

**Notice to the Australian Securities Exchange**  
**2 May 2022**

**Quarterly Activities Report**  
**Quarter Ended 31 March 2022**

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## **HIGHLIGHTS – DONALD MINERAL SANDS AND RARE EARTH PROJECT**

- Completion of analysis of bulk metallurgical pilot plant test results demonstrates favourable commercial level recoveries and confirms earlier laboratory-scale testing.
- Completion of an air-core drilling programme to better define the fine fraction of the valuable heavy mineral component of the deposit and facilitate more detailed analysis of the rare earth minerals component of the deposit. Assaying is expected to be complete by July 2022.
- Regulatory engagement recommenced with the target of submitting a detailed workplan within 18 months.
- Board review of project concept and design parameters, including opportunities to improve capital efficiency, as part of progression of the Definitive Feasibility Study.

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## **DONALD MINERAL SANDS AND RARE EARTH PROJECT**

The Donald Project is planned as an integrated mineral sands and rare earth mining and concentrating operation, located in the Wimmera region of Victoria. The project is expected to constitute a new, major global source of zircon and titanium feedstock, with rare earths concentrate as a valuable co-product. The Donald Project Definitive Feasibility Study (DFS) is underway and is scheduled for completion in the second half of calendar 2022.

The Donald tenements (MIN 5532 and RL 2002) contain Ore Reserves of 602 million tonnes (Mt) with a Heavy Mineral (HM) grade of 4.8%. The assemblage of the valuable heavy mineral (VHM) component equates to in-situ zircon reserves of approximately 5.4 Mt of zircon (approximately 5 years of current total global consumption), 17.3 Mt of titanium minerals and 0.5 Mt of monazite. Mineral Resources within the tenements have been estimated to be 2.4 billion tonnes at an HM grade of 4.8%. (Refer Appendix 2). It is expected that Ore Reserves and Mineral Resources will underpin commercial production for at least 40 years. A resource delineation programme, completed in the first quarter of 2022, will lead to a refinement of the project's Ore Reserves and Mineral Resources (further details below).

## **PROJECT REVIEW**

Astron has commenced a review of the project concept and parameters for the Donald mineral sands and rare earth project. This review is premised on the following main considerations:

- Identifying opportunities to increase the capital-efficiency of the project, by reducing capital expenditure and operating costs, to improve the already robust project economics;

- Reducing the extent of physical infrastructure and associated site service requirements of the project to provide a potential improvement in the time to commencement of production;
- Ensuring that the physical parameters of the project are aligned with the Environmental Effects Statement (EES) which was approved by the Victorian Minister for Planning in 2008, ensuring greater confidence in the timely receipt of the remaining regulatory approvals; and
- Reducing the project execution risk in key areas (particularly in terms of sourcing and procurement of long lead items, given current supply chain constraints).

The Board of Astron considers this fundamental review is warranted. The review has been aided by the engagement of Mr Sean Chelius as Project Director of the Donald project. Sean brings 30 years of experience in project planning, engineering and implementation, across resource projects at Anglo American, Ausenco, Worley Parsons, Newcrest and BHP.

The review includes all key elements of the project including mining rate and ore throughput, physical infrastructure and site services, and product (rare earth element concentrate and VHM) processing. The review will incorporate the results from a recently completed delineation drilling programme which was designed to better define the finer grained and rare earth components of the deposit. The company expects to be in a position to advise any material changes in the project concept during the June quarter, as part of the the DFS process.

### **Main Work Streams**

The main work streams for the project include geological evaluation, metallurgical and processing test work, engineering design, regulatory approvals and community engagement, as well as customer engagement for potential sales arrangements.

### ***Geological Evaluation***

An air core drilling programme conducted over tenement MIN 5532, which is contained in the Donald deposit, was completed in early March. The programme included a total of 245 holes at a 250 metre (east-west) \*500 metre (north-south) drill pattern, with a total of 6,349 metres. It was designed to delineate the 20 to 38 micron fraction of the valuable heavy mineral (VHM) component of the deposit and to provide a more detailed analysis of the rare earth minerals in the deposit including the xenotime component. The 20 to 38 micron fraction of VHM was not included in the earlier geological model of the resource as it was assumed not to be recoverable. However, subsequent metallurgical testwork, including pilot plant operation, has provided confidence in the recovery of this material. Assays are currently underway and results are expected by July 2022.

Subsequent to the completion of the resource drilling programme a sonic drilling programme, consisted of 15 geotechnical drill holes, 10 holes of bulk sample core and two water monitoring holes was carried out. In total, the sonic drilling consisted of 706 metres. The results of this programme will be utilised for geotechnical analysis of the deposit. It will also provide additional bulk samples for metallurgical test work.

Information from the air core and sonic drilling programmes will be used to refine the understanding of the metallurgical

characteristics of the ore body and facilitate mine planning for the DFS. The information is also expected to contribute to a revised Mineral Resource and Ore Reserves Statement.

### ***Metallurgical and Processing Test Work***

Mineral Technologies (MT) has undertaken extensive metallurgical and processing test work for Astron, initially utilising approximately 1,000 tonnes of Donald ore processed through a pilot wet concentration plant to produce bulk samples of heavy mineral concentrate (HMC). This material has been utilised in bulk mineral separation pilot plant trials to produce final products of premium grade and standard grade zircon as well as a titanium dioxide product (referred to as titania).

For details relating to the sourcing of the material for the metallurgical testwork, please see appendix tables 1 and 2.

During the March quarter, the analysis of the complete suite of processing test work was undertaken as part of the preparation of the metallurgical report in support of detailed engineering and the DFS.

Using titanium dioxide (TiO<sub>2</sub>), zircon (ZrO<sub>2</sub>) and cerium oxide (CeO<sub>2</sub>) as tracers, the processing trials were able to achieve product recoveries of 86.0% of titania, 85.5% of zircon (consisting of 71.9% recovering to premium grade zircon and 13.6% recovering to a secondary zircon product), and 91.1% of rare earth minerals recovered as a rare earth concentrate relative to a 95% THM HMC concentrate.

The metallurgical test results from the pilot plant operation work provide confidence that similar recoveries will be achievable from commercial operations. The achieved recoveries also compare favourably with those for existing mineral sands operators.

### ***Engineering Design***

During the current quarter, MT advanced basic design packages to include co-disposal of tailings and minor amendments to process flowsheets to include information and learnings gained from the pilot scale test work.

Determination of the main infrastructure requirements of the project is at an advanced stage.

### ***Regulatory Approvals and Community Engagement***

During the March quarter, company representatives engaged with the main Victorian Government regulators to discuss the revised project concept and the associated regulatory requirements, approvals pathways and time frames. This has enabled work to commence for the submission of a Work Plan for the project.

In addition, engagement with a number of local landowners and the local Shire Council was undertaken with a particular reference to the infrastructure requirements of the project.

During the quarter, a Community Engagement Plan was advanced to near completion, with the appointment of a Community Liaison Officer.

### **Customer Engagement**

During the quarter, Astron continued discussions with third parties in relation to processing options for the project's rare earth element concentrate product stream.

### **PRODUCTION**

As the project is at an evaluation and development stage, no commercial production activities are being conducted.

### **EXPENDITURE SUMMARY**

Production Activities	March Qtr 2022	YTD 2022 FY
	Nil	Nil
Development Activities	March Qtr 2022	YTD 2022 FY
	\$1,029,795	\$3,036,066

Note: the development activities expenditure includes procurement, design and consulting.

### **NIAFARANG MINERAL SANDS PROJECT, SENEGAL**

The Niararang Project is located within an exploration licence zone covering an area of 397 square kilometres the Casamance coast of Senegal, West Africa. Astron owns a licence issued under Order Number 09042/MIM/TMG through its subsidiary company, Senegal Mineral Resources (SMR). Environmental and mining licences were awarded in 2017. A Small Mining Licence (SML) was awarded to Astron and transferred to its Senegalese-based subsidiary expiring on the 30 May 2022.

The project plans to access a high-grade coastal mineral sands deposit using conventional dredge mining and concentrating techniques to produce a heavy mineral concentrate.

A mining licence renewal application was submitted to the Senegal Mines Department on 30 March 2022, within the prescribed re-application time frame.

### **PRODUCTION**

Given the stage of the project, no production activity is being undertaken.

## EXPENDITURE SUMMARY

Production Activities	March Qtr 2022	YTD 2022 FY
	Nil	Nil
Development Activities	March Qtr 2022	YTD 2022 FY
	\$74,342	\$224,045

## ASTRON CHINA

Astron Corporation, through its subsidiary Astron Titanium (Yingkou) Ltd, owns and operates a mineral sands processing plant in Yingkou, Liaoning, China.

The revenue from Astron's Chinese operations was A\$2,960,202 for the March 2022 quarter (March quarter 2021: A\$4,663,670) The drop in trading income is attributable to the Chinese New Year period, and Covid 19 related Government lockdowns imposed in Yingkou city during March.

Alternative feedstock providers have been identified and a number of discussions are being advanced to final agreement stage. These arrangements relate to titania middlings for processing into a rutile grade product. In addition, a supply of zircon middlings, for delivery over three months, has been secured to enable plant reconfiguration requirements to be determined to enable the processing of this material to produce a higher grade zircon product.

## ASX ADDITIONAL INFORMATION

ASX listing rule 5.3.5 – Payment to related parties of the entity and their associates

Appendix 5B, Section 6.1 – Description of payments:

Total Directors remuneration for the quarter                      \$156,000 (includes superannuation)

This announcement is authorised by the Managing Director of Astron Corporation Limited.

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## **About Astron**

Astron Corporation Limited (ASX: ATR) is an ASX listed company, with over 35 years of experience in mineral sands processing technology and downstream product development, as well as the marketing and sales of zircon and titanium dioxide products. Astron's prime focus is on the development of its large, long-life and attractive zircon assemblage Donald Mineral Sands and Rare Earth Project in regional Victoria. Donald has the ability to represent a new major source of global supply in mineral sands. The company conducts a mineral sands trading operation based in Shenyang, China; operates a zircon and titanium chemicals and metals research and development facility in Yingkou, China; and is the owner of the Niafarang Mineral Sands Project in Senegal.

## **COMPETENT PERSONS STATEMENT**

The information in this report that relates to Exploration Results and Mineral Resources for the Donald Mineral Sands and Rare Earth Project is based on information first reported in previous ASX announcements by the Company, as listed in this announcement. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the original announcements continuing to apply and have not materially changed. The information in this document that relates to the estimation of the Mineral Resources is based on information compiled by Mr Rod Webster, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists. Mr Webster is a full-time employee of AMC Consultants Pty Ltd and is independent of Astron. Mr Webster has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not prematurely modified from the relevant original market announcement.

The information in this document that relates to the estimation of the Ore Reserves is based on information compiled by Mr Pier Federici, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Federici is a full-time employee of AMC Consultants Pty Ltd and is independent of Astron. Mr Federici has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. The Company confirms that the form and context in which the Competent Persons' findings are presented have not prematurely modified from the relevant original market announcement.

## **CAUTIONARY STATEMENT**

Certain sections of this document contain forward looking statements that are subject to risk factors associated with, among others, the economic and business circumstances occurring from time to time in the countries and sectors in which the Astron group operates. It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a wide range of variables which could cause results to differ materially from those currently projected.

The information contained in this document is not investment or financial product advice and is not intended to be used as the basis for making an investment decision. Please note that, in providing this document, Astron has not considered the objectives, financial position or needs of any particular recipient. Astron strongly suggests that investors consult a financial advisor prior to making an investment decision.

This document may include “forward looking statements” within the meaning of securities laws of applicable jurisdictions. Forward looking statements can generally be identified by the use of the words “anticipate”, “believe”, “expect”, “project”, “forecast”, “estimate”, “likely”, “intend”, “should”, “could”, “may”, “target”, “plan”, “guidance” and other similar expressions. Indications of, and guidance on, future earning or dividends and financial position and performance are also forward-looking statements. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors, many of which are beyond the control of Astron and its related bodies corporate, together with their respective directors, officers, employees, agents or advisers, that may cause actual results to differ materially from those expressed or implied in such statement. Actual results, performance or achievements may vary materially from any forward looking statements and the assumptions on which those statements are based. Readers are cautioned not to place undue reliance on forward looking statements and Astron assumes no obligation to update such information. Specific regard should be given to the risk factors outlined in this document (amongst other things).

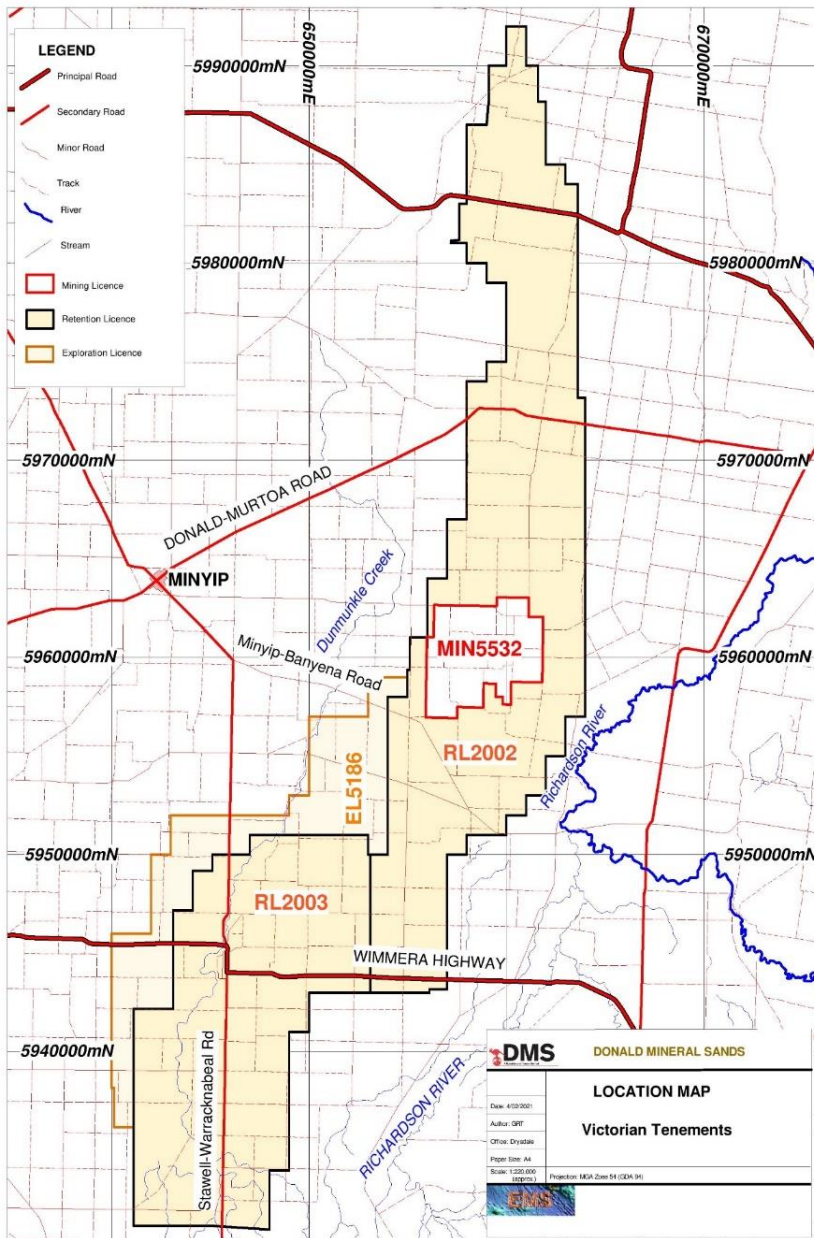
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Certain financial data included in this document is not recognised under the Australian Accounting Standards and is classified as 'non-IFRS financial information' under ASIC Regulatory Guide 230 'Disclosing non-IFRS financial information' (RG 230). This non-IFRS financial information provides information to users in measuring financial performance and condition. The non-IFRS financial information does not have standardised meanings under the Australian Accounting Standards and therefore may not be comparable to similarly titled measures presented by other entities, nor should they be interpreted as an alternative to other financial measures determined in accordance with the Australian Accounting Standards. No reliance should therefore be placed on any financial information, including non-IFRS financial information and ratios, included in this document. All financial amounts contained in this document are expressed in Australian dollars and may be rounded unless otherwise stated. Any discrepancies between totals and sums of components in tables contained in this document may be due to rounding.

**Schedule 1: Donald Mineral Sands and Rare Earth Project Interests in Tenements**

Location	Tenement	Percentage held	Holder
Victoria Australia	RL 2002	100	Donald Mineral Sands Pty Ltd
Victoria Australia	RL 2003	100	Donald Mineral Sands Pty Ltd
Victoria Australia	MIN5532	100	Donald Mineral Sands Pty Ltd
Victoria Australia	EL5186	100	Donald Mineral Sands Pty Ltd

Figure 1: Tenements map





## Schedule 2

### APPENDIX A: DONALD DEPOSIT UPDATED ORE RESERVE & MINERAL RESOURCE STATEMENTS

#### Ore Reserves <sup>1</sup>

Based on the supporting mine planning completed, pit inventories to support an Ore Reserve Estimate, in accordance with JORC 2012 are shown in Table 1.1. Ore has been classified as Proven Ore Reserve, based on Measured Mineral Resource and Probable Ore Reserve, based on Indicated Mineral Resource. The results of the Ore Reserve estimate reflect the Competent Person's view of the deposit.

Note that the Mineral Resources are reported inclusive of the Ore Reserve.

**Table 1.1 Donald Mineral Sands Ore Reserve for RL 2002 at February 2021**

<b>Classification</b>	<b>Tonnes (mt)</b>	<b>Slimes (%)</b>	<b>Oversize (%)</b>	<b>HM (%)</b>	<b>Ilmenite (%HM)</b>	<b>Leucoxene (%HM)</b>	<b>Rutile (%HM)</b>	<b>Zircon (%HM)</b>	<b>Monazite (%HM)</b>
<b>Within MIN5532</b>									
Proved	170	14	12	5.3	31	22	7.1	19	1.9
Probable	24	13	12	4.9	33	21	6.7	20	2.0
<b>Total</b>	<b>194</b>	<b>14</b>	<b>12</b>	<b>5.3</b>	<b>32</b>	<b>22</b>	<b>7.0</b>	<b>19</b>	<b>1.9</b>
<b>Within RL2002 Outside of MIN5532</b>									
Proved	140	19	7	5.6	31	18	9.6	21	1.8
Probable	268	16	14	4.0	32	19	7.5	17	1.6
<b>Total</b>	<b>408</b>	<b>17</b>	<b>12</b>	<b>4.5</b>	<b>32</b>	<b>19</b>	<b>8.4</b>	<b>19</b>	<b>1.8</b>
<b>Total within Donald Deposit (RL2002)</b>									
Proved	310	16	108	5.4	31	20	8.2	20	1.8
Probable	292	16	14	4.1	32	20	7.4	17	1.6
<b>Total</b>	<b>602</b>	<b>16</b>	<b>12</b>	<b>4.8</b>	<b>32</b>	<b>20</b>	<b>7.9</b>	<b>19</b>	<b>1.7</b>

#### Note

1. The ore tonnes have been rounded to the nearest 1mt and grades have been rounded to two significant figure.
2. The Ore Reserve is based on indicated and Measured Mineral Resource contained with mine designs above an economic cut-off. The economic cut-off is defined as the value of the products less the cost of processing
3. Mining recovery and dilution have been applied to the figures above.

The JORC Code 2012 Table 1, Section 4 to support the Ore Reserve Estimate is included in Appendix B of the Donald Project Ore Reserve Statement released 18 February 2021. The Ore Reserve estimates have been compiled in accordance with the guidelines defined in the 2012 JORC Code.

#### Mineral Resources<sup>1</sup>

Astron Corporation last reported the Mineral Resource on 7<sup>th</sup> April 2016 in accordance with JORC 2012. Below is an exact of the AMC report (AMC 115075) prepared to support the Mineral Resource. The Mineral Resource estimate was reported in accordance with the JORC Code for the heavy minerals (HM) and valuable heavy minerals (VHM) Content for MIN5532

<sup>1</sup> Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition, sets out minimum standards, recommendations and guidelines for public reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves authored by the Joint Ore Reserves Committee of The Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia. The Ore Reserve and Mineral Resource estimates were prepared by AMC Consultants Pty Ltd. For further details see Astron's ASX announcement 18 February 2021, "Donald Project Ore Reserve Update".

<sup>1</sup> Refer ASX Release 7 April 2016

and RL 2002 of the Donald Heavy Mineral Sands Deposit and for RL2003, RLA2006 (since been amalgamated into RL2003) of the Jackson Heavy Mineral Sands Deposit.

The Mineral Resource estimate was reported in accordance with the JORC Code for the heavy minerals (HM) and valuable heavy minerals (VHM) content has been used for the preparation of the Ore Reserve. Only the resource containing valuable heavy minerals (VHM) content has been used for the preparation of the Ore Reserve.

**Table 1.2 Mineral Resource at a 1% Cut-off**

<b>Classification</b>	<b>Tonnes (mt)</b>	<b>HM (%)</b>	<b>Slimes (%)</b>	<b>Oversize (%)</b>
<b>Within ML5532</b>				
Measured	372	4.5	14.4	12.8
Indicated	75	4.0	13.8	13.1
Inferred	7	3.5	13.5	10.6
Subtotal	454	4.4	14.2	12.8
<b>With RL2002 Outside of ML5532</b>				
Measured	343	3.9	19.8	8.1
Indicated	833	3.3	16.2	13.5
Inferred	1,595	3.3	15.7	6.0
Subtotal	2,771	3.4	16.4	8.5
<b>Total within Donald Deposit (RL2002)</b>				
Measured	715	4.2	17.0	10.6
Indicated	907	3.4	16.0	13.4
Inferred	1,603	3.4	15.7	6.0
Subtotal	3,225	3.6	16.1	9.1
<b>Total within Jackson Deposit (RL2003)</b>				
Measured	0	0.0	0.0	0.0
Indicated	1,903	2.8	19.0	5.8
Inferred	584	2.9	16.7	3.3
Subtotal	2,497	2.9	18.5	5.2
<b>Total Donald Project</b>				
Measured	715	4.3	18.1	11.1
Indicated	2,811	3.0	17.9	8.2
Inferred	2,187	3.3	16.4	5.5
Total	5,712	3.2	16.9	7.3

**Note**

1. The total tonnes may not equal the sum of the individual resources due to rounding.
2. The cut-off grade is 1% HM.
3. The figures are rounded to the nearest: 10M for tonnes, one decimal for HM, Slimes and Oversize.
4. For further details including JORC Code, 2012 Edition – Table 1 and cross sectional data, see previous announcements dated 7 April 2016, available at ASX's website at: [www.asx.com.au/asxpdf/20160407/pdf/436cjqcgc3cf47.pdf](http://www.asx.com.au/asxpdf/20160407/pdf/436cjqcgc3cf47.pdf)

**Table 1.3 Mineral Resource where VHM Data is Available at a Cut-off of 1% HM**

<b>Classification</b>	<b>Tonnes (mt)</b>	<b>Slimes (%)</b>	<b>Oversize (%)</b>	<b>HM (%)</b>	<b>Ilmenite (%HM)</b>	<b>Leucoxene (%HM)</b>	<b>Rutile (%HM)</b>	<b>Zircon (%HM)</b>	<b>Monazite (%HM)</b>
<b>Within ML5532</b>									
Measured	264	14.2	12.2	5.4	31	22	7	19	2
Indicated	49	13.6	12.1	4.9	33	22	7	20	2
Inferred	5	13.5	10.2	4.2	36	20	7	22	3
<b>Total</b>	<b>317</b>	<b>14.1</b>	<b>12.1</b>	<b>5.3</b>	<b>32</b>	<b>22</b>	<b>7</b>	<b>19</b>	<b>2</b>
<b>Within RL2002 Outside of ML5532</b>									
Measured	185	19.1	7.3	5.5	31	19	9	21	2
Indicated	454	15.9	13.2	4.2	33	19	7	17	2
Inferred	647	15.2	5.8	4.9	33	17	9	18	2
<b>Total</b>	<b>1,286</b>	<b>16.0</b>	<b>8.6</b>	<b>4.8</b>	<b>33</b>	<b>18</b>	<b>8</b>	<b>18</b>	<b>2</b>
<b>Total within Donald Deposit (RL2002)</b>									
Measured	448	16.2	10.2	5.4	31	21	8	20	2
Indicated	503	15.7	13.1	4.3	33	20	7	18	2
Inferred	652	15.2	5.8	4.9	33	17	8	18	2
<b>Total</b>	<b>1,604</b>	<b>15.6</b>	<b>9.3</b>	<b>4.9</b>	<b>32</b>	<b>19</b>	<b>8</b>	<b>18</b>	<b>2</b>
<b>Total within Jackson Deposit (RL2003)</b>									
Measured									
Indicated	668	18.1	5.4	4.9	32	17	9	18	2
Inferred	155	15.1	3.1	4.0	32	15	9	21	2
<b>Total</b>	<b>823</b>	<b>17.6</b>	<b>5.0</b>	<b>4.8</b>	<b>32</b>	<b>17</b>	<b>9</b>	<b>19</b>	<b>2</b>
<b>Total Donald Project</b>									
Measured	448	16.2	10.2	5.4	31	21	8	20	2
Indicated	1,171	17.1	8.7	4.6	32	18	8	18	2
Inferred	807	15.2	5.3	4.7	33	17	9	19	2
<b>Total</b>	<b>2,427</b>	<b>16.3</b>	<b>7.0</b>	<b>4.8</b>	<b>32</b>	<b>18</b>	<b>8</b>	<b>19</b>	<b>2</b>

**Note**

1. The total tonnes may not equal the sum of the individual resources due to rounding.
2. The cut-off grade is 1% HM.
3. The figures are rounded to the nearest: 1mt for tonnes, one decimal for HM, Slimes and Oversize and whole numbers for zircon, ilmenite, rutile + anatase, leucoxene and monazite.
4. Zircon, ilmenite, rutile + anatase, leucoxene and monazite percentages are report as a percentage of the HM.
5. Rutile + anatase, leucoxene and monazite resource has been estimated using fewer samples than the other valuable heavy minerals. The accuracy and confidence in their estimate is therefore lower.
6. For further details including JORC Code, 2012 Edition – Table 1 and cross sectional data, see previous announcements dated 7 April 2016, available at ASX's website at [www.asx.com.au/asxpdf/20160407/pdf/436cjqc93cf47.pdf](http://www.asx.com.au/asxpdf/20160407/pdf/436cjqc93cf47.pdf)

### SCHEDULE 3: DONALD MINERAL SANDS TESTPIT TABLE 1 SECTION 1 & 2

#### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<p>1. 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.</p> <p>2. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</p> <p>3. Aspects of the determination of mineralization that are Material to the Public Report.</p> <p>4. 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 mineralization types (eg submarine nodules) may warrant disclosure of detailed information.</p>	<p>5. One bulk ore and five bulk density samples were taken from the Donald deposit in March 2018.</p> <p>6. The bulk sample was taken from the top of the mineralized zone at 9m below the surface to a depth of 16m, totaling a 7m thickness.</p> <p>7. The bulk sample suitable for metallurgical test work was dug using a Cat 330 excavator.</p> <p>8. The test pit was benched and dug in two blocks with the top block approximately 17m long x 6m wide x 5m deep and the lower block 7m long x 6m wide x 2m deep.</p> <p>9. Both blocks formed the one bulk sample which was used for metallurgical test work.</p> <p>10. The mineralized Loxton Sands were also sampled by hand shovels to depths of approximately 0.3 m for five bulk density samples used to measure the bulk density, moisture content, Atterberg limits and particle size distribution.</p> <p>11. These samples weighing 1 to 1.5 kg were placed in sealed plastic bags.</p>
<b>Drilling techniques</b>	<p>12. 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).</p>	<p>13. No drilling was undertaken</p>
<b>Drill sample recovery</b>	<p>14. Method of recording and assessing core and chip sample recoveries and results assessed.</p> <p>15. Measures taken to maximise sample recovery and ensure representative nature of the samples.</p> <p>16. 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.</p>	<p>17. No drilling as undertaken.</p> <p>18. No relationship between recovery and grade were found in the bulk sample as the total material within the tested mineralized zones was sampled.</p> <p>19. The bulk sample contained 5.1% HM, 2.22% TiO<sub>2</sub> and 0.67 % ZrO<sub>2</sub></p> <p>20. The Mineral Reserves stating 4.8 % HM, 2.87 % TiO<sub>2</sub> and 0.90 % ZrO<sub>2</sub></p>
<b>Logging</b>	<p>21. 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.</p> <p>22. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</p> <p>23. The total length and percentage of the relevant intersections logged.</p>	<p>24. During excavation the following was recorded:</p> <ul style="list-style-type: none"> <li>○ Lithologies</li> <li>○ Induration</li> <li>○ Material hardness</li> </ul>
<b>Sub-sampling</b>	<p>25. If core, whether cut or sawn and whether quarter, half or all core taken.</p>	<p>31. Five sub-samples (1 to 5 kg) were taken for bulk density testing.</p>

Criteria	JORC Code explanation	Commentary
<b>techniques and sample preparation</b>	<p>26. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</p> <p>27. For all sample types, the nature, quality and appropriateness of the sample preparation technique.</p> <p>28. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</p> <p>29. 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.</p> <p>30. Whether sample sizes are appropriate to the grain size of the material being sampled.</p>	32. One bulk mineralised sample of 1000 tonnes was sent for metallurgical testing.
<b>Quality of assay data and laboratory tests</b>	<p>33. The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</p> <p>34. 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.</p> <p>35. 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.</p>	<p>36. The following laboratory tests were carried on the bulk sample as a whole:</p> <ul style="list-style-type: none"> <li>○ Moisture content</li> <li>○ Density separation by size fraction.</li> <li>○ Particle size -250 um to +20 um were used in the analysis.</li> <li>○ Bulk density by size fraction</li> <li>○ THM content</li> <li>○ TiO<sub>2</sub>, ZrO<sub>2</sub>, CeO<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub> and Al<sub>2</sub>O<sub>3</sub> were analysed and percentages were calculated.</li> </ul> <p>37. Duplicates were prepared with no other laboratories were used.</p>
<b>Verification of sampling and assaying</b>	<p>38. The verification of significant intersections by either independent or alternative company personnel.</p> <p>39. The use of twinned holes.</p> <p>40. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</p> <p>41. Discuss any adjustment to assay data.</p>	<ul style="list-style-type: none"> <li>• No twin samples were collected or assayed.</li> <li>• The intersection of the mineralized zone was recorded by the site geologist.</li> <li>• No adjustments to the data were undertaken.</li> </ul>
<b>Location of data points</b>	<p>42. 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.</p> <p>43. Specification of the grid system used.</p> <p>44. Quality and adequacy of topographic control.</p>	45. The position of the bulk sample was mapped and surveyed
<b>Data spacing and distribution</b>	<p>46. Data spacing for reporting of Exploration Results.</p> <p>47. 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.</p> <p>48. Whether sample compositing has been applied.</p>	<p>49. A single bulk sample was taken.</p> <p>50. The size of the sample (1000 tonne) was sufficient to identify grade, lithology continuity and for metallurgical test work.</p> <p>51. No compositing was applied</p>

Criteria	JORC Code explanation	Commentary
<b>Orientation of data in relation to geological structure</b>	<p>52. Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</p> <p>53. 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.</p>	<p>54. The bulk sample was unbiased in regards to the style of mineralisation for metallurgical test work. The bulk sample consists of mineralisation taken from two blocks. Most material was taken from the top block sample. It was taken in mineralisation from 9m to 14m below surface (510 bank cubic metres) and the lower block was taken in mineralisation from 14m to 16m depth (84bank cubic metres).</p> <p>55. The mineralisation style is similar in both blocks and representative for metallurgical test work.</p> <p>56. The bulk sample dimensions are very small in regard to the large dimensions of the deposit (approx. 3km width and over 10km long). There is no bias in relation to the orientation of the sample.</p>
<b>Orientation of data in relation to geological structure</b>	<p>57. Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</p> <p>58. 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.</p>	<p>59. The bulk sample was unbiased in regards to the flat lying nature of mineralisation for metallurgical test work. Most material was taken from the top block sample. It was taken in mineralisation from 9m to 14m below surface (510 bank cubic metres) and the lower block was taken in mineralisation from 14m to 16m depth (84bank cubic metres).</p> <p>60. The mineralisation style is similar in both blocks and representative for metallurgical test work.</p> <p>61. This bulk sample dimensions are very small in regard to the large dimensions of the deposit (approx. 3km width and over 10km long)</p>
<b>Sample security</b>	62. The measures taken to ensure sample security.	<p>63. The five bulk density samples were stored in sealed bags on private land controlled by the company.</p> <p>64. The bulk sample was stored on location and loaded into covered bulk trucks and transported to the processing plant in Queensland.</p>
<b>Audits or reviews</b>	65. The results of any audits or reviews of sampling techniques and data.	66. Only internal reviews were carried out.

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<p>67. 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.</p> <p>68. 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.</p>	<p>69. This sample was taken within MIN5532 which is located within RL2002 owned by Donald Mineral Sands (refer to Figure 2).</p> <p>70. AMC has been informed by Astron Limited that no third parties or other interests impact on the exploration licence.</p> <p>71. AMC is not aware of any known impediments to the tenure being in existence.</p>

Criteria	JORC Code explanation	Commentary
		72. Land use is broad acre cropping
<b>Exploration done by other parties</b>	73. Acknowledgment and appraisal of exploration by other parties.	74. Drilling by CRA Exploration Pty Ltd in 1980's. 75. Drilling and bulk sampling by Zirtanium Ltd in 2000, 2002 and 2004.
<b>Geology</b>	76. Deposit type, geological setting and style of mineralisation.	77. WIM-style mineralisation, fine grained heavy mineral deposit within the Loxton Sands. 78. The deposit can be described as a Tertiary aged succession of marine, coastal and continental sediments deposited with heavy minerals in the area. The deposit consists of a solitary or composite broad, lobate sheet-like body of considerable aerial extent, highly sorted and associated with fine to very fine- grained micaceous sand with minor silt, clay and gravel beds. The HM occurs in parallel and cross laminated beds within the host unconsolidated sand, In the Donald deposit the HM mineralisation varies from 4m to over 18m in thickness. These WIM deposits are thought to represent accumulations formed below the active wave base in a near shore marine environment, possibly representing the submarine equivalent of the coarse-grained beach or strand style HM deposits. Minor coarse-grained deposits can occur at the top part of the Loxton Sands.
<b>Drill hole Information</b>	79. 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: <ul style="list-style-type: none"> <li>o easting and northing of the drill hole collar</li> <li>o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>o dip and azimuth of the hole</li> <li>o down hole length and interception depth</li> <li>o hole length.</li> </ul> 80. 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.	81. Previous drilling was used to identify the location of the bulk sample. 82. The sample was taken within the following co-ordinates (projection MGA94): <ul style="list-style-type: none"> <li>o Easting – 659,826.4 m to 659,832.6 m</li> <li>o Northing – 5,953,155.6 m to 5,953,172.5 m</li> <li>o Depth from surface - 9 m</li> </ul>
<b>Data aggregation methods</b>	83. 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. 84. 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. 85. The assumptions used for any reporting of metal equivalent values	86. The information reported is the aggregation of samples taken by an excavator within a single bulk sample. 87. A single bulk sample grade is reported within the -250 um to +20 um size fraction as containing 5.1 % HM. 88. No metal equivalents are reported.



Criteria	JORC Code explanation	Commentary
	<i>should be clearly stated.</i>	
<b>Relationship between mineralisation widths and intercept lengths</b>	<p>89. <i>These relationships are particularly important in the reporting of Exploration Results.</i></p> <p>90. <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></p> <p>91. <i>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').</i></p>	<p>92. The bulk sample was taken in two blocks, the top block sample was taken in the mineralisation from 9m to 14m below surface for 510 bank cubic metres and 17m long x 6m width x 5m deep and the lower block was taken in mineralisation from 14m to 16m depth for 84bank cubic metres and 7m long x 6m width x 2m deep).</p> <p>93. The mineralisation in the two blocks is a similar style and flat lying and representative for metallurgical test work.</p>
<b>Diagrams</b>	94. <i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	95. Refer to Figure 3 for location of bulk sample.
<b>Balanced reporting</b>	96. <i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i>	97. The bulk sample is the complete Exploration Results being reported.
<b>Other substantive exploration data</b>	98. <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	<p>99. In 2010 a bulk sample within MIN5532 was taken using various composited drill holes around hole D10_044.</p> <p>100. Test work was completed in 2010 to compare results from test pit bulk sample taken in 2005.</p> <p>101. The entire Loxton Sands horizon was sampled resulting in a composited low-grade sample of 2%HM head grade.</p> <p>102. In 2005 a test pit within EL4433 (now RL2003), material was processed at Mildura pilot plant and formed the basis of a process flow sheet design at the time.</p> <p>103. In 2000 a Caldwell hole near MIN5532 was drilled. Test work was carried out in 2001 and 2004 to develop process flow sheet design and determine HM, oversize, slimes and valuable mineral recoveries.</p>
<b>Further work</b>	<p>104. <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p> <p>105. <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<p>106. The pit used to provide the bulk sample was rehabilitated in 2020.</p> <p>107. No additional bulk sampling is proposed at the moment.</p>