in conglomerate.

No fieldwork was undertaken during the Quarter.





Fig 8. Location of Robe Mesa and P529 CID deposits and the Ashburton magnetite project on tenement coverage and traces of the major iron-formations from the Yarraloola Project, West Pilbara of Western Australia.



# ABOUT COZIRON RESOURCES LIMITED

Coziron Resources Limited has exploration focussed on the Yarraloola (853km<sup>2</sup>), Shepherd Well (193km<sup>2</sup>), Croydon Top-Camp (317 km<sup>2</sup>) and Yarrie (357.5km<sup>2</sup>) Projects in the Pilbara region and Buddadoo (210km<sup>2</sup>) Project in the Yilgarn region of Western Australia.

For further information please contact Adam Sierakowski or Rob Ramsay on 08 6211 5099.

#### COMPETENT PERSONS STATEMENT

The information in this report that relates to mineral resources and exploration results is based on information compiled by Rob Ramsay (BSc Hons, MSc, PhD) who is a Member of the Australian Institute of Geoscientists. Rob Ramsay is a full-time Consultant Geologist for Coziron 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". Rob Ramsay 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.



Project	Location	Tenement Number	Economic Entity's Interest at Quarter End	Change in Economic Entity's Interest During Quarter
Yarraloola	West Pilbara, WA	E08/1060	85%	No Change
Yarraloola	West Pilbara, WA	E08/1684	85%	No Change
Yarraloola	West Pilbara, WA	E08/1685	85%	No Change
Yarraloola	West Pilbara, WA	E08/1686	85%	No Change
Yarraloola	West Pilbara, WA	E08/1824	85%	No Change
Yarraloola	West Pilbara, WA	E08/1825	85%	No Change
Yarraloola	West Pilbara, WA	E08/1826	85%	No Change
Yarraloola	West Pilbara, WA	E08/2408	100%	No Change
Yarraloola	West Pilbara, WA	P08/529	85%	No Change
Yarraloola	West Pilbara, WA	P08/666	100%	No Change
Yarraloola	West Pilbara, WA	P08/669	100%	No Change
Shepherds Well	West Pilbara, WA	E08/2361	70%	No Change
Yarrie	East Pilbara, WA	E45/3725	70%	No Change
Yarrie	East Pilbara, WA	E45/3728	70%	No Change
Yarrie	East Pilbara, WA	E45/4065	70%	No Change
Yarrie	East Pilbara, WA	E45/4604	70%	No Change
Yarrie	East Pilbara, WA	E45/4605	70%	No Change
Yarrie	East Pilbara, WA	E45/4433	100%	No change
			-	
Buddadoo	Mid-west, WA	E59/1350	85%	No Change

# Coziron Resources Ltd – Changes to the Tenement Schedule in the past Quarter

Buddadoo	Mid-west, WA	E59/1350	85%	No Change
Buddadoo	Mid-west, WA	E59/2349	85%	Application made