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Australian Securities Exchange Company Announcements Office 28 February 2019

# MRC ANNUAL RESOURCE UPDATE TORMIN MINE MINERAL RESOURCE AUDIT

Mineral Commodities Ltd (ASX: MRC) ("the Company" or "MRC") is pleased to provide a summary of all material information in respect to its annual Tormin Mineral Sands Operation ("Tormin", Figure 1) resource audit.

The original Tormin resource was contained within the quarterly activities report released on 31 October 2011. The Tormin beach deposit is an active placer beach sand deposit limited in extent on its eastern side by coastal cliffs and to depth by bedrock contact. The resource is open towards the ocean and surf zone on its western side, as well as along the coastline towards the north and south. Vertical composite channel sampling took place during November 2018 to January 2019 from 199 test pits dug by excavators. Sampling was subject to XRF and grain counting analysis. No drilling took place.

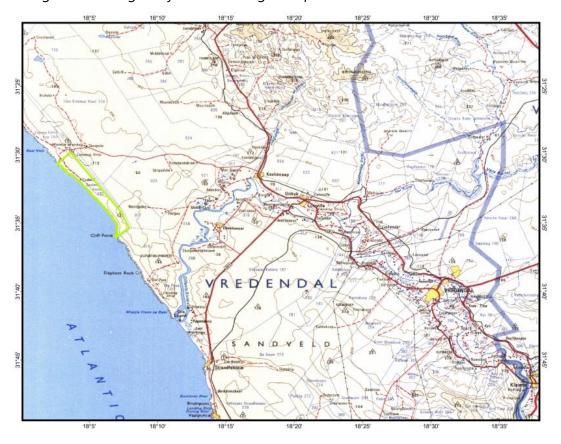


Figure 1 – Location of Tormin mine highlighted in green

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There were 4,128 grade control analyses undertaken during the year from the 2018 mined blocks and 199 resource control pit samples taken (100m x 15m average spacing along strandline) at the end of 2018 (Figure 2). Due to the unstable nature of the resource, the deposit was again classified into the inferred resource category during the resource audit assessment.

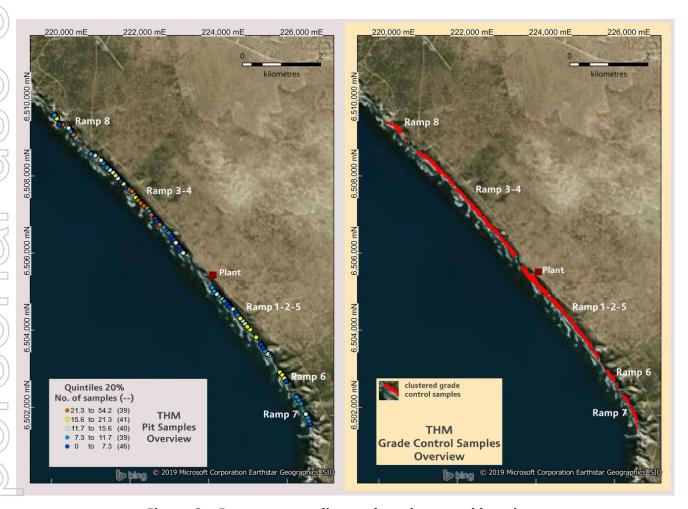


Figure 2 - Resource sampling and grade control locations

The inferred mineral resource was estimated on the basis of limited geological evidence and sampling. The geological evidence in this case from historical mine data (4,128 samples) and updated sampling (199 pits) is sufficient to imply but not to verify the geological and grade continuity (Figures 3-7).



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6505600 Legend 6505400 odata point • grade control point 6505200-6505000-6504800-North (m) 6504600 6504400 37.5 35 32.5 6504200-30 27.5 Total HM (%) 25 6504000-22.5 20 6503800-- 17.5 15 12.5 6503600-10 - 5 6503400-224400 225000 225200 223600 223800 224000 224200 224600 224800 225400 East WGS84 UTM z34 **Tormin Mineral Sand Deposit** Ramp 1-2-5 500 250 **TOTAL HEAVY MINERAL (%)** (m)

Figure 3 – Total Heavy Mineral ("THM") % at areas Ramp 1-2-5



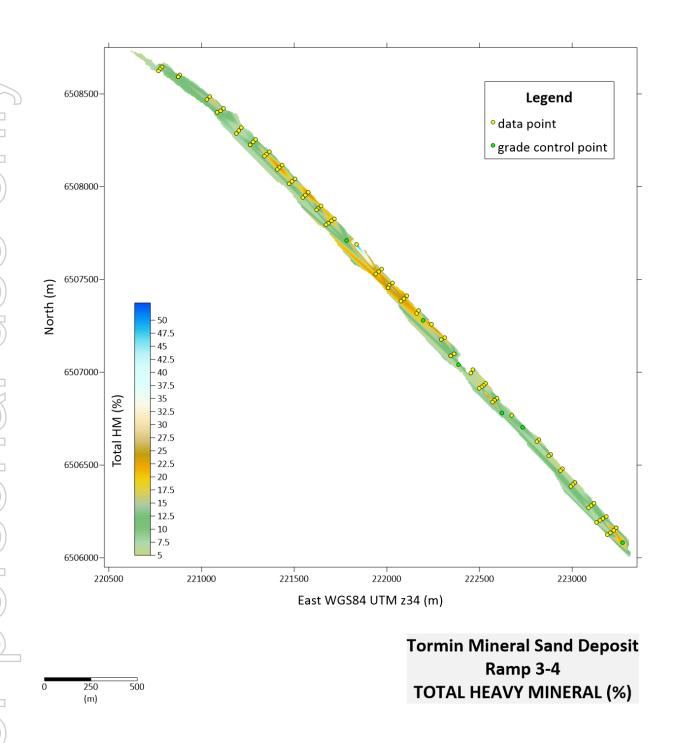


Figure 4 - THM % at areas Ramp 3-4



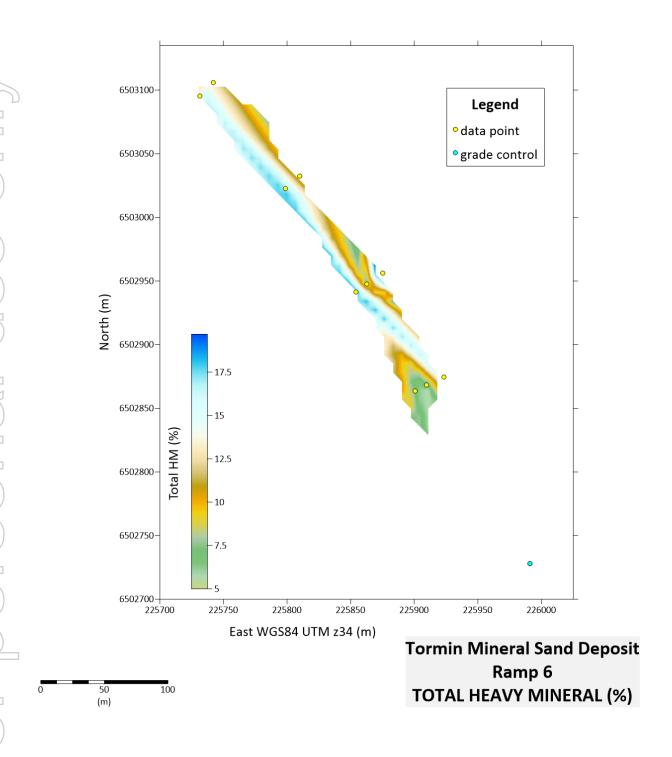
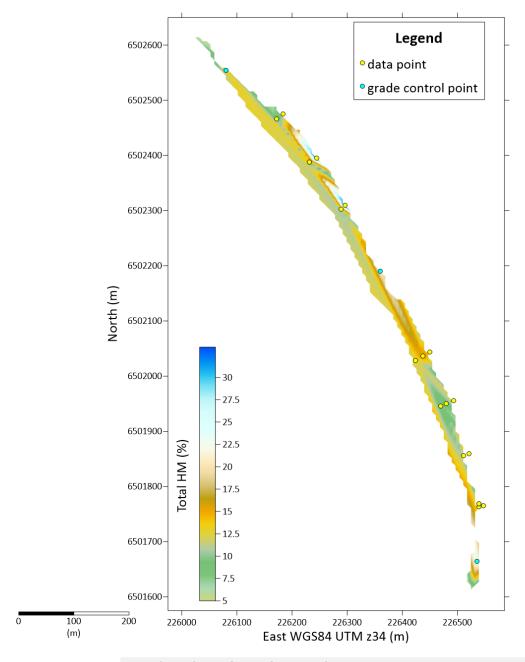


Figure 5 - THM % at area Ramp 6



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Tormin Mineral Sand Deposit - Ramp 7 - TOTAL HEAVY MINERAL (%)

Figure 6 - THM % at area Ramp 7



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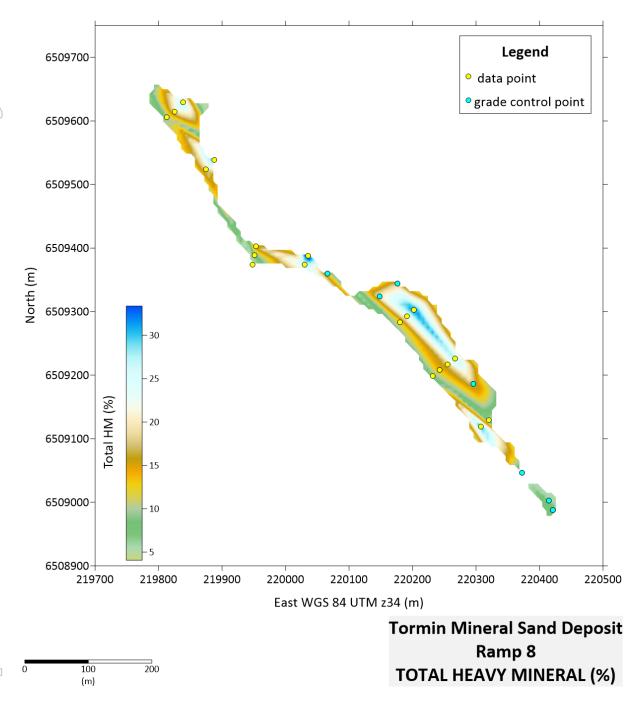


Figure 7 - THM % at area Ramp 8

The historical mine production data has been used to confirm the replenishing nature of the resource. As the mining rate is faster than the replenishment rate, the resource grade has been steadily declining over the past five years (Figure 8).



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**Heavy Mineral Resource Grades Over Last 5 Years** 60% 50% Heavy Mineral Grades 40% -THM 30% Ilm. Zirc. 20% -Rut. 10% -Garn. 0% 3 Years

Figure 8 – Graph of Heavy Mineral resource grades over last 5 years

Production has increased steadily since 2014 while the inferred resource has declined. Production in 2018 was more than the nominal resource (Figure 9). This confirms that replenishment of resources is on-going and that production is being sustained even though grades are declining.

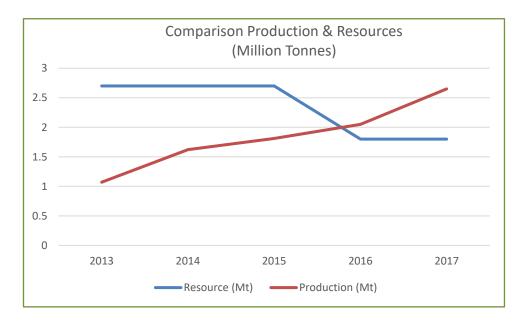


Figure 9 – Comparison graph between resource tonnage and tonnes mined in subsequent year



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Individual resource blocks within the overall resource can, because of the unstable environment, change rapidly in thickness, grade and composition throughout the year. Replenishment, though persistent, is irregular and aligned with high tides and storm surges. Increasing the complexity is that mining pits are not stable, are regularly swamped and that the mining process itself moves material around the beaches. Tailings are returned to the beach which, when moved around by wave action, can add to the likelihood of variability in grades.

**Table 1 – Resource and Production Summary Data** 

Category	Resource Million Tonnes	Total Heavy Mineral (% HM)	Ilmenite (% in resource)	Zircon (% in resource)	Rutile (% in resource)	Garnet (% in resource)	
Indicated Resource Dec 2013	2.7	49.40%	10.60%	3.40%	0.70%	25.30%	
Tonnes Mined FY2014	1.07	53.83%	17.26%	4.76%	0.65%	31.16%	
Inferred Resource Dec 2014	2.7	38.14%	10.05%	2.21%	0.46%	25.22%	
Tonnes Mined FY2015	1.62	49.57%	16.15%	3.88%	0.60%	28.94%	
Inferred Resource Dec 2015	2.7	28.01%	6.97%	1.56%	0.55%	18.54%	
Tonnes Mined FY2016	1.81	45.97%	12.97%	2.78%	0.61%	29.21%	
Inferred Resource Dec 2016	1.8	28.08%	6.15%	1.65%	0.53%	18.99%	
Tonnes Mined FY2017	2.05	27.57%	5.81%	1.10%	0.50%	19.40%	
Inferred Resource Dec 2017	1.80	15.92%	2.72%	0.79%	0.43%	11.45%	
Tonnes Mined FY2018	2.65	17.35%	3.14%	0.55%	0.38%	12.55%	
Source: MRC	and AEMCO Pt	y Ltd		•		•	

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The current **2018 Inferred Resource of 2.26 Million Tonnes ("Mt") at 14.1% Total Heavy Mineral ("THM")** (Table 2), is considerably higher than the resource estimated for 2017 (1.8 Mt at 15.92% THM). However, it is more in line with the actual production figures for 2018 of 2.65 Mt at 17.35% THM. The reasons for the resource variations are likely to be:

- 2017 data set (119 samples) is a completely different set of samples from that in 2018 (199 samples);
- the anisotropy values selected for the 2018 calculations were possibly different;
- grade control samples were used to extend the modelling in 2018;
- the average thickness in 2018 was 2.8 metres while in 2017 it was 2.6 metres; and
- the calculations in 2017 were done globally (encompassing the whole data set at once) possibly leading to larger gaps of no resources between the different areas.

The differences between production and resource tonnage is obviously due to the amount of higher-grade replenishment (ie. new) material mined throughout the year which cannot be accounted for in the modelling

The cut-off grade used was 5% Total Heavy Mineral content. Cut-off grade is based on the economic criteria established by the ongoing mining operations. No modifying factors outside the cut-off grade were applied as the whole resource is actively being mined and the inferred resource cannot be converted to a mineral reserve.

Executive Chairman Mark Caruso said, "There continues to be a strong correlation between the inferred resource grade and the material mined grade to date. The 2018 Mineral Resource audit demonstrates a continued volumetric natural replenishment with in excess of 9.2 million tonnes having been mined to date against the initial indicated resource of 2.7 million tonnes. Furthermore, processing optimisations in 2018 have resulted in additional recovery of valuable heavy minerals, which was formerly being returned to the beach as tailings and enhancing the resource grade.

Notwithstanding the reduction in the inferred resource grade, the Tormin Operation remains a world class resource and the Company remains confident that in conjunction with the renewal of its Mining Rights, granting of the current Prospecting Rights and Mine Extension Right Applications, the resource will underpin Tormin's operations into the future."

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### Table 2 - Updated Inferred Resource Table

Category	Resource Million Tonnes	Million Heavy (% in		Zircon (% in resource)	Rutile (% in resource)	Garnet (% in resource)	
Indicated Resource – Dec 2013	2.70	49.4%	10.6%	3.4%	0.7%	25.3%	
Inferred Resource – Dec 2014	2.70	38.14%	10.05%	2.21%	0.46%	25.22%	
Inferred Resource – Dec 2015	2.70	28.01%	6.97%	1.56%	0.55%	18.54%	
Inferred Resource – Dec 2016	1.80	28.08%	6.15%	1.65%	0.53%	18.99%	
Inferred Resource – Dec 2017	1.8	15.92%	2.72%	0.79%	0.43%	11.45%	
Material Mined - FY2018	2.65	17.35%	3.14%	0.55%	0.38%	12.55%	
Inferred Resource – Dec 2018 5% THM cut-off	2.26	14.1%	2.3%	0.43%	0.19%	7.9%	

<sup>\*</sup> Includes other valuable heavy minerals e.g. Leucoxene and Magnetite

# Table 3 – Typical Resource Audit Samples Taken (full table of results included at the end of release)

					PIT Sample							
PIT_ID	N	E	Z_FROM	z_to		%GC_GNT	%GC_ILM	%GC_ZIRC	%XRF_ZRC	%GC_RUT	%GC_LEUC	%WT_MAGN
PIT86T	6,507,690.214	221,835.493	4.691	1.501	3.190	45.54	4.31	1.85	1.76	0.27	2.04	0.09
PIT34T	6,504,404.095	224,735.486	0.895	-2.835	3.730	24.70	10.66	3.55	3.51	0.53	1.96	0.09
PIT28T	6,503,733.975	225,305.973	2.085	0.305	1.780	22.97	10.94	2.19	2.11	0.33	2.42	0.10
PIT171T	6,506,839.581	222,569.505	0.603	0.223	0.380	21.29	11.42	1.50	1.59	0.27	3.49	0.09
PIT135T	6,509,387.535	220,035.219	2.542	0.452	2.090	27.28	6.75	0.61	0.59	0.27	2.54	0.08
PIT23T	6,503,542.790	225,456.451	2.070	-0.250	2.320	19.20	11.61	2.90	2.73	0.26	2.89	0.10
PIT58T	6,502,309.480	226,296.330	0.700	-0.400	1.100	24.61	9.26	1.16	0.98	0.26	1.44	0.10
PIT75T	6,505,133.586	224,119.930	2.600	0.320	2.280	25.85	5.97	1.19	1.33	0.27	1.49	0.07
PIT60T	6,502,395.450	226,244.750	1.770	-0.260	2.030	15.54	13.76	1.79	1.74	0.53	2.98	0.11
PIT132T	6,509,303.109	220,202.293	2.515	1.215	1.300	22.42	6.70	0.84	0.84	0.25	2.78	0.12
PIT140T	6,509,538.970	219,888.036	2.969	1.789	1.180	25.57	1.17	0.59	0.52	0.26	3.88	0.04
PIT126T	6,509,119.285	220,307.806	1.072	0.042	1.030	24.27	4.06	0.48	0.41	0.21	2.38	0.04
PIT156T	6,507,259.925	222,241.358	2.092	-1.408	3.500	20.90	6.88	0.66	0.30	0.29	2.45	0.08
PIT127T	6,509,226.257	220,266.825	2.332	-0.618	2.950	16.87	8.76	0.32	0.33	0.29	2.42	0.08
PIT142T	6,509,628.970	219,838.347	3.051	2.271	0.780	23.58	0.80	0.53	0.50	0.24	3.11	0.07
PIT149T	6,507,468.080	222,012.359	0.975	-1.625	2.600	19.97	5.40	0.54	0.45	0.24	1.79	0.04
PIT65T	6,504,560.467	224,642.877	2.101	-2.009	4.110	16.25	5.31	1.47	1.41	0.26	4.40	0.08
PIT95T	6,507,969.926	221,574.685	2.796	-1.574	4.370	20.11	3.19	0.64	0.63	0.29	2.12	0.09
PIT42T	6,502,956.404	225,875.126	2.437	0.527	1.910	19.60	3.64	1.21	1.46	0.27	1.51	0.09

The December 2018 Inferred Resource (Table 2) is based on the reasonable prospect for the economic extraction of the material, as has occurred over the past 5 years. Note that individual minerals are reported as a percentage of the total resource.

# RC

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Mining has now been ongoing for five years and a total of 9.2 million tonnes of material has been processed. The tonnage processed is substantially more (over three times) than the original declared resource tonnage (2.7 Mt) which is indicative of the replenishing nature of the resource where resource blocks are mined more than once per year.

The Inferred Resource tonnage is 2.26 million tonnes. Resource replenishment is occurring, but at a rate that is slower than the mining rate. The Company is unable to report a replenishment grade or quantity under the 2012 JORC code. The Company continues to conduct grade reconciliation and sample grading on a daily basis as part of the mining operation to correlate between stated resource and actual resource in terms of quantity, grade and replenishment.

The resource grade has lowered and Total Heavy Mineral content is now 14.1%, at a cut-off grade of 5% Heavy Mineral ("HM").

The nature of the resource replenishment is typical of modern day beach placer deposits found along the West Coast of South Africa and the Southeastern Tamil Nadu coast of India.

- ENDS -

### For enquiries regarding this release, please contact:

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### **About Mineral Commodities Ltd:**

Mineral Commodities Ltd (ASX: MRC) is a global exploration and mining company with a primary focus on the development of high-grade mineral deposits within the industrial minerals, base metals, bulk commodities and precious metals sectors.

The Company is a leading producer of zircon, rutile, garnet and ilmenite concentrates through its Mineral Sands Operation at Tormin, located on the west coast of South Africa. The planned development of the Munglinup Graphite Project, located near Esperance in Western Australia, is consistent with the Company's strategy to capitalise on the fast growing sustainable renewable energy storage and electric vehicle revolution as well as downstream vertically integrated value-adding.

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The Company has also secured first-mover advantage in Iran, considered the most prospective and underdeveloped mineral resource country in the world, and has entered into agreements and applied for tenements over a number of prospective areas in Western Australia targeting vanadium, lithium, channel iron ore and gold/copper.

### **Cautionary Statement**

This report may contain forward-looking statements. Any forward-looking statements reflect management's current beliefs based on information currently available to management and are based on what management believes to be reasonable assumptions. It should be noted that a number of factors could cause actual results or expectations to differ materially from the results expressed or implied in the forward-looking statements.

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### **Competent Persons Statement**

The work in this report was prepared by Dr Joseph A.P. Drake-Brockman who is a Fellow of the Australian Institute of Mining and Metallurgy (AusIMM).

This statement warrants that the author, Dr Joseph A.P. Drake-Brockman and/or Drake-Brockman Geoinfo Pty Ltd does not have any current pecuniary interest in the above project or any future interest contingent upon the success of the project.

The fee for completing this report is based on normal professional daily rates plus reimbursement of incidental expenses.

The author warrants that the report is a true and independent body of work compiled without any influence from MRC or their directors or staff. All interpretations and conclusions expressed in the report are the opinions of the author based on his professional knowledge and experience. The factual information has been compiled by the author from sources noted in the text.

Dr Drake-Brockman has sufficient experience which is relevant to the style of mineralization 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'. Dr Drake-Brockman consents to the inclusion in the report of the matters based on his assessment of the available information in the form and context in which it appears.

Site visits have not been undertaken as the work to be carried out is primarily data based. As the sampling has been undertaken prior to the engagement of the author, there is little a site visit could achieve.

Dr Drake-Brockman is employed by Drake-Brockman Geoinfo Pty Limited.

The following table provides a summary of important assessment and reporting criteria used for the Tormin Operation in accordance with the Table 1 checklist in The Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition). Criteria in each section apply to all preceding and succeeding sections.



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# JORC TABLE 1 Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	<ul> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>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.</li> </ul>	<ul> <li>Vertical channel composite sampling within exploration pits.</li> <li>Sample taken from surface to bedrock.</li> <li>Mineralisation and grade testwork done according to mine control standards within mine site laboratory. Grain counting and XRF.</li> </ul>
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).	Test pits by excavator.
• Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	Large composite channel samples were taken and riffled down to a representative samples for grain count identification and XRF scanning.
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	No logging done as mineral identification is by microscope.
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Samples were riffled.</li> <li>Samples were mostly wet from sea ingress/seepage.</li> <li>Channel sampling method is only practical method as beac access time is limited due to sea tide activity.</li> <li>Duplicate samples are taken at random for grade control and also compare with run of mine samples from same location.</li> <li>Sampled material is run of mine material and therefor representative.</li> </ul>
• Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul> <li>Grain counting and XRF has been used as an accurate assamethod over the last 4 years of mining the deposit. It complies with industry standards.</li> <li>Industrial laboratory XRF machines are used by Tormin mine.</li> <li>No additional duplicates or blanks were used.</li> </ul>



Criteria	JORC Code Explanation	Commentary					
Verification of sampling and	The verification of significant intersections by either independent or alternative company personnel.	All sampling was done by mine site personnel overseen by a qualified and experienced mine site geologist.					
assaying	<ul> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>No twinned pits were excavated but numerous sites sample are actively being mined with mine grade control samples taken.</li> <li>Resource audit grade samples are subject to the standard min grade control quality procedures.</li> <li>No adjustment to assay data results were done.</li> </ul>					
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Pit sample locations were determine with DGPS accurate to within centimetres.</li> <li>UTM coordinate system is used.</li> <li>Topographical control is highly problematic due to constant changes in surface levels after daily high tides and monthly storm events which average 10 events per month.</li> </ul>					
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Target sampling points is on a 100m x 15m average spacing subject to beach access due to tides or active mining activity.</li> <li>Data spacing is sufficient for an inferred resource classification on a resource that has been mined over the past 5 years.</li> <li>Samples have been composite over the depth of the pit.</li> </ul>					
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	Geological structure not relevant or applicable to an active placer beach sand deposit.					
Sample security	The measures taken to ensure sample security.	Samples are taken directly from the sampling site to the mine laboratory where quality control procedures apply.					
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No external audits of sampling have been done.					



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# **Section 2 Reporting of Exploration Results**

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

	Criteria	Explanation		Commentary
•	Mineral tenement and	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint	•	The resource is owned by Mineral Sand Resource (Pty) Ltd, a subsidiary of ASX listed Mineral Commodities Ltd (ASX:MRC).
	land tenure status	ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	•	The resource is being mined under two active mining rights 30/5/2/2/162 & 163.
		<ul> <li>The security of the tenure held at the time of reporting along with</li> </ul>	•	The current mining rights are subject to renewal.
		any known impediments to obtaining a licence to operate in the area.	•	A Section 102 application has also been made seeking mining rights over an expanded area which includes the area of the current mining rights.
•	Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	•	This is fully reported on under Section 3.
•	Geology	Deposit type, geological setting and style of mineralisation.	•	Deposit is a heavy mineral sand deposit located on an active place beach strandline undergoing continues erosion, deposition and replenishment from oceanic storm and wave activity.
•	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:	•	A summary of the latest 199 pit samples is reflected under Appendix A.
		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.		
•	Data aggregation methods	• 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.	•	The total percentage Valuable Heavy Mineral content was determined from the individual mineral components and modelled. A 5% cut-off grade was applied to the Inferred Resource volume.
		• 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.	•	Composite grade was determined.
		• The assumptions used for any reporting of metal equivalent values should be clearly stated.		
•	Relationship between mineralisation	• These relationships are particularly important in the reporting of Exploration Results.	•	Composite grade over total depth sample was determined as the resource is mined and processed from surface to bedrock contact.
	widths and intercept	• If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	•	Mineralisation is enriched sedimentary layers semi-parallel to the bedrock contact and beach slope angle.
	lengths	• 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').	•	Channel composite sample represent down hole length and true width is not known.
•	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.	•	Plan view of area sampled along the coastal cliff line is provided in this report.
•	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.	•	As the deposit have been mined numerous times, grade continuity and natural placer enrichment has been disturbed to such a degree that grade continuity cannot be assumed to a level higher than inferred.
•	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.	•	Grade correlation indicates a resource progressively lowering in grade and volume as replenishment is slower than the current mining rate.



Criteria	Explanation	Commentary							
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	Offshore sampling to determine the source of grade replenishment is planned.							
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	<ul> <li>Additional prospecting permits over onshore Heavy Mineral Sands ("HMS") strandlines deposits have received environmental authorisation approval, pending appeals by interested and affected parties.</li> </ul>							



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# **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	<ul> <li>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.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>The data was received from MRC in xslx format. AEMCO P/L has previously reported on the sound sampling practices at the mine site (2017 Resource Statement).</li> <li>The data was plotted and plots where expected with no mis-plots or extraneous data found. Maximum and minimum values and average values were all within the norm. Duplicate values were confirmed as such. The co-ordinates were confirmed as being WGS84 UTM z34S.</li> <li>There is no reason to doubt the validity of the data.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>No site visits were undertaken as the work involved assessment of data which was collected prior to the engagement of Drake-Brockman Geoinfo Pty Ltd ("DBGEOINFO").</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>The deposit is a classic active mineral sands deposit with no double as to its genesis.</li> <li>Samples were collected for grade control and resource calculation purposes from an active mining area. Hence the actual mined product is directly sampled.</li> <li>There is no alternative model.</li> <li>The geology/topography of the deposit has been used to constrat the resource envelope. The data was partitioned into areas (subsets) based on geology/topography. The base of the deposit defined by the underlying bedrock, the landward side by a seafacing cliff. To seaward the deposit is open.</li> <li>Grade continuity is influenced by wave action and hence is best parallel to the beach front. Replenishment and re-working of resources limits continuity and reliability of localized mining bloc</li> <li>Targeting higher grade replenishment material throughout the yeincreases the overall mined grade.</li> </ul>
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 has a summed strike length along the coastline of approx. 9,000 m and an average width from the cliff to within th surf zone of 120 m. The mining width in 2018 varied from 30-12 m and averaged about 55 m. It is developed from surface to a maximum depth of 5.2 m (originally 6.25 m). The average resour thickness used to be 3.5 m but is only about 2.8 m (2.6 m in 201 currently resulting in a narrower dry beach zone between low ar high tide. The deposit occurs from the surface down.
Estimation and modelling techniques	<ul> <li>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.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>Delaunay triangulation with linear interpolation and a beach parallel moderate anisotropy was used to model the resource. The method is conservative, an exact interpolator, closely honours date points and does not extrapolate beyond the data. It is also suitable for modelling a long thin and shallow target. High values are included without being cut or modified. There is no nugget effect Data is extrapolated between data points but not beyond. Data points are nominally 100 x 15 m but spaces between lines are up 200 m on occasions. There are between 1-4 samples per line. Sur gridding, contouring and volume estimation software was used.</li> <li>Previous resource statements and production records are include in Table 1 in the text of the report. The current 2018 Inferred Resource grades have decreased to about 24% of the original values (2013 pre-mine resource) while the bulk tonnage remains the same order of magnitude.</li> <li>All products mentioned in the text are being actively mined and separated in the plant. No deleterious minerals are known.</li> <li>This is an inferred resource estimate and mining parameters are used beyond normal global parameters of grades, dimensions an accessibility.</li> <li>Geology/topography was used to constrain the model. On the landward side the toe-line of the bordering cliff was used to limit the model to the beach area. The model was truncated to the mining area defined by the 10 m buffer in front of the toe line and the seaward edge of dry beach between low and high tides.</li> <li>Traditionally in mineral sands deposits grades do not have to be cut to achieve acceptable reconciliation between production and resource estimates.</li> <li>Residuals (i.e. the difference between a calculated grade x thickney value at the sample site with the actual sample removed from the value at the sample site with the actual sample removed from the value at the sample site with the actual sample removed from the value at the sample site with the actual sample removed from the value</li></ul>



Criteria	JORC Code explanation	Commentary						
		process show a mean value of -4.5, a median value of 2.4 and standard deviations of 22.4. Actual values range from 1.6 to 173. These values are acceptable as they indicate the modelling algorithm produces realistic values within the range of the dataset. In addition, colour-filled contour maps of each subset of the data were produced to visually assess the robustness of the gridded data (see Appendix A).						
Moisture	<ul> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	The tonnages are estimated dry. Mined material is wet to saturated when mined. It is free draining when stockpiled.						
Cut-off parameters	<ul> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul> <li>Current minimum mining parameters are 0.5 m thickness and 5% THM.</li> </ul>						
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.	<ul> <li>A definitive feasibility study on the deposit was done in 2006 by K'Enyuka and a BFS study review by HBH consultants.</li> <li>The dynamic beach environment results in a cyclic process of deposition on and erosion of the beach surface. Historical studies by Trans Hex have found a weighted average change over 9 months of up to ~9% loss or up to ~7% increase. This variability is also evident in the replenishment rate and grade of material observed.</li> <li>Mining is opencast using coffer type dams constructed with excavators. The pits generally only remain open during low tide, except where beach conditions allow larger more stable protection bunding to be constructed. Construction and mining methods are similar to that being used for beach diamond mining along the west coast of South Africa and Namibia.</li> <li>There is no stripping as mining starts at the surface.</li> <li>Natural replenishment of the resource is taking place as the open pits are filled with HMS material from the surf zone during the next high tide. Data indicates no correlation (R2=0.04) between the original resource grade and the replenishment grade for the same mine block area.</li> <li>In general, it appears that replenishment is erratic and unpredictable; e.g. zircon grade replenishment may only be 35%, while elsewhere a 34% increase in grade may occur. Replenishment appears to be mainly a function of time and the number of sea storm events. Given enough time between mining events the resource is currently still replenishing although the long-term trend is a significant lowering in grade.</li> <li>The overall lowering of the beach surface (due to mining) has resulted in the faster movement of large volumes of material between the beach and the surf zone than before mining started.</li> <li>Over the past 5 years some mining blocks have now been mined up to 20 times or more.</li> </ul>						
Metallurgical factors or assumptions	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 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.	<ul> <li>As the mine is an ongoing profitable concern there are no doubts about the metallurgical suitability of the mined material.</li> <li>The two most recent studies are:         <ul> <li>2015 Magnetic Mineral Separation plant study by MSP Engineering</li> <li>2015 Integrated Mineral Separation Plant study by MSP Engineering</li> </ul> </li> </ul>						
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 greenfield 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.	<ul> <li>There is a 10m stability buffer zone between the coastal cliffs and the beach where no mining is allowed.</li> <li>All mining voids get naturally filled with beach sand material during high tide and there is therefore no rehabilitation liability in this regard.</li> <li>Tailings get dumped onto the beach where it is distributed and settled along the coastline under natural wave and sea current action. There are no pollutants introduced with the tailings and the material is inert.</li> </ul>						
Bulk density	<ul> <li>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.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void</li> </ul>	<ul> <li>The bulk density is based on a calculation of the specific gravity of the silica and heavy mineral content fractions of each sample. It is therefore not fixed and fluctuates between 1.9 and 2.4 as per the formula: SG=1.5+(0.009 x HM).</li> <li>A conservative SG of 1.9 was applied in the current resource modelling.</li> </ul>						



Criteria	JORC Code explanation	Commentary
	<ul> <li>spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>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).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>The original resource classification was an indicated resource.</li> <li>A review of the resource during 2014 by Mr du Toit of AEMCO Pty Ltd resulted in the resource being downgraded into an inferred category due to the impact from mining and replenishment.</li> <li>Due to the ongoing removal of heavy mineral material via mining, the release of depleted tailings to the beach front and the irregular and incomplete replacement of mined material during replenishment there is gradual decrease in the amount of the resource as well as in the grade of THM and each of the separate extracted heavy minerals. The author, due to these factors concurs with the views of Mr du Toit that only an inferred resource can be estimated.</li> <li>The author is confident that all relevant factors have been considered and the results reflect his views.</li> </ul>
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	<ul> <li>As per Table 1 in the text and as discussed in the text the successive annual resource reviews show an on-going decline in the grade of the deposit though the overall tonnage remains substantial. At some point the declining grade will make the mining operation marginal or even unprofitable.</li> <li>To the end of 2018, 9.2 Mt of material has been mined. After three years of production (i.e. 4.5 Mt) the mined THM grade starts to decline significantly. This suggests that the presently mined material is largely replenishment material.</li> </ul>
Discussion of relative accuracy / confidence	<ul> <li>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.</li> <li>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.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>The modelling method chosen does not produce statistical confidence levels. Given the dynamic nature of the deposit and the unpredictable replenishment regime it is unlikely they would have any ongoing validity.</li> <li>The global resource is made of 5 local resources distributed along the beach front. Table 2 in the text provides a detailed summary. Each of the 5 local resources can be mined separately.</li> <li>Details of methodology are described in the text.</li> <li>As per Table 1 in the text, since 2017, tonnages mined have been greater than the inferred resource. In 2017 mined grades were slightly lower to similar to the predicted grades. Tonnages were 14% higher. In 2018 mined grades were approx. 10% higher than predicted. The tonnage approx. 47% higher. The 2017 resource estimate was described by Mr du Toit (AEMCO Pty Ltd) as being conservative. The current 2018 Inferred Resource estimate (DBGEOINFO) would imply both tonnages and grade are likely to decline from those reached in the 2018 mining campaign.</li> </ul>



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### **APPENDIX A - RESOURCE TEST PIT SAMPLES**

PIT_ID	N	E	Z_FROM	Z_TO	PIT Sample Depth	BASAL_LITHOLOGY	DATE_DUG	%GC_GNT	%GC_ILM	%GC_ZIRC	%XRF_ZRC	%GC_RUT	%GC_LEUC	%GC_OTHER	%WT_MAGN
PIT1T	6,504,183.500	224,948.300	1.910	-2.679	4.589	Pebbles	2018/11/06	10.69	2.70	0.91	0.87	0.29	1.76	83.57	0.08
PIT2T	6,503,988.000	225,106.000	1.660	-2.698	4.358	Pebbles	2018/11/06	9.31	2.68	1.02	0.84	0.27	2.48	84.17	0.07
PIT3T	6,504,266.028	224,887.434	2.763	-1.649	4.412	Yellowish Sand and Pebbles	2018/11/06	8.79	3.39	1.16	1.30	0.29	3.40	82.86	0.10
PIT4T	6,504,342.900	224,824.900	2.940	0.078	2.862	Red Clay	2018/11/06	9.25	4.26	0.64	0.54	0.28	3.01	82.46	0.09
PIT5T	6,504,416.381	224,763.106	2.613	-1.167	3.780	Reddish Sand and Pebbles	2018/11/23	1.24	0.94	0.00	0.15	0.00	4.70	93.15	0.07
PIT6T	6,504,982.760	224,213.784	2.486	0.146	2.340	Greenish Schist	2018/11/21	15.72	6.66	0.30	0.39	0.27	1.76	75.22	0.07
PIT7T	6,504,970.916	224,202.752	2.256	-0.614	2.870	Reddish Sand and Schist	2018/11/20	9.54	1.94	0.24	0.16	0.22	4.02	83.96	0.08
PIT8T	6,504,922.643	224,296.989	2.460	0.610	1.850	Schist and White Clay	2018/11/21	18.51	3.09	0.62	0.46	0.28	2.05	75.40	0.05
PIT9T	6,504,911.406	224,286.647	2.177	-0.673	2.850	Greenish Schist and Pebbles	2018/11/21	11.80	3.00	0.60	0.32	0.27	2.24	82.01	0.08
PIT10T	6,504,897.987	224,272.052	1.402	-1.398	2.800		2018/11/20	4.19	1.07	0.27	0.15	0.24	3.09	91.07	0.07
PIT11T	6,504,855.972	224,384.292	2.600	-1.550	4.150	Yellowish Sand	2018/11/21	4.71	1.20	0.30	0.22	0.27	6.45	87.03	0.05
PIT12T	6,504,847.161	224,371.855	2.104	-2.126	4.230	Yellowish Sand and Pebbles	2018/11/21	3.58	1.65	0.21	0.21	0.18	2.57	91.73	0.08
PIT13T	6,504,834.666	224,355.353	1.652	-3.418	5.070	Reddish Sand and Pebbles	2018/11/21	1.26	0.53	0.00	0.06	0.00	1.33	96.80	0.08
PIT14T	6,504,821.162	224,339.753	1.033	-2.767	3.800	Pebbles	2018/11/20	0.89	1.13	0.28	0.17	0.25	4.21	93.17	0.07
PIT15T	6,504,784.050	224,444.129	2.635	-2.085	4.720	Reddish Yellowish Sand	2018/11/21	9.68	1.23	0.31	0.17	0.27	1.53	86.89	0.08
PIT16T	6,504,772.900	224,432.744	2.022	-2.778	4.800	Yellowish Sand and Pebbles	2018/11/21	4.89	1.24	0.62	0.63	0.28	2.84	90.06	0.07
PIT17T	6,504,761.251	224,422.065	1.560	-2.690	4.250	Yellowish Sand and Pebbles	2018/11/22	1.63	1.55	0.00	0.06	0.00	2.79	93.95	0.09
PIT18T	6,504,749.550	224,411.151	0.837	-3.263	4.100	Pebbles	2018/11/20	0.89	0.57	0.28	0.19	0.25	3.30	94.63	0.08
PIT19T	6,504,708.169	224,511.459	2.807	0.047	2.760	Orange Sand	2018/11/20	13.11	3.70	1.23	1.24	0.28	3.07	78.54	0.07
PIT20T	6,504,697.349	224,500.197	2.642	-2.558	5.200	Pebbles	2018/11/20	6.98	1.27	0.63	0.52	0.28	3.15	87.61	0.07
PIT21T	6,504,632.017	224,579.524	2.463	-2.392	4.855	Orange Sand	2018/11/20	7.47	2.37	0.30	0.22	0.26	3.94	85.57	0.09
PIT22T	6,504,625.075	224,566.269	1.770	-2.110	3.880	Pebbles	2018/12/10	3.95	1.00	0.25	0.16	0.22	1.67	92.81	0.09
PIT23T	6,503,542.790	225,456.451	2.070	-0.250	2.320	White Clay	2018/11/22	19.20	11.61	2.90	2.73	0.26	2.89	63.03	0.10
PIT24T	6,503,531.238	225,446.909	0.821	-2.470	3.291	White Clay	2018/11/22	5.59	3.55	0.89	0.75	0.26	3.44	86.18	0.08
PIT25T	6,503,572.543	225,414.933	1.522	0.322	1.200	Whitish Yellowish Clay	2018/11/22	5.78	3.06	0.92	0.87	0.27	2.29	87.59	0.09
PIT26T	6,503,565.542	225,406.593	0.780	-0.340	1.120	White Clay	2018/11/22	4.61	3.52	0.29	0.22	0.26	2.92	88.30	0.10
PIT27T	6,503,636.623	225,336.077	-0.032	-1.322	1.290	Pebbles and Sea Shells	2018/11/22	3.25	4.13	0.30	0.25	0.26	2.45	89.52	0.08
PIT28T	6,503,733.975	225,305.973	2.085	0.305	1.780	White Clay	2018/11/22	22.97	10.94	2.19	2.11	0.33	2.42	61.05	0.10
PIT29T	6,503,728.042	225,291.481	1.088	-0.482	1.570	Pebbles and White Clay	2018/11/22	3.52	1.40	0.00	0.11	0.00	3.25	91.76	0.07
PIT29_2T	6,503,728.056	225,291.497	1.150	-0.480	1.630	Pebbles and White Clay	2018/11/22	6.76	2.45	0.31	0.30	0.27	2.80	87.36	0.06
PIT30T	6,503,719.414	225,283.427	0.510	-1.060	1.570	Pebbles White Clay	2018/11/22	0.90	1.15	0.00	0.08	0.00	2.38	95.48	0.09
PIT31T	6,503,818.316	225,252.730	2.450	-2.059	4.509	White Clay	2018/11/22	5.47	3.33	0.28	0.22	0.25	3.00	87.60	0.07
PIT32T	6,503,809.356	225,240.567	1.860	-2.974	4.834	White Clay and Pebbles	2018/11/23	12.99	2.95	0.29	0.20	0.26	3.42	80.02	0.07
PIT33T	6,503,800.366	225,228.416	0.749	-2.891	3.640	Diamond Miners Pebbles	2018/11/23	1.82	1.16	0.00	0.09	0.00	3.84	93.09	0.09
PIT34T	6,504,404.095	224,735.486	0.895	-2.835	3.730	Diamond Miners Pebbles	2018/11/23	24.70	10.66	3.55	3.51	0.53	1.96	58.51	0.09



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PIT PIT ID Ε **Z FROM BASAL LITHOLOGY DATE DUG %GC GNT** %GC ILM **%GC ZIRC** %XRF ZRC **%GC RUT** %GC LEUC **%WT MAGN** Ν Z TO Sample **%GC OTHER** Depth 6.23 0.79 0.27 2.53 PIT35T 6,504,330.621 224,812.822 1.432 -1.768 3.200 Pebbles and Sea Shells 2018/11/23 2.43 0.61 87.85 0.08 11.75 0.09 0.00 1.03 0.08 PIT36T 6,504,255.091 224,872.599 1.514 -2.486 4.000 **Reddish Sand Pebbles** 2018/11/23 4.15 0.00 82.99 PIT37T 6,504,412.802 224,747.791 1.983 -2.347 4.330 2018/11/23 8.57 1.81 0.30 0.28 0.27 2.76 86.20 0.09 PIT38T 6.503.106.056 225,742,146 2.688 -1.145 3.833 Reddish Sand and White Clav 2018/11/26 6.05 3.84 0.64 0.68 0.29 2.13 86.97 0.09 0.63 PIT39T 6,503,095.486 225,731.483 1.132 -2.984 4.116 Pebbles and White Clay 2018/11/26 8.97 3.80 0.66 0.28 2.89 83.34 0.08 -0.012 0.33 0.34 0.29 3.25 91.02 0.08 PIT40T 6,503,032.375 225,809.896 2.328 2.340 White Clay 2018/11/26 3.08 1.96 PIT41T 6,503,022.593 225,798.480 0.918 -2.316 3.234 Pebbles and Sea Shells 2018/11/26 11.15 3.69 0.62 0.68 0.28 2.04 82.13 0.09 2.437 0.527 19.60 1.46 0.27 1.51 0.09 PIT42T 6,502,956.404 225,875.126 1.910 White Clay 2018/11/26 3.64 1.21 73.66 White Clay, Pebbles and Sea PIT43T 6,502,947.609 225,862.827 1.020 -2.587 3.607 2018/11/26 3.45 0.63 0.31 0.16 0.28 2.34 92.92 0.08 Shells PIT44T 6.502.941.534 225,854,175 0.321 -0.379 0.700 Pebbles and Sea Shells 2018/11/26 12.73 3.11 0.31 0.24 0.28 2.06 81.44 0.07 PIT45T 6,502,874.727 225,923.325 1.747 -2.213 3.960 White Clay 2018/11/26 11.93 1.98 0.33 0.49 0.29 1.91 83.48 0.08 PIT46T 6,502,868.151 225,909.764 0.559 -1.481 2.040 White Clay 2018/11/26 1.96 0.62 0.31 0.32 0.28 2.33 94.43 0.07 PIT47T 6,502,863.779 225,900.681 0.010 -1.640 1.650 Pebbles and White Clav 2018/11/26 2.40 0.61 0.00 0.14 0.00 3.29 93.62 0.08 Greenish Red-stained Schist PIT48T 6,501,765.133 226,546.590 1.038 0.138 0.900 and Pebbles 2018/11/27 9.59 9.14 0.91 0.74 0.27 2.02 77.95 0.11 PIT49T 6,501,763.372 226,538.635 0.170 -0.400 0.570 **Greenish Schist and Pebbles** 2018/11/27 2.00 1.91 0.64 0.44 0.28 6.34 88.74 0.09 PIT49T 2T 6.501.768.855 226,538,465 0.686 0.288 0.398 Sea Shells and Pebbles 2018/12/10 0.86 0.55 0.27 0.17 0.24 2.27 95.74 0.07 PIT49T 3T 6,501,768.852 0.694 0.281 0.413 Sea Shells and Pebbles 2018/12/10 3.10 1.05 0.26 0.18 0.23 1.31 93.97 0.08 226,538.475 0.509 0.30 0.15 0.27 6.41 82.92 0.08 PIT50T 6,501,859.383 226,520.798 1.539 1.030 Orange Sand and Sea Shells 2018/11/27 4.68 5.35 PIT51T 6,501,855.724 226,511.213 0.490 -0.240 0.730 Orange Sand and Sea Shells 2018/11/27 1.98 5.03 0.31 0.25 0.28 2.35 89.95 0.10 Yellowish Sand, White Clay and 0.057 2.48 0.20 0.28 PIT52T 6,501,955.600 226,493.086 2.207 2.150 Pebbles 2018/11/27 4.40 0.31 5.15 87.29 0.09 PIT53T 6,501,949.845 226,478.995 1.235 0.265 0.970 Pebbles Sea Shells 2018/11/27 2.05 1.30 0.33 0.29 0.29 4.32 91.64 0.07 PIT54T 6.501.946.045 226,469,647 0.410 0.010 0.400 Pebbles and Sea Shells 2018/11/27 2.39 1.82 0.00 0.12 0.00 3.53 92.17 0.08 PIT55T 6,502,044.147 226,449.577 2.025 -0.065 2.090 Reddish Sand and Pebbles 2018/11/27 7.08 4.79 0.90 0.92 0.27 1.49 85.39 0.08 226,436.762 0.48 PIT56T 6,502,036.279 0.897 -0.093 0.990 Orange Sand and Pebbles 2018/11/27 4.96 3.15 0.63 0.28 6.80 84.08 0.09 6,502,028.405 226,423.901 0.093 -0.347 1.37 1.73 0.16 0.26 0.08 PIT57T 0.440 Pebbles and Sea Shells 2018/11/27 0.29 8.64 87.64 6,502,309.480 226,296.330 9.26 0.98 PIT58T 0.700 -0.400 1.100 White Clay 2018/11/29 24.61 1.16 0.26 1.44 63.18 0.10 PIT59T 6,502,303.060 226,288.560 -0.050 -1.080 1.030 Red Clay and Pebbles 2018/11/29 1.50 4.44 0.32 0.46 0.28 3.69 89.69 0.08 PIT60T 6,502,395.450 226,244.750 1.770 -0.260 2.030 White Clav 2018/11/29 15.54 13.76 1.79 1.74 0.53 2.98 65.29 0.11 PIT61T 6,502,387.630 226,231.070 0.810 -1.080 1.890 White Clay and Pebbles 2018/11/29 8.14 2.43 0.61 0.51 0.27 2.52 85.94 0.09 PIT62T 6,502,387.790 226,231.240 0.830 -1.922 2.752 White Clay and Pebbles 2018/11/29 1.97 1.67 0.21 0.21 0.19 3.63 92.26 0.07 6,502,475.580 226,184.040 1.350 0.050 1.300 2018/11/29 4.39 1.24 0.31 0.25 0.28 4.63 89.06 0.09 PIT63T White Clay and Pebbles PIT64T 6,502,466.590 226,171.630 -0.830 1.220 Pebbles and Sea Shells 0.64 0.32 0.35 0.29 1.07 92.52 0.09 0.390 2018/11/29 5.07 16.25 1.41 0.26 4.40 0.08 PIT65T 6,504,560.467 224,642.877 2.101 -2.009 4.110 5.31 1.47 72.22 Orange Sand 2018/12/11 PIT66T 6,504,549.865 224,632.173 1.557 -1.603 3.160 Orange Sand and Pebbles 2018/12/11 5.45 1.26 0.31 0.19 0.28 5.22 87.40 0.07 0.12 224,621.242 0.829 -2.481 1.03 1.30 0.00 0.00 7.04 0.05 PIT67T 6,504,539.611 3.310 Orange and Sand Pebbles 2018/12/11 90.58

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PIT_ID	N	E	Z_FROM	Z_TO	PIT Sample Depth	BASAL_LITHOLOGY	DATE_DUG	%GC_GNT	%GC_ILM	%GC_ZIRC	%XRF_ZRC	%GC_RUT	%GC_LEUC	%GC_OTHER	%WT_MAGN
PIT68T	6,504,484.257	224,708.976	2.234	-2.036	4.270	Orange Sand	2018/12/11	19.26	3.06	0.61	0.66	0.27	2.54	74.17	0.09
PIT69T	6,504,475.258	224,696.826	1.647	-2.553	4.200		2018/12/11	6.68	2.83	0.28	0.20	0.25	1.41	88.46	0.09
PIT70T	6,504,467.796	224,686.674	1.051	-1.889	2.940	Orange Sand	2018/12/11	5.44	1.26	0.31	0.18	0.28	4.69	87.95	0.08
PIT70_2T	6,504,467.493	224,686.691	1.047	-1.893	2.940	Orange Sand	2018/12/11	10.76	1.86	0.31	0.24	0.28	3.09	83.60	0.10
PIT71T	6,505,049.898	224,167.948	2.415	-1.715	4.130	Greenish Schist and Pebbles	2018/12/13	10.84	3.13	0.63	0.76	0.28	4.16	80.86	0.11
PIT72T	6,505,040.752	224,156.503	2.394	-1.996	4.390	Greenish Schist and Pebbles	2018/12/13	6.03	0.64	0.32	0.19	0.29	3.18	89.45	0.09
PIT73T	6,505,030.053	224,145.971	2.360	-1.350	3.710	Pebbles	2018/12/13	10.23	2.48	0.31	0.45	0.28	4.11	82.55	0.05
PIT74T	6,505,019.780	224,135.299	1.495	-2.795	4.290		2018/12/13	5.08	1.29	0.32	0.16	0.29	2.14	90.78	0.09
PIT75T	6,505,133.586	224,119.930	2.600	0.320	2.280	Greenish Schist	2018/12/13	25.85	5.97	1.19	1.33	0.27	1.49	65.16	0.07
PIT76T	6,505,121.664	224,110.377	2.063	0.553	1.510	Greenish Schist	2018/12/13	14.67	4.35	0.62	0.23	0.28	4.64	75.34	0.10
PIT77T	6,505,111.120	224,099.637	1.917	0.887	1.030	Greenish Schist	2018/12/13	10.47	1.90	0.32	0.26	0.28	4.73	82.22	0.08
PIT78T	6,505,100.337	224,088.671	2.259	-2.211	4.470		2018/12/13	7.49	1.27	0.00	0.11	0.00	6.85	84.27	0.12
PIT79T	6,505,089.686	224,077.522	2.725	-1.685	4.410		2018/12/13	9.09	1.92	0.32	0.19	0.29	5.86	82.47	0.05
PIT80T	6,505,082.168	224,070.252	1.648	-2.602	4.250		2018/12/13	4.57	0.65	0.32	0.16	0.29	8.03	86.06	0.09
PIT81T	6,505,176.908	224,018.043	2.569	-2.071	4.640		2018/12/13	2.56	1.30	0.00	0.07	0.00	2.16	93.91	0.07
PIT82T	6,505,166.552	224,007.403	2.441	-1.669	4.110		2018/12/13	1.02	0.64	0.00	0.10	0.00	4.81	93.43	0.10
PIT83T	6,505,158.020	223,995.204	1.697	-1.763	3.460		2018/12/13	6.19	1.97	0.00	0.07	0.00	1.09	90.66	0.08
PIT84T	6,505,256.981	223,960.280	2.061	-1.369	3.430		2018/12/13	6.02	1.27	0.32	0.47	0.28	3.17	88.86	0.07
PIT85T	6,505,247.038	223,948.985	1.888	-1.732	3.620		2018/12/13	3.99	1.27	0.00	0.10	0.00	2.10	92.56	0.09
PIT86T	6,507,690.214	221,835.493	4.691	1.501	3.190	Reddish Sand	2019/01/07	45.54	4.31	1.85	1.76	0.27	2.04	45.90	0.09
PIT87T	6,507,827.439	221,716.146	3.020	-1.000	4.020	Yellowish Sand	2019/01/07	8.95	2.01	1.00	0.97	0.30	6.11	81.55	0.07
PIT88T	6,507,815.396	221,700.825	2.628	-1.302	3.930	Orange Sand	2019/01/07	13.47	2.63	0.99	0.84	0.29	2.73	79.80	0.08
PIT89T	6,507,803.758	221,684.245	2.473	-1.527	4.000	Pebbles and Sea Shells	2019/01/07	3.89	0.71	0.00	0.09	0.00	8.79	86.54	0.07
PIT90T	6,507,803.737	221,684.216	2.462	-1.538	4.000	Pebbles and Sea Shells	2019/01/07	4.65	1.31	0.00	0.08	0.00	5.99	87.97	0.07
PIT91T	6,507,794.698	221,672.062	1.202	-2.298	3.500		2019/01/07	0.53	0.67	0.00	0.10	0.00	5.00	93.75	0.06
PIT92T	6,507,896.236	221,644.144	2.757	-2.243	5.000	Orange Sand	2019/01/07	15.45	3.38	1.69	1.63	0.30	1.12	77.95	0.11
PIT93T	6,507,882.682	221,629.245	2.114	-1.006	3.120		2019/01/07	2.19	0.69	0.00	0.13	0.00	2.30	94.74	0.08
PIT94T	6,507,875.519	221,621.499	1.290	-2.280	3.570		2019/01/07	4.63	0.65	0.00	0.06	0.00	10.30	84.34	0.08
PIT95T	6,507,969.926	221,574.685	2.796	-1.574	4.370	Orange Sand and Pebbles	2019/01/07	20.11	3.19	0.64	0.63	0.29	2.12	73.57	0.09
PIT96T	6,507,955.594	221,560.067	2.280	-1.736	4.016	Orange Sand	2019/01/07	13.28	1.30	0.32	0.34	0.29	4.85	79.88	0.07
PIT97T	6,507,941.545	221,545.439	0.964	-3.052	4.016	Pebbles	2019/01/07	0.56	0.71	0.00	0.11	0.00	4.15	94.52	0.05
PIT98T	6,508,041.426	221,503.774	2.525	-1.195	3.720	Pebbles	2019/01/08	5.01	1.91	0.32	0.37	0.28	4.76	87.65	0.07
PIT99T	6,508,028.469	221,488.378	1.505	-1.835	3.340	Orange Sand and Pebbles	2019/01/08	7.98	3.38	0.68	0.67	0.30	5.61	81.98	0.07
PIT100T	6,508,016.568	221,472.557	0.595	-3.415	4.010	Yellowish Orange Sand and Pebbles	2019/01/08	3.06	2.59	0.00	0.07	0.00	6.99	87.28	0.07
PIT1001	6,508,116.343	221,472.557	3.019	-1.201	4.010		2019/01/08	7.79	1.24	0.00	0.07	0.00	5.13	85.18	0.07
PIT1011	6,508,102.365	221,434.868	1.952	-1.201		Pebbles and Sea Shells	2019/01/08	18.71	2.57	0.64	0.23	0.28	3.73	74.01	0.07



PIT_ID	N	E	Z_FROM	Z_TO	PIT Sample	BASAL_LITHOLOGY	DATE_DUG	%GC_GNT	%GC_ILM	%GC_ZIRC	%XRF_ZRC	%GC_RUT	%GC_LEUC	%GC_OTHER	%WT_MAGN
					Depth										
PIT103T	6,508,093.146	221,409.072	0.707	-2.703	3.410	Pebbles and Sea Shells	2019/01/08	12.85	1.31	0.33	0.34	0.29	3.25	81.93	0.06
PIT104T	6,508,188.641	221,364.687	2.746	-0.514	3.260	White Clay	2019/01/08	4.13	0.66	0.00	0.10	0.00	2.17	92.97	0.08
PIT105T	6,508,174.992	221,350.248	1.950	-0.960	2.910	White Clay and Pebbles	2019/01/08	14.31	1.95	0.32	0.36	0.29	4.31	78.74	0.08
PIT106T	6,508,165.348	221,339.633	1.264	-1.356	2.620	Pebbles	2019/01/08	6.28	4.66	0.33	0.25	0.30	1.66	86.70	0.08
PIT107T	6,508,256.153	221,291.294	2.636	-0.334	2.970	White Clay	2019/01/09	3.06	0.65	0.32	0.26	0.29	5.37	90.24	0.08
PIT108T	6,508,241.377	221,277.933	1.851	-0.859	2.710	White Clay and Pebbles	2019/01/09	6.15	1.30	0.33	0.24	0.29	1.08	90.78	0.07
PIT109T	6,508,226.942	221,263.276	0.716	-2.524	3.240	Pebbles and Sea Shells	2019/01/09	6.76	1.32	0.33	0.31	0.30	2.74	88.50	0.06
PIT110T	6508226.93	221263.275	0.726	-2.514	3.24	Pebbles and Sea Shells	2019/01/09	8.09	1.03	0.34	0.33	0.31	4.55	85.61	0.07
PIT111T	6,508,318.937	221,213.407	2.246	-1.014	3.260	White Clay	2019/01/09	3.47	1.26	0.31	0.19	0.28	1.57	93.04	0.07
PIT112T	6,508,303.260	221,200.403	1.249	-1.841	3.090	White Clay	2019/01/09	2.92	0.62	0.00	0.12	0.00	0.00	96.39	0.07
PIT113T	6,508,286.813	221,187.532	0.450	-2.950	3.400	Pebbles and Sea Shells	2019/01/09	4.05	0.64	0.00	0.12	0.00	3.20	92.03	0.07
PIT114T	6,508,421.848	221,118.520	2.006	0.326	1.680	White Clay	2019/01/09	10.07	1.92	0.64	0.27	0.29	2.12	84.91	0.05
PIT115T	6,508,409.702	221,103.864	1.436	0.286	1.150	Orange and White Clay	2019/01/09	9.34	0.66	0.33	0.26	0.29	3.83	85.50	0.05
PIT116T	6,508,400.302	221,083.870	0.741	-1.059	1.800	Pebbles and Sea Shells	2019/01/09	5.27	0.67	0.00	0.11	0.00	5.55	88.45	0.06
PIT117T	6,508,484.982	221,043.064	2.420	0.330	2.090	White Clay	2019/01/09	8.78	2.48	0.31	0.41	0.28	6.17	81.91	0.07
PIT118T	6,508,470.557	221,029.520	1.007	-1.483	2.490	White Clay and Pebbles	2019/01/09	9.44	1.89	0.63	0.69	0.28	3.14	84.54	0.07
PIT119T	6,508,603.515	220,882.846	3.150	0.770	2.380	Orange Sand	2019/01/09	14.34	3.14	0.31	0.44	0.28	2.61	79.24	0.07
DITAGOT	6 500 504 474	222.274.442	2 240	0.444	2.760	Yellowish-Orange Sand and	2010/01/02	0.70	4.24	0.22	2.22	0.00	4.60	07.57	0.00
PIT120T	6,508,591.474	220,874.419	2.319	-0.441	2.760	Pebbles	2019/01/09	8.78	1.31	0.33	0.28	0.29	1.63	87.57	0.08
PIT121T	6,508,591.482	220,874.419	2.316	0.116	2.200	Pebbles and Sea Shells	2019/01/09	6.58	0.64	0.00	0.09	0.00	5.34	87.37	0.07
PIT122T	6,508,645.275	220,786.275	2.155	-0.075	2.230	White Clay, Pebbles White Clay, Pebbles and Sea	2019/01/09	12.13	1.93	0.32	0.26	0.29	1.60	83.68	0.07
PIT123T	6,508,634.334	220,776.709	1.850	-0.830	2.680	Shells	2019/01/09	5.14	0.54	0.27	0.15	0.24	1.35	92.39	0.06
DITTOAT	6 500 624 201	220 766 772	1 224	0.000	2 1 40	White Clay, Pebbles and Sea	2010 (01 (00	4.00	0.40	0.24	0.10	0.21	2.20	01.72	0.00
PIT124T	6,508,624.391			-0.806		Shells	2019/01/09	4.88	0.48	0.24	0.19	0.21	2.38	91.73	0.08
PIT125T	6,509,129.263	220,319.962	2.608	0.458	2.150	Granitic/ Basement Rock Granitic/ Basement Rock and	2019/01/10	2.59	0.60	0.00	0.06	0.00	2.24	94.55	0.02
PIT126T	6,509,119.285	220,307.806	1.072	0.042	1.030		2019/01/10	24.27	4.06	0.48	0.41	0.21	2.38	68.56	0.04
PIT127T	6,509,226.257	220,266.825	2.332	-0.618	2.950	Orange Sand	2019/01/10	16.87	8.76	0.32	0.33	0.29	2.42	71.25	0.08
PIT128T	6,509,216.982	220,254.878	2.525	-0.605	3.130	Orange Sand	2019/01/10	11.31	2.82	0.26	0.16	0.23	2.56	82.79	0.04
PIT129T	6,509,208.183	220,242.730	2.948	-0.692	3.640	Pebbles and Sea Shells	2019/01/10	9.23	2.34	0.00	0.09	0.30	2.78	85.31	0.04
PIT130T	6,509,208.152	220,242.745	2.906	-0.694	3.600	Pebbles and Sea Shells	2019/01/10	8.00	3.18	0.00	0.06	0.00	2.11	86.69	0.02
PIT131T	6,509,198.508	220,231.919	1.436	-0.854	2.290	Pebbles and Sea Shells	2019/01/10	5.30	1.01	0.00	0.08	0.00	1.96	91.71	0.02
PIT132T	6,509,303.109	220,202.293	2.515	1.215	1.300	Orange Sand	2019/01/10	22.42	6.70	0.84	0.84	0.25	2.78	66.89	0.12
PIT133T	6,509,292.569	220,191.201	2.878	0.448	2.430	Orange Sand	2019/01/10	16.24	1.82	0.30	0.31	0.27	4.03	77.27	0.07
PIT134T	6,509,282.998	220,179.837	2.822	0.212	2.610	Pebbles and Sea Shells	2019/01/10	7.61	1.93	0.00	0.08	0.00	2.14	88.30	0.02
PIT135T	6,509,387.535	220,035.219	2.542	0.452	2.090	Orange Sand and Pebbles	2019/01/10	27.28	6.75	0.61	0.59	0.27	2.54	62.47	0.08
PIT136T	6,509,374.022	220,030.142	1.057	0.037	1.020	Orange Sand, Pebbles and Sea Shells	2019/01/10	17.59	4.01	0.29	0.32	0.26	3.80	74.00	0.06



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PIT PIT ID Ε **Z FROM BASAL LITHOLOGY DATE DUG %GC GNT** %GC ILM **%GC ZIRC** %XRF ZRC **%GC RUT** %GC LEUC **%WT MAGN** Z TO Sample **%GC OTHER** Depth Reddish-Orange Sand and PIT137T 6,509,403.130 219,953.817 2.435 0.415 2.020 2019/01/10 12.16 3.71 0.31 0.33 0.28 2.05 81.46 0.04 Pebbles 6,509,388.589 219,950.871 1.567 0.067 2019/01/10 0.22 0.15 0.20 1.30 92.82 0.04 PIT138T 1.500 **Greenish Schist** 4.06 1.35 0.371 0.420 1.35 0.69 0.04 0.00 1.71 0.02 PIT139T 6,509,373.904 219,948.379 0.791 **Greenish Schist** 2019/01/10 0.00 96.23 0.52 0.26 PIT140T 6,509,538.970 219,888.036 2.969 1.789 1.180 2019/01/10 25.57 1.17 0.59 3.88 68.49 0.04 Orange Sand 0.979 0.77 0.23 0.23 2.55 PIT141T 6,509,523.579 219,874.489 1.189 0.210 Orange Sand and Pebbles 2019/01/10 15.12 0.26 81.04 0.04 Orange Sand, Pebbles and Sea PIT142T 6,509,628.970 219,838.347 3.051 2.271 0.780 2019/01/10 23.58 0.80 0.53 0.50 0.24 3.11 71.67 0.07 Shells Orange Sand, Pebbles and Sea PIT143T 219,825.014 1.193 0.980 0.31 0.36 0.28 3.10 80.26 6,509,614.471 2.173 Shells 2019/01/10 13.48 2.49 0.08 Orange Sand, Pebbles and Sea 0.035 0.60 0.00 0.03 0.00 3.24 91.17 PIT144T 6,509,605.869 219,813.040 1.095 1.060 Shells 2019/01/10 4.97 0.02 6,507,555.167 2.93 0.31 0.26 PIT145T 221,970.869 2.386 -0.744 3.130 Orange Sand 2019/01/18 14.54 0.29 3.16 78.74 0.08 0.32 PIT146T 6.507.542.549 221,955,300 1.425 -1.345 2.770 2019/01/18 16.98 2.46 0.31 0.28 2.04 77.89 0.04 PIT147T 6,507,528.383 221,939.452 0.533 -2.367 2.900 Yellow Sand and Pebbles 2019/01/18 11.51 2.81 0.28 0.20 0.25 2.80 82.31 0.04 PIT148T 6.507.480.733 222,029,328 2.121 -0.729 2.850 Reddish Orange Sand 2019/01/18 9.99 3.02 0.30 0.21 0.27 2.26 84.12 0.04 PIT149T 6,507,468.080 222,012.359 2019/01/18 5.40 0.45 1.79 0.975 -1.625 2.600 Orange Reddish Sand 19.97 0.54 0.24 72.02 0.04 PIT150T 1 6,507,455.167 222,005.519 0.306 -2.664 2.970 Yellow Sand and Pebbles 2019/01/18 13.80 8.02 0.59 0.68 0.27 2.47 74.77 0.08 222,005.527 0.77 0.23 2.83 PIT150T 2 6,507,455.163 0.311 -2.659 2.970 Yellow Sand and Pebbles 2019/01/18 13.23 4.99 0.79 77.85 0.07 PIT151T 6,507,413.293 222,106.751 3.252 0.752 2.500 2019/01/18 15.87 3.81 0.54 0.49 0.24 2.49 76.97 0.08 White Clay PIT152T 6,507,396.079 222,092.090 1.844 -1.056 2.900 Orange Sand and Pebbles 2019/01/18 15.33 3.48 0.35 0.36 0.31 4.62 75.89 0.04 PIT153T 6,507,383.199 222,076.102 0.988 -1.912 2.900 2019/01/18 11.28 6.06 1.65 1.63 0.25 2.97 77.71 0.08 Orange Sand and Pebbles 6,507,333.611 0.25 0.23 PIT154T 222,171.269 2.784 2.470 2019/01/18 10.73 3.79 0.23 1.68 83.29 0.04 0.314 White Clay 0.31 PIT155T 6,507,316.588 222,160.514 0.793 -2.177 2.970 Yellow Sand and Pebbles 2019/01/18 15.64 3.31 0.33 0.30 2.47 77.91 0.04 PIT156T 6,507,259.925 222,241.358 3.500 2019/01/18 6.88 0.66 0.30 0.29 2.45 68.75 0.08 2.092 -1.408 White Clay 20.90 0.27 5.47 0.08 PIT157T 6,507,187.093 222,311.652 2.905 -0.695 3.600 11.32 4.19 0.60 0.61 78.08 Orange Sand 2019/01/18 0.25 PIT158T 6,507,176.886 222,294.719 1.554 -1.826 3.380 Orange Sand 2019/01/18 6.75 1.66 0.28 0.21 2.30 88.73 0.04 0.27 0.17 0.24 2.45 PIT159T 6,507,099.572 222,361.923 1.666 -1.584 3.250 Orange Sand 2019/01/18 6.97 2.15 87.88 0.04 PIT160T 6,507,087.588 222,345,149 1.242 -2.158 3.400 Reddish Sand and Pebbles 2019/01/18 4.51 2.46 0.00 0.15 0.00 3.62 89.37 0.04 4.000 2.87 0.06 2.14 PIT161T 6,507,087.588 222.345.149 1.242 -2.758 2019/01/18 16.94 0.00 0.26 77.76 0.04 PIT162T 6,507,013.199 222,465.029 2.152 -0.558 2.710 Orange Sand 2019/01/19 2.16 2.74 0.27 0.18 0.25 1.37 93.15 0.06 PIT163T 6.506.996.356 222,453,338 1.475 -2.035 3.510 Orange Sand and Pebbles 2019/01/19 2.54 1.29 0.65 0.63 0.29 1.07 94.09 0.07 PIT164T 6,506,940.122 222,533.940 2.804 -0.616 3.420 2019/01/19 1.06 0.67 0.00 0.03 0.00 2.24 95.98 0.05 222,522.829 2.262 0.362 1.900 2.20 0.35 0.00 0.13 0.00 0.58 0.07 PIT165T 6,506,930.139 White Clay 2019/01/19 96.79 PIT166T 6,506,920.448 222,511.547 0.745 -2.555 3.300 Orange Sand 2019/01/19 1.40 0.89 0.44 0.35 0.20 4.04 92.98 0.05 -0.470 -3.800 3.330 2.26 0.57 0.29 0.20 0.26 0.95 95.60 0.07 PIT167T 6,506,912.800 222,499.550 2019/01/19 PIT168T 6,506,860.076 222,593.367 2.620 -1.860 4.480 White Clay 2019/01/19 9.98 3.80 0.95 0.83 0.28 1.05 83.83 0.09 PIT169T 6,506,849.832 222,581.848 1.723 -2.687 4.410 2019/01/19 7.13 1.36 0.45 0.56 0.20 0.75 90.05 0.06



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PIT PIT ID Ε **Z FROM BASAL LITHOLOGY DATE DUG %GC GNT** %GC ILM **%GC ZIRC** %XRF ZRC **%GC RUT** %GC LEUC **%GC OTHER %WT MAGN** Z\_TO Sample Depth 2019/01/19 0.31 0.47 0.28 1.03 PIT170T 6,506,849.747 222,581.769 1.687 -2.723 4.410 8.35 3.74 86.21 0.08 Orange-reddish Sand and PIT171T 0.223 Pebbles 1.59 0.27 6,506,839.581 222,569.505 0.603 0.380 2019/01/19 21.29 11.42 1.50 3.49 61.95 0.09 PIT172T 6,506,767.267 222,673.917 0.905 -1.645 2.550 0.66 0.33 0.34 0.29 2.73 91.77 0.07 Reddish Sand 2019/01/19 4.14 -1.960 0.26 0.29 0.54 PIT173T 6,506,636.874 222,820.940 1.990 3.950 Reddish Orange Sand 2019/01/19 2.04 0.65 0.32 96.08 0.08 PIT174T 6,506,626.894 222,809.036 -1.449 2.740 5.38 0.31 0.27 0.28 1.55 0.05 1.291 Reddish Sand 2019/01/19 1.24 91.19 222,884.233 -1.588 0.65 0.27 2.03 PIT175T 6,506,558.024 2.342 3.930 Yellowish Sand 2019/01/19 9.61 3.05 0.61 84.36 0.08 PIT176T 6,506,548.593 222,872.961 1.736 -0.964 2.700 White Clay 2019/01/19 2.88 0.73 0.00 0.12 0.00 1.82 94.50 0.07 0.33 0.31 0.57 PIT177T 6,506,479.265 222,947.961 -1.092 3.510 2019/01/19 1.63 0.69 0.35 96.39 0.06 2.418 Orange Sand and Pebbles PIT178T 6,506,469.506 222,936.235 1.562 -0.908 2.470 Reddish Sand and Pebbles 2019/01/19 1.54 0.65 0.00 0.03 0.00 2.71 95.04 0.05 0.54 0.27 0.50 PIT179T 6.506.405.679 223,014.827 2.796 0.506 2.290 2019/01/19 5.70 0.60 0.60 92.26 0.06 PIT179T 2 6,506,405.679 223,014.827 2.796 -0.614 3.410 Reddish Sand and Pebbles 2019/01/22 8.71 2.21 0.32 0.42 0.28 4.46 83.98 0.04 PIT180T 6,506,395.460 223,003.760 2.010 -1.840 3.850 Orange Sand and Pebbles 2019/01/19 1.58 1.34 0.34 0.25 0.30 1.67 94.71 0.07 PIT181T 6,506,384.607 222,993.642 0.748 -2.062 2.810 Orange Sand and Pebbles 2019/01/22 8.13 1.95 0.28 0.26 0.25 3.48 85.84 0.07 PIT182T 6,506,293.860 223,117.766 2.626 -0.484 3.110 Orange Sand 2019/01/22 4.25 2.70 0.00 0.17 0.24 3.14 89.59 0.08 PIT183T 6,506,280.751 223,101.930 2.614 -1.476 4.090 2019/01/22 4.79 1.74 0.00 0.07 0.26 2.40 90.78 0.04 Pebbles PIT184T 6,506,271.403 223,089.594 0.824 -1.966 2.790 Orange Sand and Pebbles 2019/01/22 3.10 0.84 0.00 0.09 0.25 1.87 93.91 0.04 PIT185T 6,506,222.152 223,184.767 2.758 -0.362 3.120 2019/01/22 2.84 0.60 0.00 0.07 0.00 1.49 95.03 0.04 Orange Sand 223,166.324 2.835 8.57 0.25 0.23 0.04 PIT186T 6,506,212.820 -1.805 4.640 2019/01/22 1.27 0.18 3.36 86.28 Orange Sand PIT187T 6,506,201.813 223,149.065 2.62 0.91 0.05 0.27 2.271 -1.029 3.300 Pebbles and Sea Shells 2019/01/22 0.00 2.01 94.16 0.04 223,131.563 3.280 4.79 0.01 0.00 0.03 PIT188T 6,506,191.099 0.761 -2.519 2019/01/22 0.26 0.00 2.20 92.72 PIT189T 223,237.677 2.22 0.19 0.22 6,506,162.015 2.122 -0.978 3.100 White Clay 2019/01/22 8.16 0.25 2.25 86.84 0.06 PIT190T 6,506,161.345 223,237.748 2.406 -0.694 3.100 White Clay 2019/01/22 5.52 0.28 0.28 0.17 0.25 2.79 90.84 0.04 PIT191T 6,506,148.469 223,223.064 2.466 -1.304 3.770 Orange Sand and Pebbles 2019/01/22 16.96 5.45 0.47 0.41 0.21 2.16 74.67 0.08 -1.174 2.37 0.27 0.00 0.10 0.24 1.36 PIT192T 6,506,136.054 223,206.344 2.606 3.780 Pebbles 2019/01/22 95.71 0.04 PIT193T 6,506,124.154 223,190.068 1.538 -2.362 3.900 2019/01/22 7.45 1.95 0.00 0.11 0.25 3.23 87.08 0.04