

Air Core Drilling Enhances Manganese and Copper Prospectivity at Borroloola West Project

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CORPORATE DIRECTORY

Managing Director

Simon Noon

Non-Executive Directors

Richard Monti - Chairman

Andrew Parker

Peter Harold

Company Secretary

Joshua Ward

Registered office

Level 10, 553 Hay St

Perth WA 6000

Telephone:

+61 8 6266 8642

Facsimile:

+61 8 9421 1008

Website:

www.pacificominerals.com.au

Email:

info@pacificominerals.com.au

Highlights

- 13 air core drill holes totalling 676m completed
- Drill holes at EL26939 extends copper mineralisation approximately 800m north of known mineralisation
- Geochemical analysis of five holes drilled on EL26939 contained intervals anomalous in copper
- Age determinations on manganese-bearing samples indicate an age of deposition similar to the world-class manganese deposit mined at near-by Groote Eylandt.
- Geochemical analysis of samples confirm the widespread distribution of anomalous manganese

Pacifico Minerals Limited (“**Pacifico**” or “Company”) (ASX: PMY) is pleased to provide the results of the first pass air core drilling at the Borroloola West Project (“Borroloola”) in the Northern Territory.

Stratigraphic Drilling

In September 2013, a 13 hole air core drilling program was completed on the Borroloola tenements (Appendix A, Figure 1). This program of shallow drill holes (less than 100m) was primarily aimed at establishing the age and depositional environment of known manganese-bearing marine sediments, primarily in the northern block of tenements (EL’s 26587, 26837 and 26939). Geochemical analysis of samples taken from these holes was also designed to better understand the distribution of anomalous manganese in these sediments as well as test for the presence of anomalous copper in underlying basement rocks.

A total of 676m was drilled, ranged in depth from 27 to 84m, and intersected up to 71m of pre-Proterozoic cover. The drill holes typically intersected pisolitic laterite, in upper parts, grading down to largely unconsolidated clays, silts and sands which in turn overlie moderate to well indurated sandstones and quartzites believed to be of Mid-Proterozoic age (~1800-1620Ma).

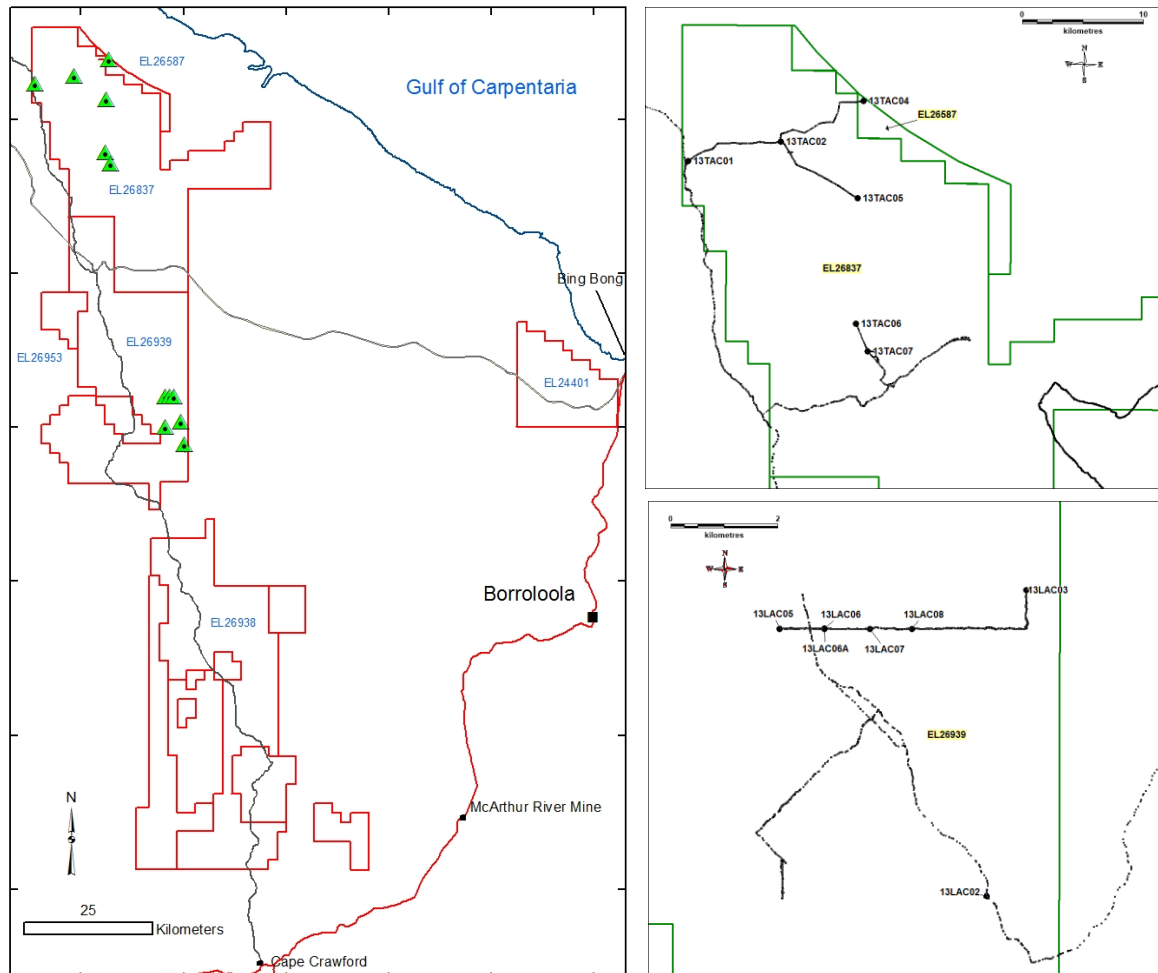


Figure 1: Map showing the location of air core drill holes completed in 2013

Age Determinations

Micropalaeontological age determinations of samples from all areas drilled confirmed the sediments present were of Albian age (100-113Ma) and that they were probably deposited in a shallow (less than 60 m deep), near-shore marine environment with restricted circulation and low rates of sedimentation. The laboratory also reports the widespread occurrence of the mineral glauconite, an iron potassium phyllosilicate mineral that typically is formed in shallow water marine environments and particularly with slow rates of deposition – an environment (and mineral) frequently associated with large stratiform manganese deposits, worldwide. **These results are significant in that the interpreted age and depositional environment are similar to those found at Groote Eylandt and therefore greatly enhance the prospectivity of the tenements to host economic accumulations of manganese.**

Geochemistry

Preliminary analysis of drill-hole geochemistry from northern tenements, ELs 26587 and 26837, indicates that manganese concentrations in cover sediments ranges from 88 to 42,600 ppm (0.008% to 4.26%Mn) (Figure 2, Appendix B). The highest in-hole value of 4.26%Mn occurred at a depth of 49m in hole 13TAC04 located on EL26587 at the far northern end of the tenement block within the Towns Prospect and adjacent to Aboriginal freehold land covered by ELA26599 (Figure 1). Hole 13TAC04 contained anomalous manganese over a 10m interval (43-53m) averaging 1.77%Mn. All of the remaining holes with the exception of 13TAC05, sampled from these northern tenements intersected anomalous Mn with the maximum value of 1.26%Mn recorded from 48-49m in 13TAC01.

Of the eight holes planned on tenement EL26939, seven were drilled at six sites for a total of 301m (Figure. 1; Appendix B). One hole, 13LAC06, was twinned after the first attempt was abandoned at 27m depth. Access issues prevented drilling at the remaining two sites (13LAC1 & 13LAC4). Hole depths ranged from 33 to 61m and cover thickness ranged up to almost 40m thick. Typically, holes intersected unconsolidated sands and clays overlying Proterozoic sandstones and siltstones. The preliminary analysis of results from samples collected from this tenement show manganese is present in anomalous concentrations in two of the six holes analysed. The highest manganese value at 1.28%Mn was recorded from 13LAC05 at a depth of 45m. Manganese concentrations up to a peak of 0.55%Mn at a depth of 42m in 13LAC02, indicates deposition of anomalously high manganese over a strike length of at least 6km.

Five of the six holes analysed on EL26939 contained intervals anomalous in copper (Appendix B). The highest copper value at 2870ppm (51-52m) was recorded from 13LAC05 in the northern part of the tenement (Figure 3). With holes located at least 1.5km from previous Sandfire drilling these results suggest a continuation of prospective ground both the north and south of recent activity. Previous drilling by Sandfire outlined a Cu anomalous zone at least 3.5km x 1.5km and intersections including 7m @ 1.74%Cu.

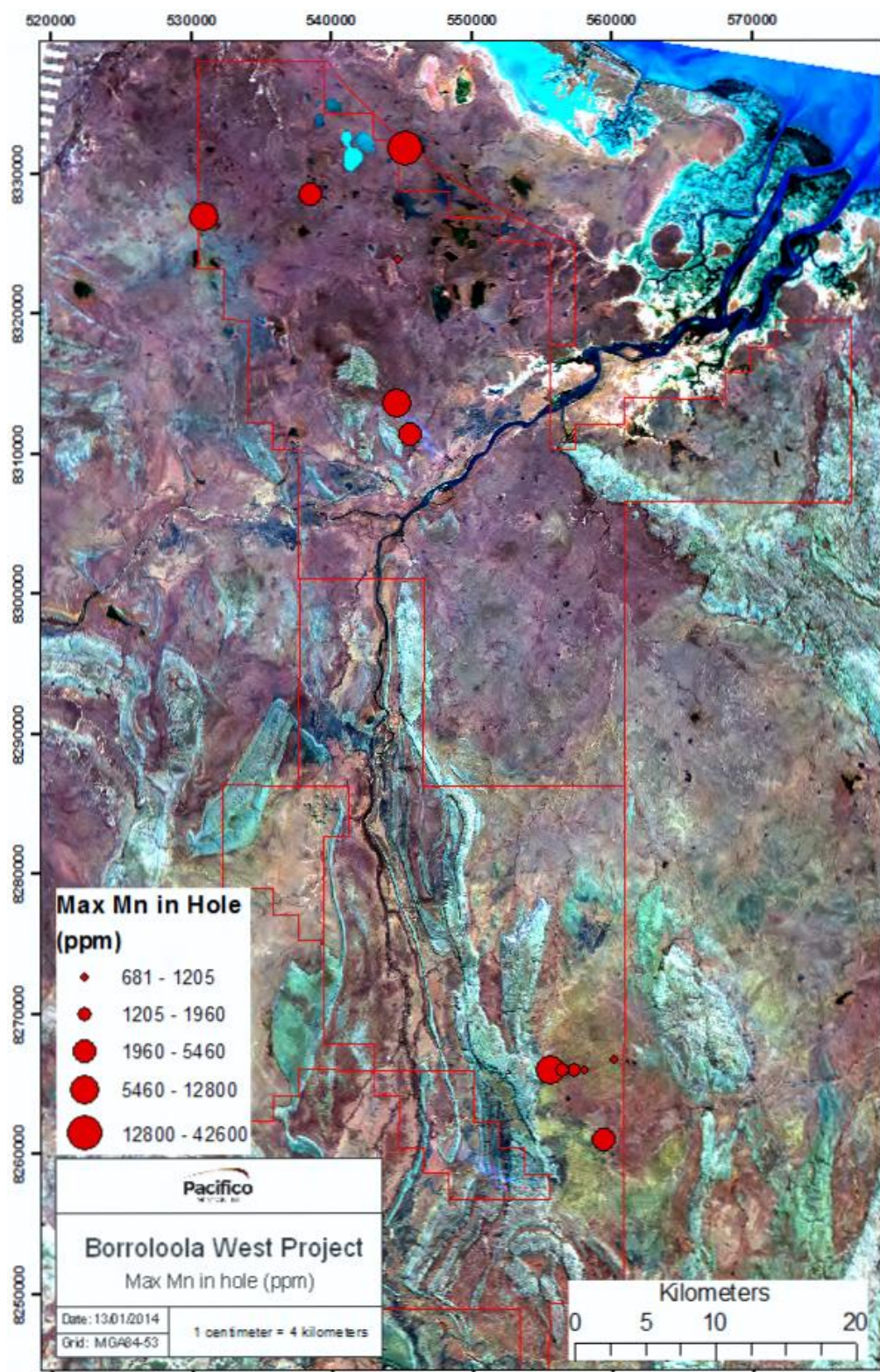


Figure 2: Maximum manganese (Mn) in air core holes over Landsat imagery

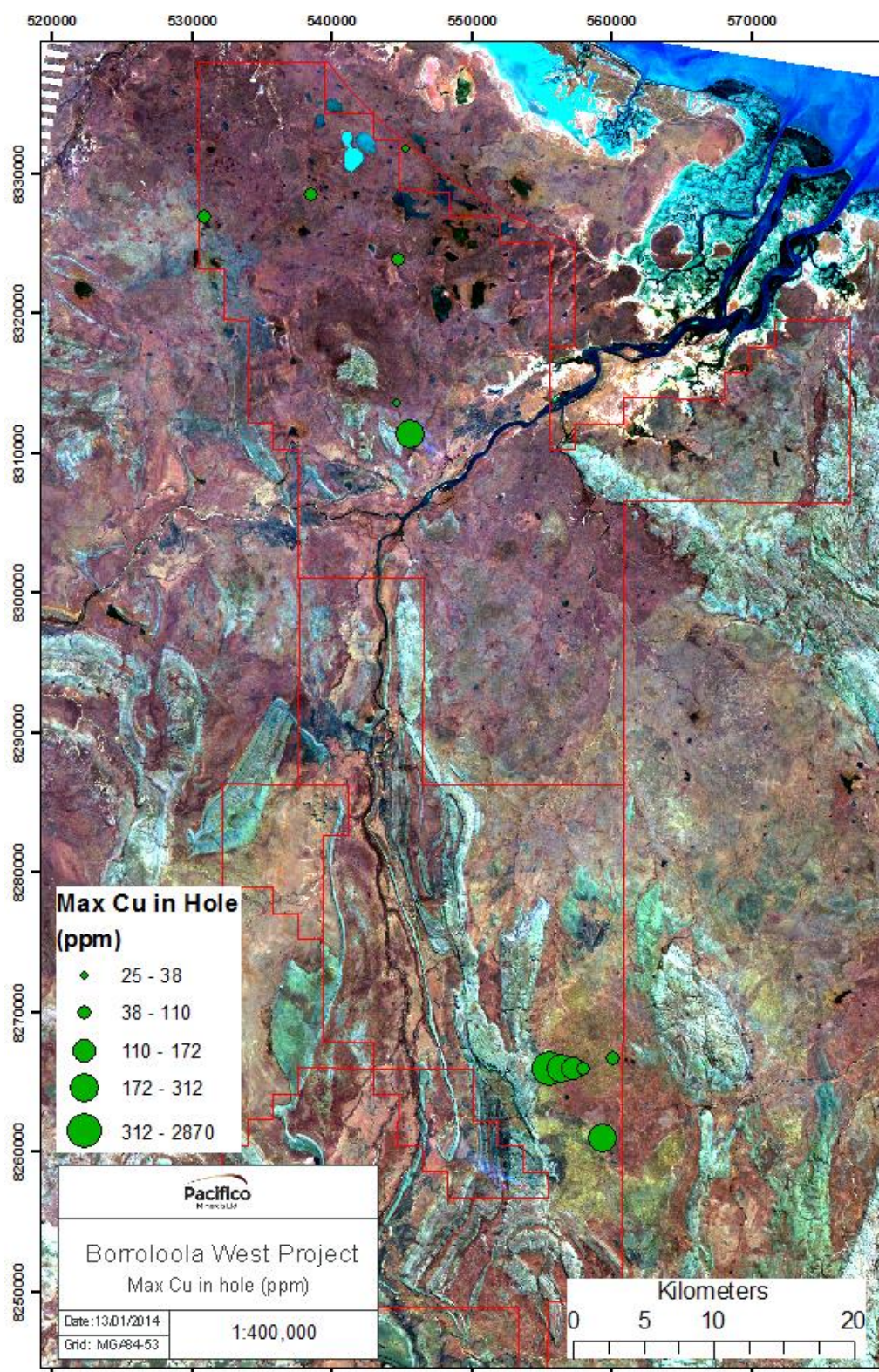


Figure 3: Maximum copper (Cu) in air core holes over Landsat imagery

About Borroloola West Project

The Borroloola West Project is a large greenfields exploration opportunity seeking world-class SEDEX copper and zinc-lead-silver deposits and large, high grade sediment-hosted manganese ores similar to those found on nearby Groote Eylandt. The project is located in the McArthur Basin, the northern extension of the Mt Isa Basin and host to several world-class SEDEX deposits including the Western Fold Belt copper deposits at Mt Isa and the HYC zinc-lead-silver deposits currently being mined at the McArthur River Mine just 80 km southeast of the project area. The project covers 3,838 km² involving 13 granted exploration tenements and one mining licence in East Arnhem Land of NT, 600 km SE of Darwin (Figure 1).

For further information please contact:

Simon Noon – Managing Director: +61 08 6266 8642

Competent Person Statement

The information in this announcement that relates to the Borroloola West Project is based on information compiled by Mr Barrie Bolton, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Bolton is a consultant to Pacifico Minerals Limited. Mr Bolton 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 Bolton consents to the inclusion in this announcement of the matters based on information in the form and context in which it appears.

Appendix A: Drill-hole Collar Details

Hole ID	Collar E	Collar N	Grid ID	RL (m)	Azimuth	Dip	Depth (m)
13TAC01	530934	8326890	MGA94_53	25	0	-90	50
13TAC02	538477	8328480	MGA94_53	31	0	-90	53
13TAC04	545254	8331780	MGA94_53	23	0	-90	53
13TAC05	544784	8323846	MGA94_53	26	0	-90	58
13TAC06	544635	8313602	MGA94_53	40	0	-90	77
13TAC07	545612	8311333	MGA94_53	32	0	-90	84
13LAC02	559374	8261014	MGA94_53	110	0	-90	46
13LAC03	560102	8266716	MGA94_53	130	0	-90	61
13LAC05	555538	8265996	MGA94_53	142	0	-90	56
13LAC06	556378	8265999	MGA94_53	137	0	-90	27
13LAC06A	556375	8266001	MGA94_53	137	0	-90	33
13LAC07	557211	8265992	MGA94_53	131	0	-90	43
13LAC08	557993	8265993	MGA94_53	138	0	-90	35

APPENDIX B: Assay Data – Manganese greater than 1000 ppm

Drill Hole	From (m)	To (m)	Sample Width (m)	Manganese Grade (ppm)
13TAC01	39	40	1	3470
	48	49	1	12650
	49	50	1	12150
13TAC02	5	6	1	1945
	14	15	1	1230
	15	16	1	1665
	27	28	1	3600
	28	29	1	3910
	29	30	1	3050
	30	31	1	2760
	31	32	1	2590
	32	33	1	2720
	33	34	1	3510
	34	35	1	2650
	35	36	1	2280
	36	37	1	3460
	37	38	1	2590
	38	39	1	2280
	39	40	1	2100
	40	41	1	4520
	41	42	1	1740
	42	43	1	2990
	43	44	1	1180
	46	47	1	1335
	48	49	1	1305
	49	50	1	1100
	50	51	1	2020
13TAC04	43	44	1	1795
	44	45	1	2320
	45	46	1	26300
	46	47	1	23100
	47	48	1	13700
	48	49	1	20400
	49	50	1	42600
	50	51	1	17050
	51	52	1	16050
	52	53	1	14000
13TAC05	no significant intersections			
13TAC06	37	38	1	1130
	68	69	1	1100
	69	70	1	8950
	70	71	1	3740
	71	72	1	1140
	75	76	1	1330
13TAC07	16	17	1	1060
	17	18	1	3770
	18	19	1	1970

Drill Hole	From (m)	To (m)	Sample Width (m)	Manganese Grade (ppm)
13LAC02	19	20	1	1520
	20	21	1	1420
	21	22	1	1610
	22	23	1	1560
	23	24	1	1835
	24	25	1	2530
	25	26	1	3070
	26	27	1	3030
	27	28	1	2260
	28	29	1	1805
	29	30	1	1520
	30	31	1	1435
	31	32	1	1410
	40	41	1	2600
	41	42	1	2530
	42	43	1	5460
	43	44	1	1495
13LAC03	no significant intersections			
13LAC05	11	12	1	1950
	12	13	1	1400
	34	35	1	1090
	35	36	1	1930
	36	37	1	2160
	37	38	1	2220
	38	39	1	2510
	39	40	1	3550
	40	41	1	5570
	41	42	1	5300
	42	43	1	4400
	43	44	1	4710
	44	45	1	12800
	45	46	1	10550
	46	47	1	8220
	50	51	1	5410
	51	52	1	10200
	52	53	1	5980
	53	54	1	6100
	55	56	1	4930
13LAC06	31	32	1	1145
	32	33	1	1370
	33	34	1	1590
13LAC07	35	36	1	1060
	36	37	1	1960
	37	38	1	1490
	38	39	1	1240
	41	42	1	1795
	42	43	1	1230
13LAC08	34	35	1	1205

APPENDIX C: Assay Data – Copper greater than 100 ppm

Drill Hole	From (m)	To (m)	Sample Width (m)	Copper Grade (ppm)	Drill Hole	From (m)	To (m)	Sample Width (m)	Copper Grade (ppm)
13TAC01	no significant intersections				13LAC05	27	28	1	155
13TAC02	no significant intersections					28	29	1	185
13TAC04	no significant intersections					29	30	1	136
13TAC05	no significant intersections					30	31	1	175
13TAC06	no significant intersections					31	32	1	142
13TAC07	72	73	1	212		32	33	1	122
	73	74	1	177		33	34	1	113
	74	75	1	139		34	35	1	460
	75	76	1	174		35	36	1	745
	76	77	1	106		36	37	1	834
13LAC02	20	21	1	138		37	38	1	866
	22	23	1	152		38	39	1	943
	23	24	1	170		39	40	1	1230
	24	25	1	179		40	41	1	1300
	25	26	1	257		41	42	1	1250
	26	27	1	248		42	43	1	1010
	27	28	1	219		43	44	1	1100
	28	29	1	193		44	45	1	1950
	29	30	1	185		45	46	1	1490
	30	31	1	254		46	47	1	1330
	31	32	1	243		50	51	1	1090
	32	33	1	234		51	52	1	2870
	33	34	1	199		52	53	1	1380
	34	35	1	177		53	54	1	1300
	35	36	1	170		54	55	1	191
	37	38	1	113		55	56	1	797
	38	39	1	289	13LAC06	3	4	1	103
	40	41	1	153		24	25	1	127
	41	42	1	132		25	26	1	226
	42	43	1	301		26	27	1	281
	45	46	1	142		27	28	1	282
13LAC03	57	58	1	110		28	29	1	304
						29	30	1	165
						30	31	1	154
						31	32	1	117
						32	33	1	125
						36	37	1	113
					13LAC07	37	38	1	172
						38	39	1	131
						39	40	1	121
						41	42	1	157
					13LAC08	no significant intersections			

Table 1 report - Borroloola West Project Air Core Drilling

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	- Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. - Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. - Aspects of the determination of mineralisation that are Material to the Public Report. - In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	- The sampling was conducted using air core (AC) as part of a widely and irregularly spaced stratigraphic drilling program. A total of 13 holes were drilled for a total of 676m with an average depth of 52m. - All holes were drilled vertically and continued until refusal. - Drill hole locations were determined by handheld GPS. Sampling was carried out under Pacifico sampling protocols and QAQC procedures as per industry best practice. - One metre AC samples were collected and to produce a bulk 1-2 kg sample. Samples were dried, and fully pulverised at the laboratory to -75 um and split to produce a nominal 200 gm sub sample of which 10 gm was analysed using four acid digestion with ICP-AES methods.
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	- An air core drilling rig owned and operated by McLeod Drilling was used to collect the samples. - The air core bit has a diameter of 3.5 inches (78 mm)
Drill sample recovery	- Method of recording and assessing core and chip sample recoveries and results assessed. - Measures taken to maximise sample recovery and ensure representative nature of the samples. - Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	- AC recoveries were visually estimated and recoveries recorded in the log as a percentage. Recovery of samples is estimated at approximately 60% (Range: 10-100%) - One metre drill samples were channelled through a cyclone and then collected in a bucket and deposited on the ground in rows - The nature of possible mineralisation is not known at this stage and no information is available regarding possible bias due to material size.

Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All chips were geologically logged by Pacifico geologists using in-house logging protocols. • Logging of AC chips recorded lithology, mineralogy, mineralisation, weathering, colour and other features of the samples. A sample of each one metre interval was sieved and stored in a chip tray. All chip trays were photographed. • All holes were logged in full.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• No core was collected. • One –metre drill samples were laid out on the ground in 10m rows and composite samples from each pile was collected using a scoop and placed into pre-numbered plastic bags. Moisture content was highly variable. • Sample sizes are considered appropriate to give an indication of mineralisation given the particle size.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Samples were analysed at ALS Laboratories in Brisbane and Townsville • Calibration of hand-held XRF tools was conducted at start-up. XRF results are only used for indicative purposes of litho-geochemistry and alteration. • At the laboratory, regular assay repeats, lab standards, checks and blanks are analysed. Results of the Lab QAQC was checked using the QAQCR software and was found to be within acceptable limits
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• No independent checks have been conducted of the sample data. Of the 6 holes drilled in the northern most tenements, ELs 26837 and 26587, 4 were drilled within 300m of shallow holes drilled previously by BHP. • Sample assay data received from the laboratory was transferred directly in raw original format to spreadsheets and stored in the project database. • No adjustment was carried out on raw assay data.

<i>Location of data points</i>	• <i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i> • <i>Specification of the grid system used.</i> • <i>Quality and adequacy of topographic control.</i>	• All drill holes were located using hand-held GPS units. • Coordinate system is UTM 53S and datum is MGA94.
<i>Data spacing and distribution</i>	• <i>Data spacing for reporting of Exploration Results.</i> • <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i> • <i>Whether sample compositing has been applied.</i>	• Spacing of drill holes varied markedly as the primary aim of the program was to determine the age and depositional environment of the cover sequence. • No attempt is made with assay data to demonstrate geological and grade continuity to support the definition of Mineral Resource and Ore Reserve as defined in the 2012 JORC Code.
<i>Orientation of data in relation to geological structure</i>	• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i> • <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	• The orientation of the drill program has been designed to intersect all known cover sequence units and provide information on the nature and composition of the local basement. • No orientation sampling bias has been identified in the data at this stage.
<i>Sample security</i>	• <i>The measures taken to ensure sample security.</i>	• Chain of custody is managed by Pacifico from the site up to Darwin. From there local carriers were responsible for transport of the samples to ALS laboratories in Queensland.
<i>Audits or reviews</i>	• <i>The results of any audits or reviews of sampling techniques and data.</i>	• Sample data review was not carried out, as the primary purpose of this program was to determine the age and depositional environment of cover sediments.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	- Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. - The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	ELs 26837, 26587 and 26939 are granted exploration licences held by Sandfire Resources. These tenements, together with 10 other ELs and one granted mining licence is the subject of a farm-in agreement involving Sandfire Resources and strategic alliance partner, Cliffs Natural Resources, to acquire up to 80% interest in the Borroloola West Project.
<i>Exploration done by other parties</i>	Acknowledgment and appraisal of exploration by other parties.	- Previous exploration, including drilling, has been conducted by BHP, Nord Resources, and Sandfire Resources. - Previous work had identified manganese and copper mineralisation at various locations across the project area. Most areas remain untested for economic mineralisation.
<i>Geology</i>	Deposit type, geological setting and style of mineralisation.	The Borroloola West Project area is prospective for sedimentary manganese mineralisation similar to the nearby (~170km) Groote Eylandt manganese deposit operated under BHPB/AA joint venture. Manganese here occurs in stratiform, near-horizontal beds up to 9m thick within a mid-Cretaceous marine sequence comprising dominantly fine-grained sands, silts and muds. Manganese ores occur predominantly as pisolitic and oolitic manganese oxides formed by chemical precipitation under agitated, shallow water conditions at the margins of a highly stratified epicontinental sea. The Borroloola West Project area is also prospective for sediment-hosted copper deposits and SEDEX or stratiform sediment-hosted Zn-Pb-Ag deposits. Sediment-hosted stratiform copper deposits formed in cratonic, foreland, and hinterland basins at low paleolatitudes. Mineralisation is frequently associated with immature redbed, siliciclastic or volcanic sequences above or within which thin reduced horizons (often black shales), induce copper precipitation from ascendant, oxidized brines.

<i>Drill hole Information</i>	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: ○ easting and northing of the drill hole collar ○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ○ dip and azimuth of the hole ○ down hole length and interception depth ○ hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• Refer to Appendix A, B and C
<i>Data aggregation methods</i>	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Significant intercepts were based on threshold estimates derived from histograms and probability plots. No top cuts have been applied. • High grade intercepts internal to broader mineralised zones are reported as included intervals. • No metal equivalent values are used for reporting exploration results.
<i>Relationship between mineralisation widths and intercept lengths</i>	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• As stratigraphy in the areas drilled is near-horizontal, mineralisation widths approximate intercept lengths.
<i>Diagrams</i>	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Refer to Figure 1
<i>Balanced reporting</i>	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• All significant results of the 13 holes constituting this drilling program are reported. The lower cut-off for reporting was determined by use of histograms and probability plots.

<i>Other substantive exploration data</i>	• <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	• All drill holes were screened and analysed for material suitable for micropaleontological determination of sediment age.
<i>Further work</i>	• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> • <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	• Future work includes, continue review of existing historical datasets, acquisition of additional, closely spaced airborne and ground geophysics (magnetics and EM), possible acquisition of shallow seismic data, to better define basin paleogeography, geochemical surveys and test drilling of any targets generated.