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ASX Code: MLM

ASX RELEASE

20 MAY 2014

URQUHART POINT HMS RESOURCE UPGRADED

MINING SCHEDULE & RESERVE STUDY COMMENCED

KEY POINTS

- Urquhart Point Project Heavy Mineral Sand (HMS) Resources further upgraded and reported according to the JORC Code 2012 guidelines.
- Measured and Indicated Resource is 3.17 million tonnes (Mt) at 6.16% Heavy Minerals (HM) (previously an Indicated Resource of 3.22 Mt at 6.47% HM - see ASX Release 5 December 2013) at a cut-off grade (COG) of 2.0% - See Table 1.
- The HMS resource is shallow, occurring from surface to an average depth of 2 to 3 m. The slime (or clay) content is very low, averaging <1.5%.
- The HM consists of a variable suite of both valuable HM (VHM) assemblage (zircon, rutile and ilmenite) and also approximately half iron oxide sands. The VHM assemblage at a 2% COG comprises 10.6% Zircon, 12.0% Rutile and 12.7% Ilmenite.
- Contained tonnages of VHM in the resource is estimated at 20,700 t Zircon, 23,500 t Rutile and 24,800 t Ilmenite, see Table 2.
- Independent mining consultants IMC Mining Pty Ltd are currently completing mining schedule and HMS reserve estimate studies as part of the Urquhart Point HMS Project Feasibility Study – expected to be completed in June 2014

Metallica Minerals Ltd (ASX:MLM) (Metallica or "the Company"), is pleased to announce an updated HMS Resource estimate for its Urquhart Point HMS Project (the Project) located near Weipa on the western flank of Cape York in far north Queensland.

The Urquhart Point Project (Exploration Permit for Minerals (EPM) 15268, Mining Lease (ML) 20669 and ML Application (MLA) 20737 (both situated entirely within the EPM), covers a low-lying sand mass located three kilometres southwest of Weipa (Figure 1). The deposit is a coastal strandline and sand spit-style HMS deposit with

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very low slimes (clay) and a HM assemblage composed of zircon, rutile, ilmenite and iron oxides. The highest grade HM zones are located in the northern and eastern end of the deposit area (Figure 2).

Whilst the entire HMS resource is contained within EPM 15268, approximately 42,560 tonnes of the resource located outside the north eastern edge of the granted ML (Figure 2) and is situated within a small adjoining MLA 20737 (5.4 hectares). The Urquhart Point ML has been granted for a 10 year term (to 31 October 2023) and is held 100% by Metallica's wholly-owned subsidiary, Oresome Australia Pty Ltd (Oresome).

Wallis Drill Rig unloaded from barge to commence Resource Definition

Density Sampling at Urquhart Point

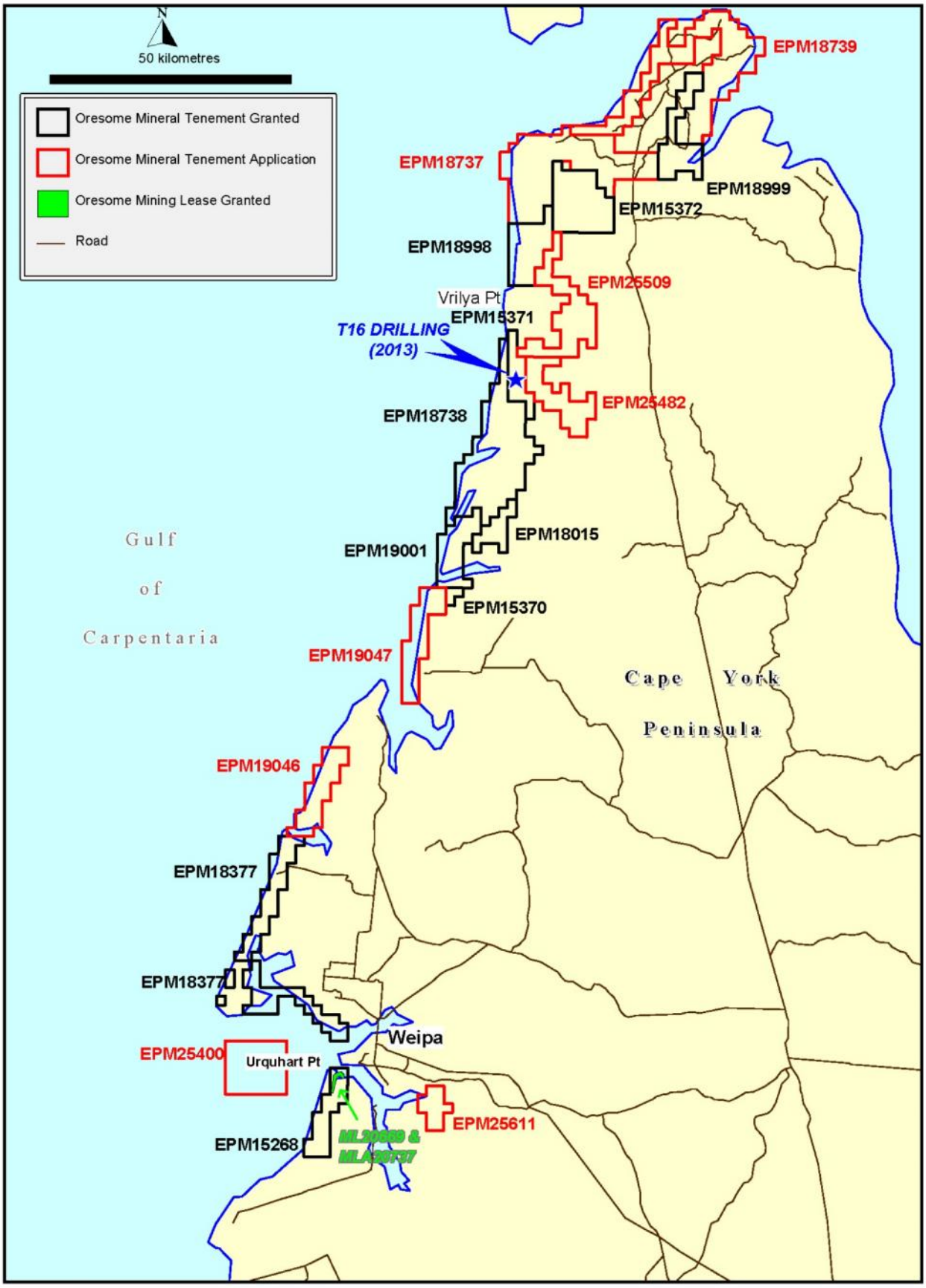

Figure 1: Urquhart Point HMS Project near Weipa and regional exploration tenure along western side of the Cape York Peninsular.

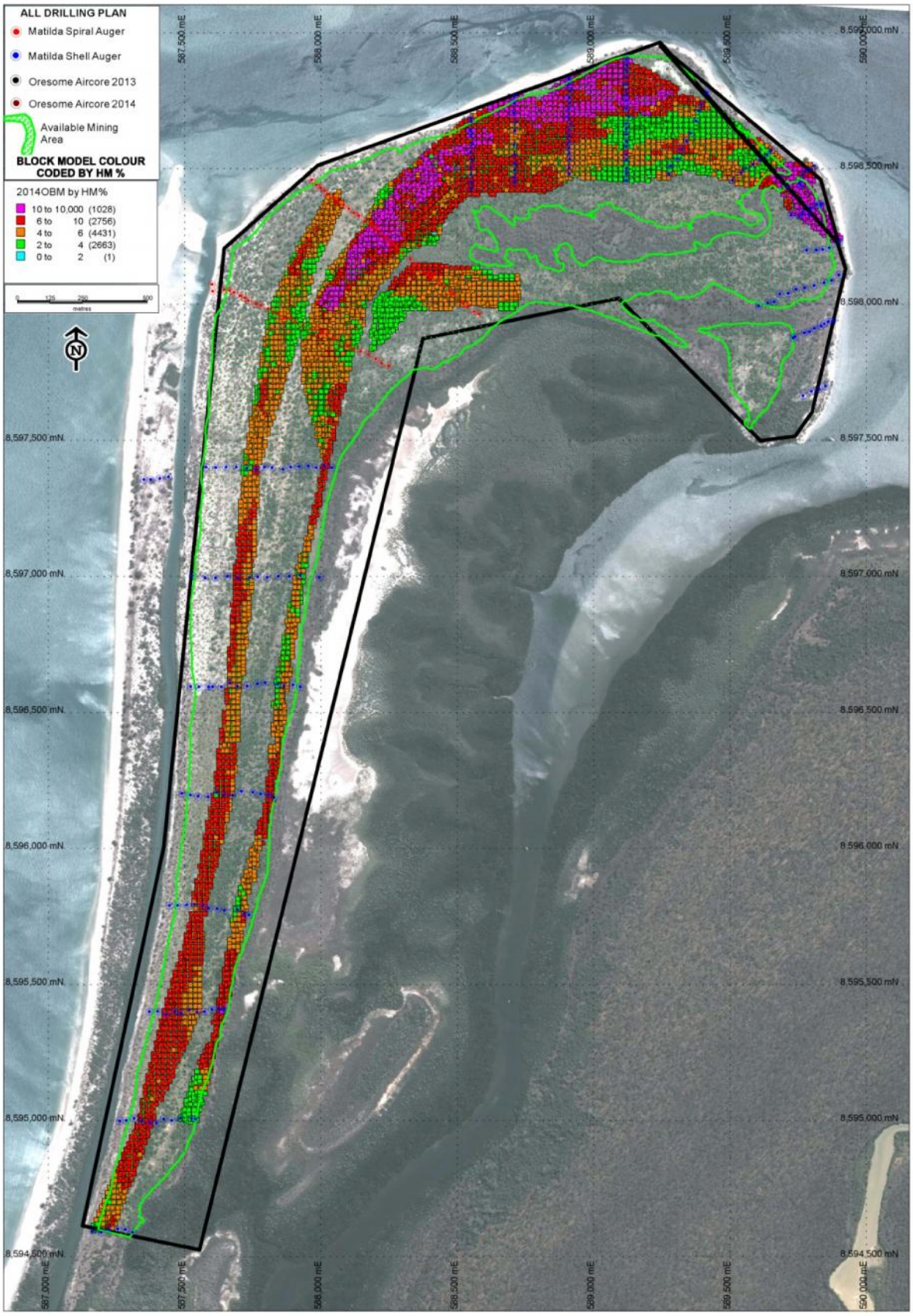

Figure 2: Global Block Model with all drilling colour coded by Drill Type. Resource block model colour coded by grade. The Green lines show buffer zones restriction to mining

Metallica commissioned independent geological consultants, CoxsRocks Pty Ltd (CoxsRocks), to update the previous Urquhart Point HMS Resource using the 83 additional drill holes (February 2014) and to carry out and prepare a revised Mineral Resource estimate (including a breakdown of the VHM assemblage) for Urquhart Point according to the guidelines of the JORC Code 2012. This upgraded Urquhart Point HMS Resource (which used a combined total of 365 drill holes) is classified as Measured and Indicated and is stated in Table 1 and in Table 3 using a range of COGs.

CoxRocks updated the resource estimate based on the inclusion of new data collected and the estimated VHM assemblage of the heavy mineral within the deposit. A block model was constructed based on a nominal 2.0% HM cut off with an insitu bulk density of 1.60t/bcm.

Table 1: The updated JORC 2012, Urquhart Point Measured and Indicated Mineral Resource using a 2% COG (May 2014):

Resource Category	Tonnes (t)	ISBD	HM (%)	Total HM (tonnes)	OS (%)	Slimes (%)	Zircon (%)	Rutile (%)	Ilmenite (%)
Measured	1,842,480	1.60	7.21	132,882	12.2	1.0	10.2	12.6	12.5
Indicated	1,325,280	1.60	4.69	62,150	14.4	1.1	11.4	10.9	13.2
TOTAL	3,167,760	1.60	6.16	195,032	13.1	1.1	10.61	12.0	12.7

ISBD = insitu bulk density, OS = oversize (>1mm screen material), Slimes (or clayey material) < 38 micron

Table 2: Estimated contained tonnages of VHM in the HMS Resource:

Resource Category	Contained VHM Tonnes (t)		
	Zircon	**Rutile**	**Ilmenite**
Measured	13,590	16,720	16,625
Indicated	7,110	6,780	8,180
TOTAL	20,700	23,500	24,805

Notes:

1. *The global resource is entirely within EPM 15268 (does not allow for ML or potential environmental buffer boundary influences)*
2. *A small part of this resource is situated outside the current mining lease boundary and a separate mining lease application has been prepared to incorporate this portion.*
3. *The possible application of internal environmental buffer zones within the mining lease area has the potential to make portions of this resource unavailable for mining. Allowance for these proposed buffers will be required for the mine planning which is a work in progress*.
4. *See attached Table 1 (JORC Code, 2012 Edition), Section 1 Sampling Techniques and Data, Section 2 Reporting of Exploration Results and Section 3 Estimation and Reporting of Mineral Resources.*

Table 3: The updated JORC 2012, Urquhart Point HMS Resource estimated using a range of HM% cut-off grades:

Cut-off Grade (COG) HM%								
COG	**Tonnes (t)**	**ISBD**	**HM%**	**Oversize (%)**	**Slimes (%)**	**Zircon (%)**	**Rutile (%)**	**Ilmenite (%)**
10.0	**265,200**	**1.60**	**19.84**	**3.9**	**1.1**	**13.3**	**16.5**	**13.7**
8.0	**473,920**		**15.02**	**5.0**	**1.0**	**12.1**	**14.9**	**13.4**
6.0	**1,006,400**		**10.70**	**7.0**	**0.9**	**11.1**	**13.3**	**12.9**
5.0	**1,439,520**		**9.13**	**8.4**	**0.9**	**10.8**	**12.9**	**12.8**
4.0	**2,115,840**		**7.64**	**9.8**	**0.9**	**10.7**	**12.4**	**12.7**
3.0	**2,786,480**		**6.65**	**11.6**	**1.0**	**10.7**	**12.2**	**12.7**
2.0	**3,167,760**		**6.16**	**13.1**	**1.1**	**10.6**	**12.1**	**12.7**
0.0	**3,310,800**		**5.96**	**14.5**	**1.1**	**10.6**	**12.0**	**12.7**

The HM consists of a variable suite of targeted zircon, rutile and ilmenite minerals and approximately half iron oxides. The heavy minerals are located within a shallow mineral sand deposit typically above a base of partly cemented shelly limestone (coquina), with very low clay content.

The mineralised sand bodies have simple flat shapes, tight depositional control, good continuity and lack of cover or overburden should make the deposits visually definable and easy to mine cleanly. There is very good potential to high grade a number of areas if required, particularly in the northern zone.

Planning is advanced for the development of a simple mining and treatment operation at Urquhart Point, designed to produce a high grade mixed heavy HM concentrate.

The Urquhart Point Feasibility Study is well underway for the development of a mining and gravity concentration processing operation at Urquhart Point designed to produce a high grade HM mixed concentrate of zircon, rutile, ilmenite and mostly iron oxides.

It is recognised that the application of any environmental buffer zones and also the mining lease boundary will reduce the potential mineable tonnages, see Table 4. The application of the existing mining lease and buffer zones to the resource results in a small reduction to the tonnes and grade as documented below. This figure includes the new mining lease application which covers a small tonnage but high grade north eastern sliver of HM mineralisation.

Table 4: The updated JORC 2012, Urquhart Point Mineral Resource (using a 2% COG) within ML & MLA and allowing for internal environmental buffers:

Resource Category	Tonnes (t)	ISBD	HM %	Tot HM (tonnes)	OS (%)	Slimes (%)	Zircon (%)	Rutile (%)	Ilmenite (%)
Measured	1,781,360	1.6	6.85	122,090	12.5	1.0	9.8	12.0	12.4
Indicated	1,305,680	1.6	4.70	61,335	14.4	1.2	11.4	10.9	13.2
TOTAL	3,087,040	1.6	5.94	183,425	13.3	1.1	10.3	11.6	12.7

Notes: The Table 4 HM Resource above is within the mining leases (ML & MLA).The possible application of internal environmental buffer zones within the mining lease area (see Figure 2) has the potential to make portions of this resource unavailable for mining and is not included in the HM Resource in Table 4. Allowance for these proposed buffers will be required for the mine planning which is work in progress.
See attached Table 1 (JORC Code, 2012 Edition), Section 1 Sampling Techniques and Data, Section 2 Reporting of Exploration Results and Section 3 Estimation and Reporting of Mineral Resources

Table 5: The insitu contained tonnages of valuable heavy minerals (VHM) of the resource available in the mining area is estimated at:

Resource Category	Contained VHM Tonnes (t)		
	Zircon	**Rutile**	**Ilmenite**
Measured	11,936	14,674	15,182
Indicated	6,999	6,669	8,083
TOTAL	18,935	21,343	23,265

Within the above resource using a higher COG of 5% HM there is a higher grade HMS Resource of 1,385,200 at 8.72% HM with a VHM assemblage of 10.4% zircon, 12.3% rutile and 12.7% ilmenite.

The previous Mineral Resource estimation and latest revised estimate were completed by independent consultant, Simon Coxhell (Coxrocks Pty Limited). The geological modelling involved individual strandlines wire-framed together to form a series of solids and associated grades (HM%, slimes% and oversize%). The wireframe solids were interpolated to form a block model of the Mineral Resource. The block sizes adopted for the modelling were 20m by 20m by 1.0m thick. Any blocks lying outside the wireframes were trimmed and the results reported (Figure 2).

HM Assemblage

The inclusion of the latest drilling (February 2014), sample metallurgy and subsequent modelling work used to estimate this Mineral Resource provided sufficient additional mineral assemblage information, to better define the HM assemblage and to provide a breakdown of the proportion of zircon, rutile, ilmenite, iron oxide and other minor HM, see Tables 1, 3 and 4.

Mineral Resource Influences (ML boundary & internal buffer zones)

The Mineral Resource is located entirely within exploration tenement EPM 15268.

A small portion of this Mineral Resource is located outside of the Mining Lease (ML), including approximately 42,560 tonnes at 23.8% HM (using COG of 2% HM) along the north-eastern edge of the ML (this portion is covered by a Mining Lease Application (MLA) 20737).

There are several internal environmental buffer zones which partly cover the HMS Resources located within the ML (Figure 2). The outcome of the effect of the mining lease boundary and buffer zones is that the Mineral Resource could be marginally reduced from the current Mineral Resource estimate of 3.17 Mt at 6.16% HM to 3.09 Mt at 5.94% HM, using the same COG of 2% HM (see Table 4).

Urquhart Point Feasibility and Development Planning

Metallica is planning to develop a simple dry mining (<3m depth) and standard wet gravity processing (using spirals) HM sand separation and concentration operation, with no chemicals required.

The planned HM bearing sand processing rate is now proposed to be 100 tonnes per hour (or approximately >240,000 tonnes per year), to produce a mixed HM concentrate (VHM and iron oxide sands) over an expected mining and processing life of more than five years.

The Company has obtained quotes and estimates for the processing plant and related equipment alternatives and is in advanced negotiations for partnerships, funding and offtake agreements. The feasibility study is expected to be completed in June 2014.

Regional HMS Potential

In addition to Urquhart Point, Oresome holds over 2,000 km² of prospective mineral sands tenements in the Western Cape York region. Several of these tenements also cover significant areas of mapped bauxite which will also be investigated during our exploration drill programs.

On 26 November 2013, Metallica announced that it had discovered significant new zircon rich HMS mineralisation on its regional exploration target called T16, located approximately 160 km north of the Urquhart Point HMS Project – see Figure 1.

The Company completed 36 shallow holes over a small portion of the T16 Target. All 36 holes recorded significant HMS mineralisation (average 1.7% HM) covering a 1.8 km by 800 m wide area with mineralisation open in most directions. The zircon rich HM assemblage averaged 32% zircon, 6% rutile and 11% other titanium minerals comprising 49% of total HM. T16 was the first regional target to be tested and

Metallica has identified at least 10 other priority regional exploration targets, suggesting there is considerable potential for additional HM discoveries within the >2,000 km² tenement area. Metallica is planning to resume exploration drilling activities in 3Q 2014, subject to the outcomes of the Queensland Governments Cape York Regional Plan (CYRP). For further information see the ASX Release dated January 2014.

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The information in this report that relates to Mineral Resources Estimation is based on information compiled and reviewed by Mr Simon Coxhell. Mr Coxhell is a consultant to the Company and a member of the Australasian Institute of Mining and Metallurgy. Mr Coxhell has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" ("JORC Code"). Mr Coxhell consents to the inclusion in this report/release of the matters based on this information in the form and context in which it appears.

The Technical information contained in this report has been compiled by Mr Andrew Gillies B.Sc (Geology) M.AusIMM (Managing Director of Metallica Minerals Ltd) who is a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy (M.AusIMM). Mr Gillies has relevant experience in the mineralisation, exploration results and targets being reported on to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Gillies consents to the inclusion of this information in the form and context in which it appears in this release.

*See attached **Table 1**: JORC Code, 2012 Edition, Section 1 Sampling Techniques and Data, Section 2 Reporting of Exploration Results and Section 3 Estimation and Reporting of Mineral Resources*

APPENDIX ONE: Drill Hole Details (to accompany Table 1 – Drill Hole Information)

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
URSA001	2	SHELL	WGS84_Z54MGA	589900	8598230	2.96	-90	GPS	17/12/2007
URSA002	1	SHELL	WGS84_Z54MGA	589864	8598208	3.56	-90	GPS	17/12/2007
URSA003	1	SHELL	WGS84_Z54MGA	589839	8598202	3.6	-90	GPS	17/12/2007
URSA004	1.3	SHELL	WGS84_Z54MGA	589816	8598200	3.57	-90	GPS	17/12/2007
URSA005	1.3	SHELL	WGS84_Z54MGA	589780	8598200	3.51	-90	GPS	17/12/2007
URSA007	2.3	SHELL	WGS84_Z54MGA	588710	8598765	4.45	-90	GPS	17/12/2007
URSA008	2	SHELL	WGS84_Z54MGA	588709	8598740	4.19	-90	GPS	17/12/2007
URSA009	3	SHELL	WGS84_Z54MGA	588706	8598705	3.83	-90	GPS	17/12/2007
URSA010	2.1	SHELL	WGS84_Z54MGA	588714	8598669	3.15	-90	GPS	17/12/2007
URSA011	1.8	SHELL	WGS84_Z54MGA	588710	8598638	3.13	-90	GPS	17/12/2007
URSA012	1.8	SHELL	WGS84_Z54MGA	588708	8598586	4.19	-90	GPS	17/12/2007
URSA013	2.1	SHELL	WGS84_Z54MGA	589120	8598900	4.27	-90	GPS	17/12/2007
URSA014	1.5	SHELL	WGS84_Z54MGA	589123	8598880	4.09	-90	GPS	17/12/2007
URSA015	1.7	SHELL	WGS84_Z54MGA	589120	8598860	4.12	-90	GPS	17/12/2007
URSA016	1.8	SHELL	WGS84_Z54MGA	589120	8598835	4.06	-90	GPS	17/12/2007
URSA017	1.4	SHELL	WGS84_Z54MGA	589120	8598810	3.67	-90	GPS	17/12/2007
URSA018	1.2	SHELL	WGS84_Z54MGA	589120	8598790	3.74	-90	GPS	17/12/2007
URSA019	2.4	SHELL	WGS84_Z54MGA	589120	8598770	3.81	-90	GPS	17/12/2007
URSA020	2.2	SHELL	WGS84_Z54MGA	589120	8598750	3.76	-90	GPS	17/12/2007
URSA021	2.2	SHELL	WGS84_Z54MGA	589120	8598720	4.02	-90	GPS	17/12/2007
URSA022	1	SHELL	WGS84_Z54MGA	589130	8598690	2.99	-90	GPS	17/12/2007
URSA023	1.4	SHELL	WGS84_Z54MGA	589120	8598665	2.22	-90	GPS	17/12/2007
URSA024	1.8	SHELL	WGS84_Z54MGA	589120	8598645	3.39	-90	GPS	17/12/2007
URSA025	2.7	SHELL	WGS84_Z54MGA	589120	8598625	4.08	-90	GPS	17/12/2007
URSA026	2	SHELL	WGS84_Z54MGA	589120	8598600	3.6	-90	GPS	17/12/2007
URSA027	2	SHELL	WGS84_Z54MGA	589120	8598580	3.6	-90	GPS	17/12/2007
URSA028	2	SHELL	WGS84_Z54MGA	589120	8598550	3.89	-90	GPS	17/12/2007
URSA029	2	SHELL	WGS84_Z54MGA	589120	8598530	3.55	-90	GPS	17/12/2007
URSA030	1.6	SHELL	WGS84_Z54MGA	589120	8598500	3.26	-90	GPS	17/12/2007
URSA031	2	SHELL	WGS84_Z54MGA	589120	8598480	3.28	-90	GPS	17/12/2007
URSA032	2	SHELL	WGS84_Z54MGA	589120	8598456	3.58	-90	GPS	17/12/2007
URSA033	2	SHELL	WGS84_Z54MGA	588910	8598480	3.35	-90	GPS	18/12/2007
URSA034	1.7	SHELL	WGS84_Z54MGA	588910	8598504	3.8	-90	GPS	18/12/2007
URSA035	2.7	SHELL	WGS84_Z54MGA	588912	8598534	4.08	-90	GPS	18/12/2007
URSA036	2.3	SHELL	WGS84_Z54MGA	588910	8598555	3.78	-90	GPS	18/12/2007
URSA037	2	SHELL	WGS84_Z54MGA	588910	8598575	3.89	-90	GPS	18/12/2007
URSA038	2.6	SHELL	WGS84_Z54MGA	588908	8598595	4.26	-90	GPS	18/12/2007
URSA039	3	SHELL	WGS84_Z54MGA	588910	8598620	4.71	-90	GPS	18/12/2007
URSA040	2.4	SHELL	WGS84_Z54MGA	588910	8598642	4.72	-90	GPS	18/12/2007
URSA041	1.8	SHELL	WGS84_Z54MGA	588916	8598664	3.87	-90	GPS	18/12/2007
URSA042	2.2	SHELL	WGS84_Z54MGA	588905	8598690	3.59	-90	GPS	18/12/2007
URSA043	2.8	SHELL	WGS84_Z54MGA	588908	8598718	3.56	-90	GPS	18/12/2007
URSA044	1.3	SHELL	WGS84_Z54MGA	588912	8598740	3.11	-90	GPS	18/12/2007
URSA045	1.8	SHELL	WGS84_Z54MGA	588910	8598760	3.42	-90	GPS	18/12/2007
URSA046	1.7	SHELL	WGS84_Z54MGA	588915	8598786	3.46	-90	GPS	18/12/2007
URSA047	1.5	SHELL	WGS84_Z54MGA	588910	8598810	3.76	-90	GPS	18/12/2007
URSA048	1.9	SHELL	WGS84_Z54MGA	588910	8598830	4.39	-90	GPS	18/12/2007
URSA049	2.4	SHELL	WGS84_Z54MGA	588710	8598552	4.18	-90	GPS	18/12/2007
URSA050	2.3	SHELL	WGS84_Z54MGA	588712	8598518	5.07	-90	GPS	18/12/2007

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
URSA051	2.7	SHELL	WGS84_Z54MGA	588710	8598495	5	-90	GPS	18/12/2007
URSA052	2.3	SHELL	WGS84_Z54MGA	588707	8598468	4.61	-90	GPS	18/12/2007
URSA053	2.3	SHELL	WGS84_Z54MGA	588710	8598450	4.19	-90	GPS	18/12/2007
URSA054	3	SHELL	WGS84_Z54MGA	588550	8598426	5.44	-90	GPS	18/12/2007
URSA055	2	SHELL	WGS84_Z54MGA	588550	8598450	4.89	-90	GPS	18/12/2007
URSA056	1	SHELL	WGS84_Z54MGA	588550	8598478	4.14	-90	GPS	18/12/2007
URSA057	2	SHELL	WGS84_Z54MGA	588550	8598506	4.34	-90	GPS	18/12/2007
URSA058	2	SHELL	WGS84_Z54MGA	588553	8598530	4.15	-90	GPS	18/12/2007
URSA059	2.6	SHELL	WGS84_Z54MGA	588550	8598562	4.91	-90	GPS	18/12/2007
URSA060	2.2	SHELL	WGS84_Z54MGA	588557	8598590	4.57	-90	GPS	18/12/2007
URSA061	3	SHELL	WGS84_Z54MGA	588550	8598622	3.95	-90	GPS	18/12/2007
URSA062	2.9	SHELL	WGS84_Z54MGA	588546	8598640	3.95	-90	GPS	18/12/2007
URSA063	3	SHELL	WGS84_Z54MGA	588550	8598672	4.04	-90	GPS	18/12/2007
URSA064	1	SHELL	WGS84_Z54MGA	588550	8598686	4.08	-90	GPS	18/12/2007
URSA065	1.5	SHELL	WGS84_Z54MGA	589832	8598370	2.97	-90	GPS	19/12/2007
URSA066	2.2	SHELL	WGS84_Z54MGA	589832	8598364	2.98	-90	GPS	19/12/2007
URSA067	2.8	SHELL	WGS84_Z54MGA	589818	8598368	2.99	-90	GPS	19/12/2007
URSA068	2.6	SHELL	WGS84_Z54MGA	589797	8598354	3.44	-90	GPS	19/12/2007
URSA069	3	SHELL	WGS84_Z54MGA	589788	8598330	3.95	-90	GPS	19/12/2007
URSA070	3	SHELL	WGS84_Z54MGA	589765	8598340	3.58	-90	GPS	19/12/2007
URSA071	1.2	SHELL	WGS84_Z54MGA	589754	8598324	2.92	-90	GPS	19/12/2007
URSA072	1.2	SHELL	WGS84_Z54MGA	589723	8598328	2.35	-90	GPS	19/12/2007
URSA073	1.2	SHELL	WGS84_Z54MGA	589808	8598510	1.64	-90	GPS	19/12/2007
URSA074	1.4	SHELL	WGS84_Z54MGA	589798	8598498	1.96	-90	GPS	19/12/2007
URSA075	1.6	SHELL	WGS84_Z54MGA	589777	8598490	2.51	-90	GPS	19/12/2007
URSA076	1.5	SHELL	WGS84_Z54MGA	589764	8598476	2.69	-90	GPS	19/12/2007
URSA077	2.2	SHELL	WGS84_Z54MGA	589755	8598444	2.73	-90	GPS	19/12/2007
URSA078	2.8	SHELL	WGS84_Z54MGA	589760	8598438	2.85	-90	GPS	19/12/2007
URSA079	1.6	SHELL	WGS84_Z54MGA	589707	8598430	2.61	-90	GPS	19/12/2007
URSA080	1.7	SHELL	WGS84_Z54MGA	589850	8597700	2.25	-90	GPS	19/12/2007
URSA081	1.3	SHELL	WGS84_Z54MGA	589826	8597688	1.83	-90	GPS	19/12/2007
URSA082	1.3	SHELL	WGS84_Z54MGA	589798	8597680	1.73	-90	GPS	19/12/2007
URSA083	1	SHELL	WGS84_Z54MGA	589767	8597664	1.69	-90	GPS	19/12/2007
URSA084	0.7	SHELL	WGS84_Z54MGA	587440	8597366	0.7	-90	GPS	20/12/2007
URSA085	1	SHELL	WGS84_Z54MGA	587409	8597360	1	-90	GPS	20/12/2007
URSA086	1.5	SHELL	WGS84_Z54MGA	587375	8597356	1.5	-90	GPS	20/12/2007
URSA087	2	SHELL	WGS84_Z54MGA	587350	8597356	2	-90	GPS	20/12/2007
URSA088	1.8	SHELL	WGS84_Z54MGA	587163	8594594	5	-90	GPS	7/03/2008
URSA089	2.2	SHELL	WGS84_Z54MGA	587193	8594590	5	-90	GPS	7/03/2008
URSA090	2.1	SHELL	WGS84_Z54MGA	587222	8594600	4.42	-90	GPS	7/03/2008
URSA091	1.9	SHELL	WGS84_Z54MGA	587254	8594602	3.5	-90	GPS	7/03/2008
URSA092	1.8	SHELL	WGS84_Z54MGA	587283	8594600	3.13	-90	GPS	7/03/2008
URSA093	1.7	SHELL	WGS84_Z54MGA	587308	8594590	2.46	-90	GPS	7/03/2008
URSA094	1.1	SHELL	WGS84_Z54MGA	587261	8594998	3.53	-90	GPS	7/03/2008
URSA095	0.5	SHELL	WGS84_Z54MGA	587286	8595000	4.32	-90	GPS	7/03/2008
URSA096	2.9	SHELL	WGS84_Z54MGA	587314	8595008	5.18	-90	GPS	7/03/2008
URSA097	2.7	SHELL	WGS84_Z54MGA	587341	8594998	4.68	-90	GPS	7/03/2008
URSA098	2	SHELL	WGS84_Z54MGA	587372	8594992	4.58	-90	GPS	7/03/2008
URSA099	1.7	SHELL	WGS84_Z54MGA	587396	8594990	4.27	-90	GPS	7/03/2008
URSA100	1.7	SHELL	WGS84_Z54MGA	587423	8595006	3.97	-90	GPS	7/03/2008
URSA101	1	SHELL	WGS84_Z54MGA	587452	8595000	3.49	-90	GPS	7/03/2008
URSA102	1	SHELL	WGS84_Z54MGA	587485	8595010	3.47	-90	GPS	7/03/2008
URSA103	1.2	SHELL	WGS84_Z54MGA	587525	8595008	2.89	-90	GPS	7/03/2008
URSA104	0.7	SHELL	WGS84_Z54MGA	587540	8595006	2.47	-90	GPS	7/03/2008
URSA105	0.8	SHELL	WGS84_Z54MGA	587370	8595400	4.75	-90	GPS	7/03/2008
URSA106	0.9	SHELL	WGS84_Z54MGA	587400	8595401	5.11	-90	GPS	7/03/2008
URSA107	2.6	SHELL	WGS84_Z54MGA	587431	8595390	4.91	-90	GPS	7/03/2008
URSA108	1.6	SHELL	WGS84_Z54MGA	587464	8595400	4.49	-90	GPS	7/03/2008
URSA109	1.1	SHELL	WGS84_Z54MGA	587487	8595394	4.39	-90	GPS	7/03/2008
URSA110	1.2	SHELL	WGS84_Z54MGA	587515	8595406	4.22	-90	GPS	7/03/2008

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
URSA111	2	SHELL	WGS84_Z54MGA	587545	8595398	4.33	-90	GPS	7/03/2008
URSA112	1.5	SHELL	WGS84_Z54MGA	587572	8595400	4.19	-90	GPS	7/03/2008
URSA113	0.7	SHELL	WGS84_Z54MGA	587600	8595408	3.82	-90	GPS	7/03/2008
URSA114	1.2	SHELL	WGS84_Z54MGA	587624	8595412	3.81	-90	GPS	7/03/2008
URSA115	0.9	SHELL	WGS84_Z54MGA	587642	8595406	3.23	-90	GPS	7/03/2008
URSA116	1.4	SHELL	WGS84_Z54MGA	587444	8595790	5.18	-90	GPS	9/03/2008
URSA117	1.4	SHELL	WGS84_Z54MGA	587474	8595790	5.32	-90	GPS	9/03/2008
URSA118	1.2	SHELL	WGS84_Z54MGA	587507	8595792	4.94	-90	GPS	9/03/2008
URSA119	2.5	SHELL	WGS84_Z54MGA	587536	8595794	5.12	-90	GPS	9/03/2008
URSA120	2	SHELL	WGS84_Z54MGA	587566	8595788	4.67	-90	GPS	9/03/2008
URSA121	1.8	SHELL	WGS84_Z54MGA	587588	8595780	4.43	-90	GPS	9/03/2008
URSA122	1.8	SHELL	WGS84_Z54MGA	587619	8595778	4.24	-90	GPS	9/03/2008
URSA123	1.8	SHELL	WGS84_Z54MGA	587646	8595772	4.49	-90	GPS	9/03/2008
URSA124	1.8	SHELL	WGS84_Z54MGA	587692	8595776	4.26	-90	GPS	9/03/2008
URSA125	1.3	SHELL	WGS84_Z54MGA	587719	8595760	3.99	-90	GPS	9/03/2008
URSA126	0.5	SHELL	WGS84_Z54MGA	587736	8595756	3.25	-90	GPS	9/03/2008
URSA127	0.9	SHELL	WGS84_Z54MGA	587490	8596202	5.1	-90	GPS	9/03/2008
URSA128	1.5	SHELL	WGS84_Z54MGA	587520	8596196	5	-90	GPS	9/03/2008
URSA129	0.9	SHELL	WGS84_Z54MGA	587549	8596192	5.14	-90	GPS	9/03/2008
URSA130	1.8	SHELL	WGS84_Z54MGA	587586	8596190	4.82	-90	GPS	9/03/2008
URSA131	3	SHELL	WGS84_Z54MGA	587616	8596206	5.12	-90	GPS	9/03/2008
URSA132	2.4	SHELL	WGS84_Z54MGA	587646	8596198	4.52	-90	GPS	9/03/2008
URSA133	1	SHELL	WGS84_Z54MGA	587675	8596196	4.03	-90	GPS	9/03/2008
URSA134	1.9	SHELL	WGS84_Z54MGA	587708	8596210	4.4	-90	GPS	9/03/2008
URSA135	1.4	SHELL	WGS84_Z54MGA	587750	8596206	4.33	-90	GPS	9/03/2008
URSA136	1.7	SHELL	WGS84_Z54MGA	587779	8596200	4.42	-90	GPS	9/03/2008
URSA137	1.1	SHELL	WGS84_Z54MGA	587807	8596198	3.63	-90	GPS	9/03/2008
URSA138	0.5	SHELL	WGS84_Z54MGA	587827	8596188	2.57	-90	GPS	9/03/2008
URSA139	1.7	SHELL	WGS84_Z54MGA	587521	8596596	5.16	-90	GPS	10/03/2008
URSA140	0.9	SHELL	WGS84_Z54MGA	587552	8596594	4.91	-90	GPS	10/03/2008
URSA141	1.2	SHELL	WGS84_Z54MGA	587588	8596595	4.97	-90	GPS	10/03/2008
URSA142	0.9	SHELL	WGS84_Z54MGA	587602	8596595	5.19	-90	GPS	10/03/2008
URSA143	1.2	SHELL	WGS84_Z54MGA	587634	8596594	5.19	-90	GPS	10/03/2008
URSA144	2	SHELL	WGS84_Z54MGA	587665	8596608	5.24	-90	GPS	10/03/2008
URSA145	2.5	SHELL	WGS84_Z54MGA	587693	8596596	4.82	-90	GPS	10/03/2008
URSA146	1.8	SHELL	WGS84_Z54MGA	587729	8596598	4.54	-90	GPS	10/03/2008
URSA147	1.5	SHELL	WGS84_Z54MGA	587766	8596606	3.86	-90	GPS	10/03/2008
URSA148	1.3	SHELL	WGS84_Z54MGA	587795	8596610	4.42	-90	GPS	10/03/2008
URSA149	1.8	SHELL	WGS84_Z54MGA	587840	8596604	4.62	-90	GPS	10/03/2008
URSA150	1.8	SHELL	WGS84_Z54MGA	587864	8596598	4.43	-90	GPS	10/03/2008
URSA151	0.9	SHELL	WGS84_Z54MGA	587898	8596602	2.92	-90	GPS	10/03/2008
URSA152	0.4	SHELL	WGS84_Z54MGA	587923	8596595	1.73	-90	GPS	10/03/2008
URSA153	1.2	SHELL	WGS84_Z54MGA	587528	8597002	4.16	-90	GPS	10/03/2008
URSA154	0.5	SHELL	WGS84_Z54MGA	587575	8596994	4.63	-90	GPS	10/03/2008
URSA155	1.3	SHELL	WGS84_Z54MGA	587613	8596994	4.62	-90	GPS	10/03/2008
URSA156	1.6	SHELL	WGS84_Z54MGA	587657	8597000	4.85	-90	GPS	10/03/2008
URSA157	2.6	SHELL	WGS84_Z54MGA	587694	8596996	5.88	-90	GPS	10/03/2008
URSA158	2.1	SHELL	WGS84_Z54MGA	587738	8596996	5.15	-90	GPS	10/03/2008
URSA159	2	SHELL	WGS84_Z54MGA	587768	8596998	4.79	-90	GPS	10/03/2008
URSA160	1.8	SHELL	WGS84_Z54MGA	587802	8596996	4.97	-90	GPS	10/03/2008
URSA161	1.5	SHELL	WGS84_Z54MGA	587843	8597000	4.22	-90	GPS	10/03/2008
URSA162	0.9	SHELL	WGS84_Z54MGA	587883	8597000	4.59	-90	GPS	10/03/2008
URSA163	1.7	SHELL	WGS84_Z54MGA	587923	8597004	4.61	-90	GPS	10/03/2008
URSA164	0.3	SHELL	WGS84_Z54MGA	587994	8596996	1.62	-90	GPS	10/03/2008
URSA165	1.8	SHELL	WGS84_Z54MGA	587578	8597402	6.06	-90	GPS	11/03/2008
URSA166	0.8	SHELL	WGS84_Z54MGA	587614	8597400	4.47	-90	GPS	11/03/2008
URSA167	0.8	SHELL	WGS84_Z54MGA	587652	8597402	4.17	-90	GPS	11/03/2008
URSA168	1	SHELL	WGS84_Z54MGA	587689	8597402	4.47	-90	GPS	11/03/2008
URSA169	2.3	SHELL	WGS84_Z54MGA	587727	8597398	5.18	-90	GPS	11/03/2008
URSA170	1.8	SHELL	WGS84_Z54MGA	587761	8597394	5.66	-90	GPS	11/03/2008

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
URSA171	0.7	SHELL	WGS84_Z54MGA	587792	8597402	4.88	-90	GPS	11/03/2008
URSA172	1.2	SHELL	WGS84_Z54MGA	587820	8597400	5.39	-90	GPS	11/03/2008
URSA173	1.3	SHELL	WGS84_Z54MGA	587860	8597394	4.6	-90	GPS	11/03/2008
URSA174	0.9	SHELL	WGS84_Z54MGA	587888	8597402	4.88	-90	GPS	11/03/2008
URSA175	0.7	SHELL	WGS84_Z54MGA	587919	8597404	4.22	-90	GPS	11/03/2008
URSA176	0.6	SHELL	WGS84_Z54MGA	587954	8597406	4.54	-90	GPS	11/03/2008
URSA177	1.1	SHELL	WGS84_Z54MGA	587982	8597400	4.78	-90	GPS	11/03/2008
URSA178	1.5	SHELL	WGS84_Z54MGA	588013	8597406	4.63	-90	GPS	11/03/2008
URSA179	1.1	SHELL	WGS84_Z54MGA	588040	8597400	3.56	-90	GPS	11/03/2008
URSA180	2	SHELL	WGS84_Z54MGA	589651	8598566	3.85	-90	GPS	12/03/2008
URSA181	2	SHELL	WGS84_Z54MGA	589636	8598552	4.06	-90	GPS	12/03/2008
URSA182	1.5	SHELL	WGS84_Z54MGA	589608	8598530	3.94	-90	GPS	12/03/2008
URSA183	1.8	SHELL	WGS84_Z54MGA	589584	8598516	4.17	-90	GPS	12/03/2008
URSA184	1.5	SHELL	WGS84_Z54MGA	589558	8598502	3.74	-90	GPS	12/03/2008
URSA185	1.7	SHELL	WGS84_Z54MGA	589540	8598484	3.97	-90	GPS	12/03/2008
URSA186	0.6	SHELL	WGS84_Z54MGA	589508	8598456	2.87	-90	GPS	12/03/2008
URSA187	2.3	SHELL	WGS84_Z54MGA	589899	8598108	3.57	-90	GPS	12/03/2008
URSA188	2	SHELL	WGS84_Z54MGA	589872	8598088	3.7	-90	GPS	12/03/2008
URSA189	1.5	SHELL	WGS84_Z54MGA	589844	8598080	3.48	-90	GPS	12/03/2008
URSA190	1.2	SHELL	WGS84_Z54MGA	589808	8598070	3.19	-90	GPS	12/03/2008
URSA191	0.8	SHELL	WGS84_Z54MGA	589773	8598062	2.93	-90	GPS	12/03/2008
URSA192	0.6	SHELL	WGS84_Z54MGA	589742	8598056	2.87	-90	GPS	12/03/2008
URSA193	0.8	SHELL	WGS84_Z54MGA	589712	8598040	3.17	-90	GPS	12/03/2008
URSA194	1.5	SHELL	WGS84_Z54MGA	589682	8598038	3.74	-90	GPS	12/03/2008
URSA195	1.6	SHELL	WGS84_Z54MGA	589661	8598010	3.17	-90	GPS	12/03/2008
URSA196	0.9	SHELL	WGS84_Z54MGA	589638	8598006	2.78	-90	GPS	12/03/2008
URSA197	0.6	SHELL	WGS84_Z54MGA	589605	8597994	2.17	-90	GPS	12/03/2008
URSA198	2	SHELL	WGS84_Z54MGA	589415	8598778	3.48	-90	GPS	12/03/2008
URSA199	2	SHELL	WGS84_Z54MGA	589394	8598736	4.68	-90	GPS	12/03/2008
URSA200	2.5	SHELL	WGS84_Z54MGA	589383	8598712	4.12	-90	GPS	12/03/2008
URSA201	1.4	SHELL	WGS84_Z54MGA	589376	8598674	3.41	-90	GPS	12/03/2008
URSA202	1.7	SHELL	WGS84_Z54MGA	589356	8598630	3.55	-90	GPS	12/03/2008
URSA203	2.2	SHELL	WGS84_Z54MGA	589341	8598600	4.26	-90	GPS	12/03/2008
URSA204	2	SHELL	WGS84_Z54MGA	589323	8598570	3.92	-90	GPS	12/03/2008
URSA205	1	SHELL	WGS84_Z54MGA	589308	8598536	3.24	-90	GPS	12/03/2008
URSA206	0.9	SHELL	WGS84_Z54MGA	589282	8598510	3.12	-90	GPS	12/03/2008
URSA207	1.1	SHELL	WGS84_Z54MGA	589277	8598478	3.04	-90	GPS	12/03/2008
URSC001	1.1	SPIRAL	WGS84_Z54MGA	589731	8597876	2.38	-90		16/06/2008
URSC002	1.1	SPIRAL	WGS84_Z54MGA	589738	8597882	2.17	-90		16/06/2008
URSC003	1.1	SPIRAL	WGS84_Z54MGA	589772	8597896	1.82	-90		16/06/2008
URSC004	1.1	SPIRAL	WGS84_Z54MGA	589791	8597900	1.78	-90		16/06/2008
URSC005	1.1	SPIRAL	WGS84_Z54MGA	589809	8597912	1.56	-90		16/06/2008
URSC006	1.1	SPIRAL	WGS84_Z54MGA	589833	8597920	1.83	-90		16/06/2008
URSC007	1.1	SPIRAL	WGS84_Z54MGA	589845	8597928	1.76	-90		16/06/2008
URSC008	1.1	SPIRAL	WGS84_Z54MGA	589860	8597936	1.7	-90		16/06/2008
URSC009	1.1	SPIRAL	WGS84_Z54MGA	589876	8597940	1.95	-90		16/06/2008
URSC010	1.1	SPIRAL	WGS84_Z54MGA	587966	8598458	3.12	-90		16/06/2008
URSC011	1.1	SPIRAL	WGS84_Z54MGA	587982	8598440	2.62	-90		16/06/2008
URSC012	1.1	SPIRAL	WGS84_Z54MGA	587998	8598430	2.84	-90		16/06/2008
URSC013	1.1	SPIRAL	WGS84_Z54MGA	588012	8598418	2.91	-90		16/06/2008
URSC014	1.1	SPIRAL	WGS84_Z54MGA	588023	8598404	3.18	-90		16/06/2008
URSC015	1.1	SPIRAL	WGS84_Z54MGA	588046	8598394	3.73	-90		16/06/2008
URSC016	1.1	SPIRAL	WGS84_Z54MGA	588063	8598380	3.9	-90		16/06/2008
URSC017	1.1	SPIRAL	WGS84_Z54MGA	588083	8598366	3.18	-90		16/06/2008
URSC018	1.1	SPIRAL	WGS84_Z54MGA	588102	8598352	3.22	-90		16/06/2008
URSC019	1.1	SPIRAL	WGS84_Z54MGA	588121	8598336	3.56	-90		16/06/2008
URSC020	1.1	SPIRAL	WGS84_Z54MGA	588139	8598326	3.55	-90		16/06/2008

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
URSC021	1.1	SPIRAL	WGS84_Z54MGA	588160	8598306	3.68	-90		16/06/2008
URSC022	1.1	SPIRAL	WGS84_Z54MGA	588182	8598292	4.72	-90		16/06/2008
URSC023	1.1	SPIRAL	WGS84_Z54MGA	588195	8598286	5.54	-90		16/06/2008
URSC024	1.1	SPIRAL	WGS84_Z54MGA	588204	8598276	5.04	-90		16/06/2008
URSC025	1.1	SPIRAL	WGS84_Z54MGA	588220	8598258	4.66	-90		16/06/2008
URSC026	1.1	SPIRAL	WGS84_Z54MGA	588238	8598244	4.58	-90		16/06/2008
URSC027	1.1	SPIRAL	WGS84_Z54MGA	588250	8598232	5.45	-90		16/06/2008
URSC028	1.1	SPIRAL	WGS84_Z54MGA	588265	8598222	5.17	-90		16/06/2008
URSC029	1.1	SPIRAL	WGS84_Z54MGA	588282	8598206	3.91	-90		16/06/2008
URSC030	1.1	SPIRAL	WGS84_Z54MGA	588299	8598190	3.23	-90		16/06/2008
URSC031	1.1	SPIRAL	WGS84_Z54MGA	588328	8598166	3.15	-90		16/06/2008
URSC032	1.1	SPIRAL	WGS84_Z54MGA	588346	8598148	3.67	-90		16/06/2008
URSC033	1.1	SPIRAL	WGS84_Z54MGA	588359	8598132	4.2	-90		16/06/2008
URSC034	1.1	SPIRAL	WGS84_Z54MGA	588390	8598108	4.55	-90		16/06/2008
URSC035	1.1	SPIRAL	WGS84_Z54MGA	588390	8598108	4.55	-90		16/06/2008
URSC036	1.1	SPIRAL	WGS84_Z54MGA	588408	8598100	4.65	-90		16/06/2008
URSC037	1.1	SPIRAL	WGS84_Z54MGA	588433	8598088	4.61	-90		16/06/2008
URSC038	1.1	SPIRAL	WGS84_Z54MGA	588454	8598066	4.15	-90		16/06/2008
URSC039	1.1	SPIRAL	WGS84_Z54MGA	588469	8598050	4.18	-90		16/06/2008
URSC040	1.1	SPIRAL	WGS84_Z54MGA	588484	8598036	4.27	-90		16/06/2008
URSC041	1.1	SPIRAL	WGS84_Z54MGA	588500	8598018	4.56	-90		16/06/2008
URSC042	1.1	SPIRAL	WGS84_Z54MGA	588522	8598004	4.55	-90		16/06/2008
URSC043	1.1	SPIRAL	WGS84_Z54MGA	588538	8597990	4.12	-90		16/06/2008
URSC044	1.1	SPIRAL	WGS84_Z54MGA	588561	8597974	3.8	-90		16/06/2008
URSC045	1.1	SPIRAL	WGS84_Z54MGA	588580	8597964	3.99	-90		16/06/2008
URSC046	1.1	SPIRAL	WGS84_Z54MGA	587600	8598074	1.26	-90		16/06/2008
URSC047	1.1	SPIRAL	WGS84_Z54MGA	587602	8598048	1.66	-90		16/06/2008
URSC048	1.1	SPIRAL	WGS84_Z54MGA	587644	8598054	3.62	-90		16/06/2008
URSC049	1.1	SPIRAL	WGS84_Z54MGA	587665	8598050	3.2	-90		16/06/2008
URSC050	1.1	SPIRAL	WGS84_Z54MGA	587681	8598044	3.8	-90		16/06/2008
URSC051	1.1	SPIRAL	WGS84_Z54MGA	587702	8598032	3.32	-90		16/06/2008
URSC052	1.1	SPIRAL	WGS84_Z54MGA	587721	8598024	3.7	-90		16/06/2008
URSC053	1.1	SPIRAL	WGS84_Z54MGA	587734	8598014	3.7	-90		16/06/2008
URSC054	1.1	SPIRAL	WGS84_Z54MGA	587760	8598002	3.33	-90		16/06/2008
URSC055	1.1	SPIRAL	WGS84_Z54MGA	587780	8597996	3.75	-90		16/06/2008
URSC056	1.1	SPIRAL	WGS84_Z54MGA	587806	8597984	3.96	-90		16/06/2008
URSC057	1.1	SPIRAL	WGS84_Z54MGA	587826	8597974	5.23	-90		16/06/2008
URSC058	1.1	SPIRAL	WGS84_Z54MGA	587843	8597964	4.89	-90		16/06/2008
URSC059	1.1	SPIRAL	WGS84_Z54MGA	587865	8597950	4.19	-90		16/06/2008
URSC060	1.1	SPIRAL	WGS84_Z54MGA	587888	8597946	3.72	-90		16/06/2008
URSC061	1.1	SPIRAL	WGS84_Z54MGA	587906	8597936	3.9	-90		16/06/2008
URSC062	1.1	SPIRAL	WGS84_Z54MGA	587933	8597922	3.76	-90		16/06/2008
URSC063	1.1	SPIRAL	WGS84_Z54MGA	587963	8597910	4.7	-90		16/06/2008
URSC064	1.1	SPIRAL	WGS84_Z54MGA	587982	8597906	4.81	-90		16/06/2008
URSC065	1.1	SPIRAL	WGS84_Z54MGA	587998	8597900	4.59	-90		16/06/2008
URSC066	1.1	SPIRAL	WGS84_Z54MGA	588020	8597890	4.84	-90		16/06/2008
URSC067	1.1	SPIRAL	WGS84_Z54MGA	588048	8597872	4.39	-90		16/06/2008
URSC068	1.1	SPIRAL	WGS84_Z54MGA	588068	8597852	5.15	-90		16/06/2008
URSC069	1.1	SPIRAL	WGS84_Z54MGA	588096	8597846	5.13	-90		16/06/2008
URSC070	1.1	SPIRAL	WGS84_Z54MGA	588120	8597836	4.65	-90		16/06/2008
URSC071	1.1	SPIRAL	WGS84_Z54MGA	588146	8597828	4.42	-90		16/06/2008
URSC072	1.1	SPIRAL	WGS84_Z54MGA	588174	8597816	4.06	-90		16/06/2008
URSC073	1.1	SPIRAL	WGS84_Z54MGA	588201	8597800	3.83	-90		16/06/2008
URSC074	1.1	SPIRAL	WGS84_Z54MGA	588222	8597784	3.9	-90		16/06/2008
URSC075	1.1	SPIRAL	WGS84_Z54MGA	588247	8597774	4.04	-90		16/06/2008

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
UP01	4	Aircore	WGS84_Z54MGA	588325	8598515	3.69	-90		14/09/2014
UP02	4	Aircore	WGS84_Z54MGA	588338	8598501	3.84	-90		14/09/2014
UP03	5	Aircore	WGS84_Z54MGA	588342	8598482	4.95	-90		14/09/2014
UP04	5	Aircore	WGS84_Z54MGA	588356	8598468	5.06	-90		14/09/2014
UP05	3	Aircore	WGS84_Z54MGA	588355	8598455	5.01	-90		14/09/2014
UP06	6	Aircore	WGS84_Z54MGA	588368	8598437	4.53	-90		14/09/2014
UP07	5	Aircore	WGS84_Z54MGA	588383	8598414	4.61	-90		14/09/2014
UP08	3	Aircore	WGS84_Z54MGA	588396	8598393	4.23	-90		14/09/2014
UP09	3	Aircore	WGS84_Z54MGA	588407	8598380	4.01	-90		14/09/2014
UP10	3	Aircore	WGS84_Z54MGA	588412	8598362	5.02	-90		15/09/2014
UP11	5	Aircore	WGS84_Z54MGA	588428	8598353	5.52	-90		15/09/2014
UP12	5	Aircore	WGS84_Z54MGA	588446	8598346	4.88	-90		15/09/2014
UP15	3	Aircore	WGS84_Z54MGA	588031	8598405	3.33	-90		15/09/2014
UP16	3	Aircore	WGS84_Z54MGA	588044	8598392	3.72	-90		15/09/2014
UP17	4	Aircore	WGS84_Z54MGA	588062	8598381	3.95	-90		15/09/2014
UP18	3	Aircore	WGS84_Z54MGA	588074	8598370	3.26	-90		15/09/2014
UP19	2	Aircore	WGS84_Z54MGA	588091	8598358	3.24	-90		15/09/2014
UP20	2.5	Aircore	WGS84_Z54MGA	588105	8598347	3.19	-90		15/09/2014
UP21	3	Aircore	WGS84_Z54MGA	588120	8598336	3.55	-90		15/09/2014
UP22	4	Aircore	WGS84_Z54MGA	588140	8598316	3.58	-90		15/09/2014
UP23	3	Aircore	WGS84_Z54MGA	588151	8598308	3.56	-90		15/09/2014
UP24	3	Aircore	WGS84_Z54MGA	588166	8598295	3.88	-90		15/09/2014
UP25	4	Aircore	WGS84_Z54MGA	588189	8598283	5.48	-90		15/09/2014
UP26	3	Aircore	WGS84_Z54MGA	588207	8598267	4.83	-90		15/09/2014
UP27	3	Aircore	WGS84_Z54MGA	588215	8598256	4.55	-90		15/09/2014
UP28	3	Aircore	WGS84_Z54MGA	588226	8598242	4.57	-90		15/09/2014
UP29	3	Aircore	WGS84_Z54MGA	588203	8598183	5.35	-90		15/09/2014
UP38	3	Aircore	WGS84_Z54MGA	588394	8598111	4.5	-90		17/09/2014
UP39	4	Aircore	WGS84_Z54MGA	588404	8598101	4.66	-90		17/09/2014
UP40	4	Aircore	WGS84_Z54MGA	588410	8598086	4.8	-90		17/09/2014
UP41	3	Aircore	WGS84_Z54MGA	588427	8598078	4.44	-90		17/09/2014
UP42	3	Aircore	WGS84_Z54MGA	588438	8598061	4.18	-90		17/09/2014
UP43	3	Aircore	WGS84_Z54MGA	588458	8598052	4.14	-90		17/09/2014
UP44	3	Aircore	WGS84_Z54MGA	588474	8598040	4.21	-90		17/09/2014
UP45	4	Aircore	WGS84_Z54MGA	588486	8598025	4.44	-90		17/09/2014
UP46	3	Aircore	WGS84_Z54MGA	588502	8598010	4.5	-90		17/09/2014
UP47	3	Aircore	WGS84_Z54MGA	588518	8598004	4.5	-90		17/09/2014
UP48	3	Aircore	WGS84_Z54MGA	587904	8598183	3.76	-90		15/09/2014
UP49	4	Aircore	WGS84_Z54MGA	587923	8598172	4.77	-90		15/09/2014
UP50	3	Aircore	WGS84_Z54MGA	587942	8598161	3.6	-90		15/09/2014
UP51	3	Aircore	WGS84_Z54MGA	587952	8598153	3.38	-90		16/09/2014
UP52	3	Aircore	WGS84_Z54MGA	587966	8598146	3.33	-90		16/09/2014
UP53	3	Aircore	WGS84_Z54MGA	587983	8598132	3.3	-90		16/09/2014
UP54	4	Aircore	WGS84_Z54MGA	588003	8598117	3.42	-90		16/09/2014
UP55	3	Aircore	WGS84_Z54MGA	588020	8598107	3.43	-90		16/09/2014
UP56	3	Aircore	WGS84_Z54MGA	588039	8598092	3.83	-90		16/09/2014
UP57	3	Aircore	WGS84_Z54MGA	588050	8598077	4.9	-90		16/09/2014
UP58	3	Aircore	WGS84_Z54MGA	588052	8598064	4.85	-90		16/09/2014
UP59	3	Aircore	WGS84_Z54MGA	588066	8598057	4.67	-90		16/09/2014
UP62	4	Aircore	WGS84_Z54MGA	588145	8598033	5.77	-90		17/09/2014
UP63	4	Aircore	WGS84_Z54MGA	588156	8598020	5.18	-90		17/09/2014
UP64	3	Aircore	WGS84_Z54MGA	588166	8598009	4.61	-90		17/09/2014
UP65	3	Aircore	WGS84_Z54MGA	588189	8598002	4.13	-90		17/09/2014
UP66	3	Aircore	WGS84_Z54MGA	588206	8597994	4.23	-90		17/09/2014
UP67	4	Aircore	WGS84_Z54MGA	588224	8597980	4.84	-90		17/09/2014
UP68	3	Aircore	WGS84_Z54MGA	588243	8597972	5.14	-90		17/09/2014
UP69	3	Aircore	WGS84_Z54MGA	588259	8597961	5.15	-90		17/09/2014
UP70	3	Aircore	WGS84_Z54MGA	588277	8597958	4.76	-90		17/09/2014

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
UP71	3	Aircore	WGS84_Z54MGA	588289	8597934	4.2	-90		17/09/2014
UP72	3	Aircore	WGS84_Z54MGA	588311	8597925	3.79	-90		17/09/2014
UP74	3	Aircore	WGS84_Z54MGA	587810	8597956	4.67	-90		16/09/2014
UP75	3	Aircore	WGS84_Z54MGA	587824	8597953	5.19	-90		16/09/2014
UP76	3	Aircore	WGS84_Z54MGA	587846	8597952	4.87	-90		16/09/2014
UP77	3	Aircore	WGS84_Z54MGA	587863	8597938	4.29	-90		16/09/2014
UP79	3	Aircore	WGS84_Z54MGA	587901	8597928	3.92	-90		16/09/2014
UP80	3	Aircore	WGS84_Z54MGA	587919	8597909	3.85	-90		16/09/2014
UP81	3	Aircore	WGS84_Z54MGA	587935	8597900	3.9	-90		16/09/2014
UP82	3	Aircore	WGS84_Z54MGA	587956	8597891	4.71	-90		16/09/2014
UP83	4	Aircore	WGS84_Z54MGA	587971	8597883	4.81	-90		16/09/2014
UP84	4	Aircore	WGS84_Z54MGA	587992	8597874	4.52	-90		16/09/2014
UP85	3	Aircore	WGS84_Z54MGA	588005	8597867	4.61	-90		16/09/2014
UP86	3	Aircore	WGS84_Z54MGA	588027	8597861	4.5	-90		16/09/2014
UP87	3	Aircore	WGS84_Z54MGA	588050	8597840	4.62	-90		16/09/2014
UP89	4	Aircore	WGS84_Z54MGA	588077	8597838	5.45	-90		16/09/2014
UP90	5.5	Aircore	WGS84_Z54MGA	588098	8597843	5.11	-90		16/09/2014
UP91	5	Aircore	WGS84_Z54MGA	588116	8597836	4.73	-90		16/09/2014
UP92	3	Aircore	WGS84_Z54MGA	588136	8597834	4.62	-90		16/09/2014
UP93	3	Aircore	WGS84_Z54MGA	588152	8597835	4.29	-90		17/09/2014
UP94	4	Aircore	WGS84_Z54MGA	588185	8597834	3.98	-90		17/09/2014
UP95	3	Aircore	WGS84_Z54MGA	588211	8597836	3.91	-90		17/09/2014
UP96	4	Aircore	WGS84_Z54MGA	588714	8597999	4.08	-90		17/09/2014
UP97	3	Aircore	WGS84_Z54MGA	588711	8598029	4.41	-90		17/09/2014
UP98	3	Aircore	WGS84_Z54MGA	588731	8598069	4.73	-90		17/09/2014
M 01	4	Aircore	WGS84_Z54MGA	587951	8597709	4.85	-90		1/02/2014
M 02	4	Aircore	WGS84_Z54MGA	587985	8597713	4.51	-90		1/02/2014
M 03	4	Aircore	WGS84_Z54MGA	588020	8597691	4.3	-90		1/02/2014
M 04	4	Aircore	WGS84_Z54MGA	588059	8597670	4.95	-90		1/02/2014
M 05	4	Aircore	WGS84_Z54MGA	588095	8597651	4	-90		1/02/2014
M 06	4	Aircore	WGS84_Z54MGA	588077	8598122	4.94	-90		1/02/2014
M 07	4	Aircore	WGS84_Z54MGA	588122	8598123	5.22	-90		1/02/2014
M 08	4	Aircore	WGS84_Z54MGA	588142	8598063	5.28	-90		1/02/2014
M 09	4	Aircore	WGS84_Z54MGA	588157	8598043	5.57	-90		1/02/2014
M 10	4	Aircore	WGS84_Z54MGA	588230	8598402	3.85	-90		1/02/2014
M 11	4	Aircore	WGS84_Z54MGA	588260	8598373	6.03	-90		1/02/2014
M 12	4	Aircore	WGS84_Z54MGA	588291	8598345	4.19	-90		1/02/2014
M 13	4	Aircore	WGS84_Z54MGA	588322	8598313	4.18	-90		1/02/2014
M 14	4	Aircore	WGS84_Z54MGA	588355	8598292	5.71	-90		1/02/2014
M 15	4	Aircore	WGS84_Z54MGA	588389	8598261	3.98	-90		1/02/2014
M 16	4	Aircore	WGS84_Z54MGA	588401	8598231	3.13	-90		1/02/2014
M 17	4	Aircore	WGS84_Z54MGA	588493	8598643	3.84	-90		1/02/2014
M 18	4	Aircore	WGS84_Z54MGA	588521	8598620	4.12	-90		1/02/2014
M 19	4	Aircore	WGS84_Z54MGA	588550	8598578	4.9	-90		1/02/2014
M 20	4	Aircore	WGS84_Z54MGA	588587	8598549	4.24	-90		1/02/2014
M 21	4	Aircore	WGS84_Z54MGA	588611	8598519	4.13	-90		1/02/2014
M 22	4	Aircore	WGS84_Z54MGA	588623	8598488	4.75	-90		1/02/2014
M 23	4	Aircore	WGS84_Z54MGA	588637	8598464	5.26	-90		1/02/2014
M 24	4	Aircore	WGS84_Z54MGA	588685	8598421	3.31	-90		1/02/2014
M 25	5	Aircore	WGS84_Z54MGA	588787	8598764	3.62	-90		1/02/2014
M 26	7	Aircore	WGS84_Z54MGA	588791	8598731	3.85	-90		1/02/2014
M 27	5	Aircore	WGS84_Z54MGA	588801	8598689	3.4	-90		1/02/2014
M 28	7	Aircore	WGS84_Z54MGA	588796	8598652	3.29	-90		1/02/2014
M 29	6	Aircore	WGS84_Z54MGA	588790	8598611	4.7	-90		1/02/2014
M 30	6	Aircore	WGS84_Z54MGA	588783	8598576	4.73	-90		1/02/2014
M 31	4	Aircore	WGS84_Z54MGA	588787	8598538	4.03	-90		1/02/2014
M 32	4	Aircore	WGS84_Z54MGA	588812	8598504	4.52	-90		1/02/2014
M 33	4	Aircore	WGS84_Z54MGA	588847	8598458	3.55	-90		1/02/2014
M 34	4	Aircore	WGS84_Z54MGA	589096	8598904	4.07	-90		1/02/2014
M 35	4	Aircore	WGS84_Z54MGA	589099	8598870	4.18	-90		1/02/2014

Hole_ID	Depth(m)	Hole_Type	Datum	Orig_East	Orig_North	Fugro-RL	Dip	Survey	Survey_Date
M 36	4	Aircore	WGS84_Z54MGA	589099	8598826	3.81	-90		1/02/2014
M 37	4	Aircore	WGS84_Z54MGA	589102	8598793	3.74	-90		1/02/2014
M 38	4	Aircore	WGS84_Z54MGA	589103	8598760	3.86	-90		1/02/2014
M 39	4	Aircore	WGS84_Z54MGA	589105	8598713	4.14	-90		1/02/2014
M 40	4	Aircore	WGS84_Z54MGA	589123	8598669	2.33	-90		1/02/2014
M 41	4	Aircore	WGS84_Z54MGA	589112	8598628	4.05	-90		1/02/2014
M 42	4	Aircore	WGS84_Z54MGA	589112	8598589	3.42	-90		1/02/2014
M 43	4	Aircore	WGS84_Z54MGA	589112	8598553	3.94	-90		1/02/2014
M 44	4	Aircore	WGS84_Z54MGA	589117	8598518	3.38	-90		1/02/2014
M 45	4	Aircore	WGS84_Z54MGA	589442	8598726	3.41	-90		1/02/2014
M 46	4	Aircore	WGS84_Z54MGA	589426	8598692	3.36	-90		1/02/2014
M 47	4	Aircore	WGS84_Z54MGA	589413	8598657	3.47	-90		1/02/2014
M 48	4	Aircore	WGS84_Z54MGA	589378	8598619	3.78	-90		1/02/2014
M 49	4	Aircore	WGS84_Z54MGA	589373	8598586	4.34	-90		1/02/2014
M 50	4	Aircore	WGS84_Z54MGA	589352	8598550	3.57	-90		1/02/2014
M 51	4	Aircore	WGS84_Z54MGA	589337	8598516	3.16	-90		1/02/2014
M 52	4	Aircore	WGS84_Z54MGA	589795	8598425	2.6	-90		1/02/2014
M 53	4	Aircore	WGS84_Z54MGA	589776	8598403	3.03	-90		1/02/2014
M 54	4	Aircore	WGS84_Z54MGA	589735	8598390	3.35	-90		1/02/2014
M 55	4	Aircore	WGS84_Z54MGA	589713	8598370	2.89	-90		1/02/2014

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data: URQUART POINT

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Samples of the Mineral Sand deposit were collected by systematic drilling and sampling methods on regular spaced sections orientated at right angles to the strike of the deposit. • All samples were either cone and quartered with approximately 1 kg/sample/metre collected or all the material was collected per metre – shipped to lab. Both procedures are appropriate for mineral sands sampling. • 1:30 separate field splits were taken and analysed to ensure representative sampling techniques. Duplicate holes were drilled and random duplicate samples were bagged. • Approximately 1 kilogram of homogenized sample was collected per metre drilled. Recent sampling collected all the HMS sample per 1 m interval, typically weighing 8 – 10 kgs. • Duplicate analysis confirmed the veracity of the sampling • One metre length samples were collected from the sampling and effectively quartered to provide representative samples of approximately 1 kilogram each, in the 2014 drill programme all the sample for each interval was collected and submitted for analysis.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).*	• Shell Auger Sampling with a 100 mm diameter shell bit (207 holes) • Spiral Auger Sampling with a 75 mm diameter bit (75 holes) • 83 face sampling aircore and spiral holes for a total of 283 metres • 55 Wallis face sampling aircore holes for a total of 232 metres
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.*	• 100% recovery for the shell auger sampling • 90% for the spiral auger sampling • Aircore recovery qualitatively logged as excellent • Careful sampling techniques ensured comprehensive and

Criteria	JORC Code explanation	Commentary
	• *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.*	representative sample was collected • No relationship between sample recovery and grade is known to exist.

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 samples were systematically logged recording colour, grainsize, hardness, composition and estimated HM%.
		• Appropriate for a Measured and Indicted Resource estimate.
		  • All one metre intervals logged by competent geologist
		  • Logging is a combination of qualitative and quantitative data being collected and considered.

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.*	• N/A • All material from each drilled metre bagged. Samples were moist. • Samples were cone and quartered with comprehensive mixing in between all stages of sampling. Duplicate sample analysis on a number of the holes/samples confirmed the reliability of sampling • No sub-sampling done in field, only at lab. • Sample sizes were appropriate for the medium grain nature of the particular sample and grade. • In February 2004 drill programme, all sample material from each metre of drilling collected and therefore representative.
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*	• Assaying was carried out by Western Geolabs Pty Ltd of Perth and Robbins Metallurgical Labs in Brisbane, using the following procedure: • Dry for 5-8 hours: Disaggregate by hand • Split off approximately 120g via a riffle splitter

Criteria	JORC Code explanation	Commentary
	derivation, etc. • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• Deslime 120g split through 63um screen (minus 63um fraction is "% slimes") • Dry and weigh plus 63 µm fraction • Split off and weigh plus 1.00 mm fraction ("%oversize") • Stir +1.00 mm -63 µm fraction into TBE liquid in separation funnels. • Sinks are drained, washed, dried and weighed to give "%HM".
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.*	• Verification between assay results an geologist HM% estimates from log sheets • A number of programs of drilling and sampling have been completed by different companies and individuals. • No significant differences between twinned holes have been apparent. • Data faxed to Maxwell Data Services where it was entered into validated Access Databases and updated by specialist data consultants for the aircore latest drilling.
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• GPS survey (+/- 5metres), appropriate for this type of deposit. (WGS 84), MGA Zone 54, GDA94 • Grid: MGA Zone 54, GDA94, RLs as per detailed aerial survey completed by Fugro in 2012
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• Section spacing: 100 - 200 m along strike, holes 20-30 m across strike, considered to be appropriate for the strand style of the Urquhart Point Mineral Sand Deposit. • All samples represent 1 m of drilling. • Composite samples were arranged at the analytical laboratory for most of the modal analysis work to define the HM assemblage.
Orientation of data in	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• Sampling conducted with vertical drill holes on section lines, orientated at right angles to the strike of the deposit. Most holes only

Criteria	JORC Code explanation	Commentary
relation to geological structure	• *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.*	4 m deep, therefore limited chance of bias. • NA Sample handling was supervised by the geologist on site.
Sample security	• *The measures taken to ensure sample security.*	• Samples were dispatched via courier service between site and Perth and Brisbane. • Visual estimates matched/compared to lab results to broadly confirm grades
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No formal audits have been conducted. Discussion between all interested parties has confirmed that the drilling and analytical techniques used are appropriate. A review of the data and Mineral Resource by specialist mining consultants (IMC) has assisted in the estimate.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *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.*	• Oresome Australia Pty Ltd (a 100% owned subsidiary of Metallica Minerals Limited) is the registered tenement holder of granted ML20669, covering 367.5 hectares. • Environmental Impact Assessments have been made and approval to commence mining has been given. Buffer Zones may reduce the accessible or mineable Mineral Resource by approximately 10-15%. • Mining Lease application ML20737, (5.42 hectares) which covers a slice of the high grade mineralisation in the northeastern sector of the deposit and also portions of the environmental buffer zone, has not yet been granted. Approval to mine in this area will maximize the Mineral Resource estimate and therefore the economic potential of

Criteria	JORC Code explanation	Commentary
		the deposit.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Exploration has been conducted since the early 1960s. A reasonable proportion of the previous work was conducted by Matilda Minerals, between 2006-2008.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The deposit is a low slimes strand style of deposit with the heavy minerals comprised of zircon, rutile, ilmenite and iron oxides. The deposits consist of a series of strands parallel to the coast and inshore areas of Albatross Bay. The highest grade zones are located on the northern end of the deposit area and recent reworking by storms and currents have resulted in accumulations of heavy minerals on the active beach and extending inland at Urquhart Point.
Drill hole Information	• *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:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *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.*	• See Appendix One for a full listing of all drillholes drilled at Urquart Point.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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*	• No top cut adopted as is typical with a mineral sand homogenous style of deposit. • NA

Criteria	JORC Code explanation	Commentary
	should be clearly stated.	• NA
Relationship between mineralisation widths and intercept lengths	• *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 (e.g. 'down hole length, true width not known').*	• The deposit is a flat lying sand deposit averaging approximately 2.5 metres in thickness and extending over approximately 200 Hectares • Vertical Holes are drilled on regular sections throughout the deposit. Downhole lengths are true thickness intersections
Diagrams	• *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.*	• See attached plan view of Mineral Resource, however because of the relatively large area extent of shallow mineralization mostly <4m a sectional view would be difficult without very high vertical exaggeration and this could be misinterpreted.
Balanced reporting	• *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.*	• NA
Other substantive exploration data	• *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.*	• Bulk samples collected for metallurgical test work has returned similar results to that obtained by the exploration and resource development drilling.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further work will be directed towards the development of a mining operation, following confirmation of the economic parameters of the project. • The company is confident that the deposit has been sufficiently drilled that there will be no additional significant HM zones within the Mining Lease areas.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Data was managed by an external database management company which then provided Access exports available for use in Micromine Mining Software. Original analytical results electronically merged with the sample number. Data verified with sections/plans/database queries.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A total of 3 site visits have been made by the Competent Person.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The confidence in the simple geometry of the resource is considered very good. • The HMS resource is classified as a Measured and Indicated Resource, commensurate with the work completed, the integrity of the data economic potential and drill hole density. • The deposit is consistent and little alternatives are present in the current geological understanding. • Drill logs/sections were coded by geology to ensure an accurate fit and interpretation.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The deposit occurs over a broadly orientated north –south direction over a 5 kilometre strike length. The width of the deposit is variable and ranges from 30-400 metres in width. Thickness varies between 1-3.5 metres.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes*	• Individual wireframes for different portions/orientations of the deposit was adopted. • Search ellipses were 2X the section spacing and 2 X the hole spacing, with a 1 metre search in the Z direction. • Previous estimates have been made and compare closely to this latest estimate.

Criteria	JORC Code explanation	Commentary
	appropriate account of such data. • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• No assumptions have been made for recovery of by-products • No deleterious elements of the project have been identified. • Block Sizes adopted for the modelling was 20 m X 20 m X 1 m, X, Y and Z dimensions, subcelled to wireframe volumes by 2. • Search Ellipses orientated parallel to the strike continuity of the deposits Inverse Distance Squared Interpolation Methods • Homogenous mineral sand deposits may be estimated without a topcut. The correlation between duplicate sample splits and twinned holes suggest no nugget effect to the sampling. • Only sand and material containing heavy minerals formed the wireframes • Validation, via comparison with wireframe average grade, verses interpolated OBM values.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Dry Basis
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• NA
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• Simple mineral sand mining operation with excavator and truck/Loader is envisaged. Dilution negligible.
Metallurgical factors or	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction*	• The deposit type is very similar to the Matilda Mineral Tiwi Island mineral sand project where recoveries of 90% was readily achieved, using a convention screening and spiral processing

Criteria	JORC Code explanation	Commentary
assumptions	*to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	operation to produce a zircon/rutile premium product.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Extraction of the HM% and tailings pumped back into the mined pit. • Environmental Impact Assessment completed and approvals received
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• An insitu bulk density (ISBD) was estimated based on detailed work on site. A slightly conservative cubic metre to tonnage conversion factor of 1.6 tonnes per cubic metre was adopted. • The adopted bulk density takes into account the porosity of the sand • 1.6 >1.8 t/bcm is an accepted industry standard for similar deposits.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The classification is based on drill hole density, GPS surveying measurements, geological knowledge of strandlines and modal analysis. • Appropriate account has been taken of all relevant factors. • The Mineral Resource estimate appropriately reflects the view of the Competent Person

Criteria	JORC Code explanation	Commentary
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• This 2014 estimate compares favourably with a 2008 and 2013 estimate.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The relative accuracy of the mineral resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC code. Classification into Measured and Indicated categories is based on drill density and veracity of the sampling adopted and geological knowledge. The statement relates to global estimates of tonnes and grade. No production data available