MINERAL RESOURCES LIMITED

WODGINA MINERAL RESOURCE AND ORE RESERVE UPDATE

23 October 2018

EXECUTIVE SUMMARY

- 25.3Mt (12%) increase in the hard rock Wodgina Mineral Resource from May 2018 update
- Wodgina Mineral Resource now estimated at 259.2Mt at 1.17% Li_2O
- 9.5Mt (7%) increase in the Wodgina hard rock Cassiterite Pit Ore Reserve from May 2018 update
- Wodgina hard rock Cassiterite Pit Ore Reserve estimated at 151.9Mt at 1.17% Li_2O

MINERAL RESOURCE AND ORE RESERVE UPDATE FOR THE WODGINA PROJECT

Mineral Resources Limited (ASX:MIN) ("MRL"), is pleased to announce the results of re-sampling, infill drilling and blast hole sampling data as at 18 October 2018 to produce new Mineral Resource and Ore Reserve Estimates for the Wodgina Lithium Deposit.

Widenbar and Associates Pty Ltd ("Widenbar") has used additional infill drilling as at 18 October 2018 to produce a new Mineral Resource Estimate for the Wodgina Lithium Deposit.

The further infill drilling between May and October 2018 has also been used by Widenbar to increase confidence in significant parts of the Inferred material. The total Indicated and Inferred Pegmatite Mineral Resource at Wodgina is now 236.9 Mt at 1.19% Li_2O (depleted to the end of September 2018). The Wodgina Total Mineral Resource, using a 0.5% Li_2O cut off for pegmatite and including the Tailings material, now stands at 259.2 Mt at 1.17% Li_2O.

RESOURCE UPDATE FOR THE WODGINA LITHIUM PROJECT

Table 1 Wodgina Total Mineral Resource Estimate

RESOURCE		Tonnes	Li2O	Fe	Al2O3	SiO2	Ta2O5
CLASSIFICATION		(Millions)	%	%	%	%	%
INDICATED		196.90	1.17	1.95	15.51	71.50	0.017
INFERRED		62.29	1.16	1.82	15.47	72.08	0.012
TOTAL		259.19	1.17	1.92	15.50	71.64	0.016

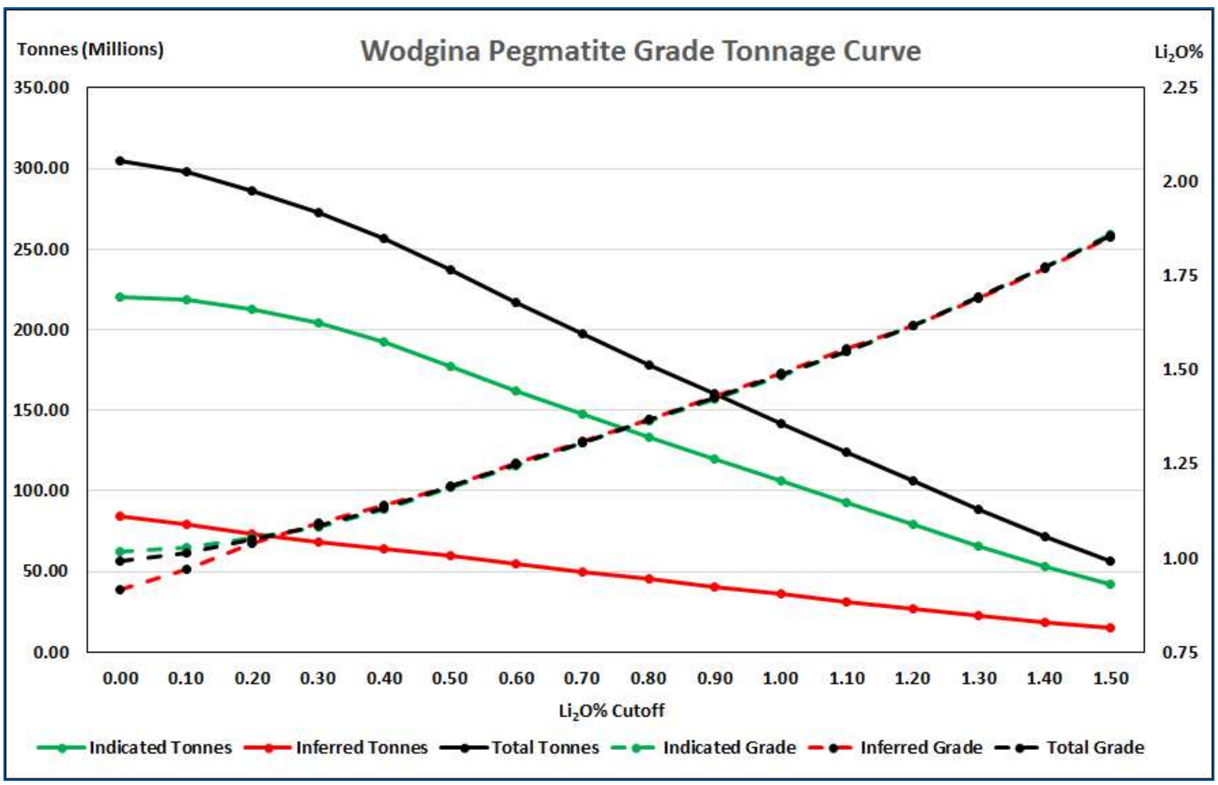
Table 2 Wodgina Total Pegmatite Mineral Resource Estimate

RESOURCE CLASSIFICATION	Cutoff Li2O%	Tonnes (Millions)	Li2O %	Fe %	Al2O3 %	SiO2 %	Ta2O5 %
INDICATED	0.50	177.04	1.19	1.61	15.61	71.92	0.017
INFERRED	0.50	59.88	1.19	1.62	15.49	72.43	0.012
TOTAL	0.50	236.92	1.19	1.61	15.58	72.05	0.016

Table 3 Wodgina Tailings Storage Facility Mineral Resource Estimate

RESOURCE CLASSIFICATION	Cutoff Li2O%	Tonnes (Millions)	Li2O %	Fe %	Al2O3 %	SiO2 %	Ta2O5 %
INDICATED	0.00	19.87	1.02	5.00	14.64	67.70	0.019
INFERRED	0.00	2.40	0.43	6.76	14.93	63.38	0.022
TOTAL	0.00	22.27	0.96	5.19	14.67	67.23	0.019

Figure 1 Wodgina Grade-Tonnage Curve



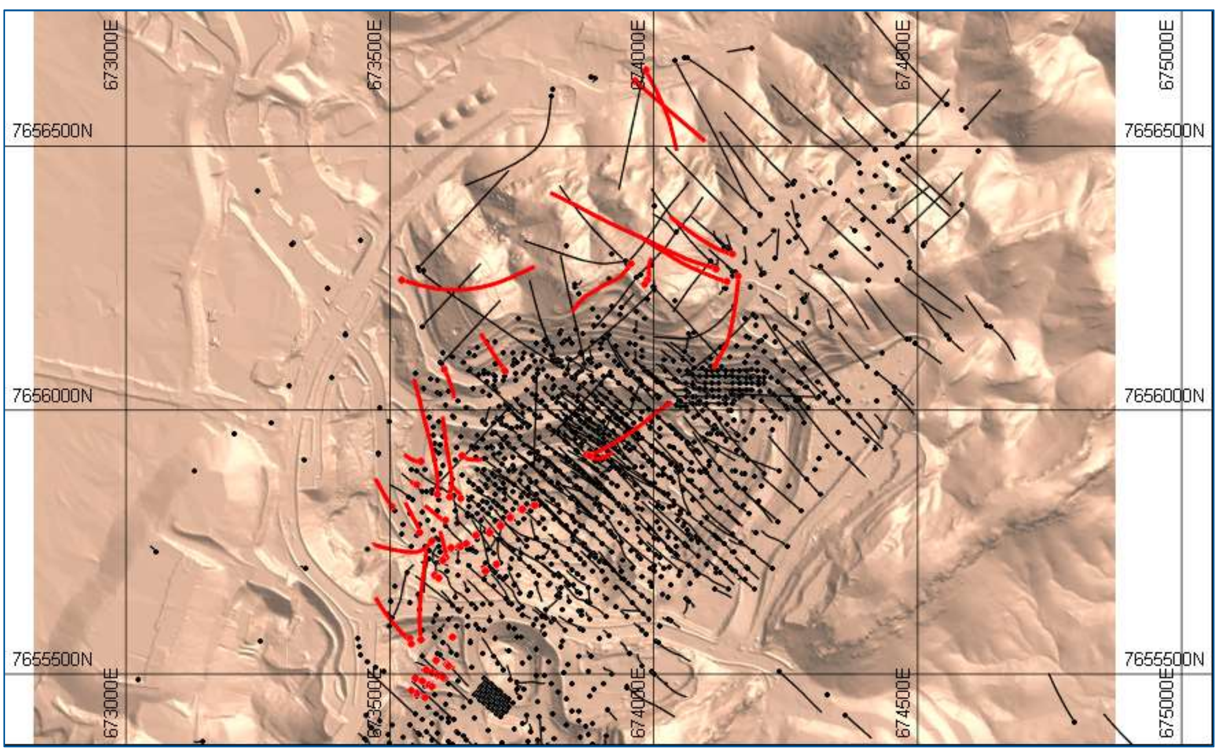
The original Wodgina Tantalum and Tin Deposit in the area of interest for lithium mineralisation had 1,691 drill holes, of which 1,510 were geologically logged in detail and were able to be used for interpretation of pegmatite bodies.

Existing reverse circulation sample pulps from these previous drilling programs at Wodgina were retrieved from storage in 2016 and submitted to Nagrom Laboratories for assaying for Li2O. A total of 3,390 assays were received.

In addition, geological logging data from 295 RC drill holes (including 10 with diamond tails) for a total of 76,849m has been received and used in a revised interpretation at the date of this Mineral Resource Estimate. This represented an increase of 29 holes and 11,650 m compared to the previous May 2018 estimate. There were also 82,886 blast hole samples incorporated into the database.

The additional holes which were available for the October 2018 resource update were used to both confirm existing interpolated blocks and extend the Inferred and Indicated components of the resource into new areas. These holes are shown highlighted in red below.

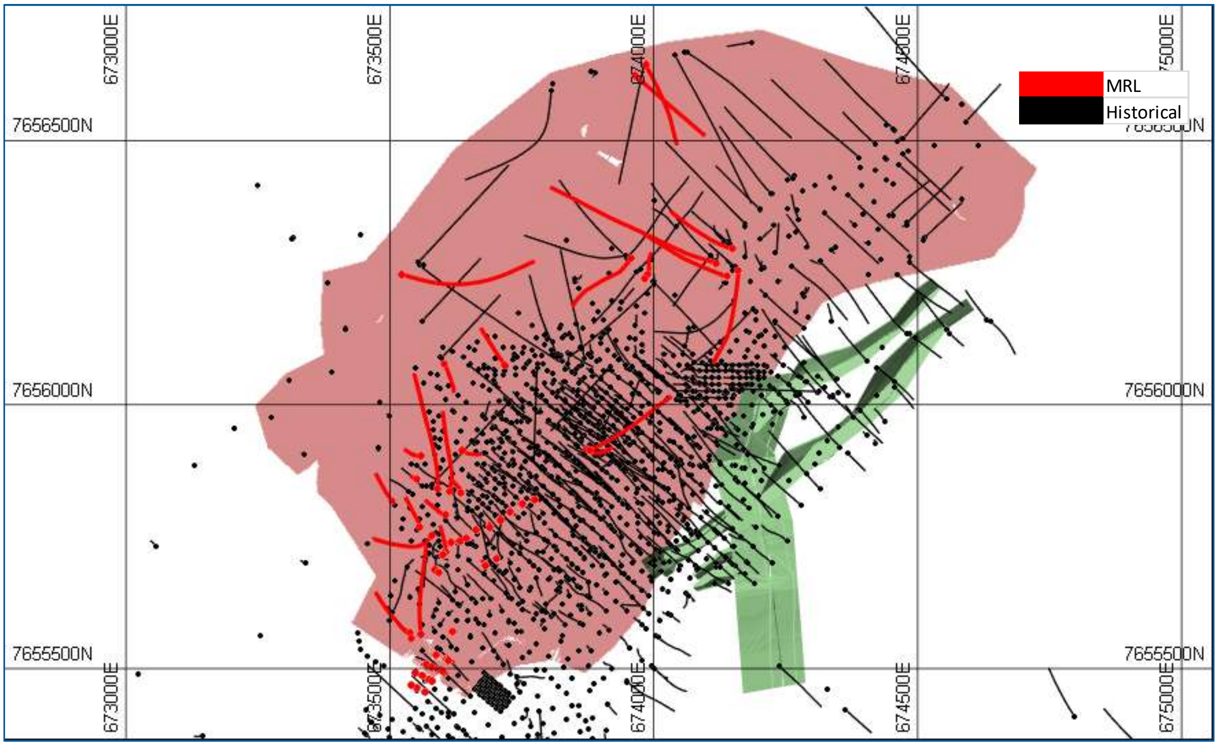
Figure 2 New Drill Holes Used in October 2018 Estimate



The different sources of data were combined to form a total of 188,490 assay intervals which were used in the resource estimation (an increase of 5,589 on the May 2018 data).

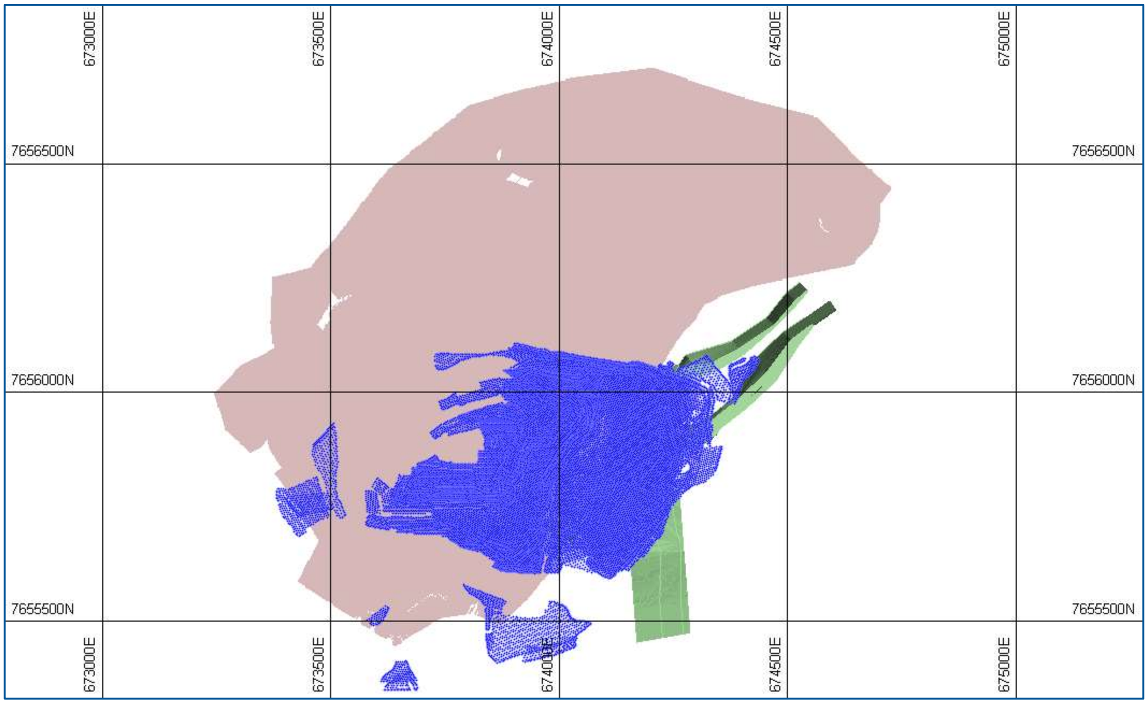
The mineralisation outlines and drill hole locations are shown in Figure 3 below. The shaded red area is the main pegmatite mineralisation footprint and the green areas are separately interpreted sub-vertical pegmatites.

Figure 3 Drill Hole Locations



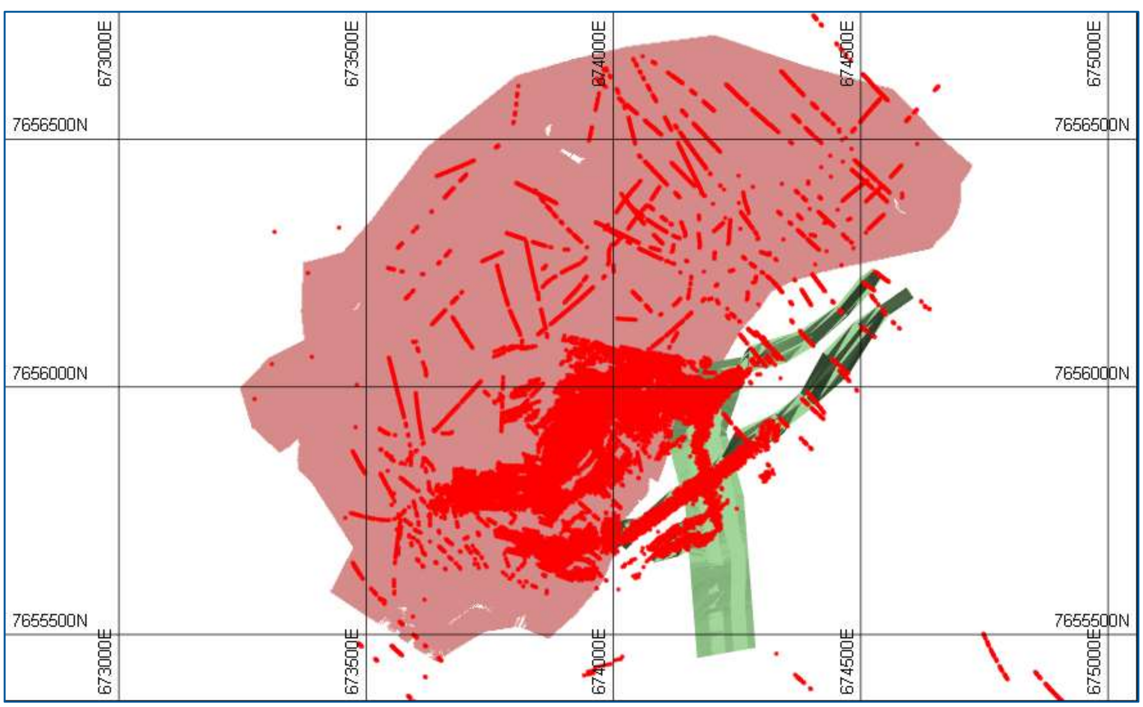
Blast-hole sample locations are shown below.

Figure 4 Blast-Hole Sample Locations



The locations of all samples with Li_2O assays are shown below.

Figure 5 Li_2O Sample Locations



The Wodgina Pegmatites are contained within the former Wodgina Tantalum and Tin Project, located approximately 109 km due south of Port Hedland, in the northwest of Western Australia. The Wodgina tantalum processing plant was operated by Global Advanced Metals (GAM) from 1989 to 2012, and the pegmatites have subsequently been discovered to be rich in Lithium in the form of spodumene.

The mining operation extracted tantalum bearing pegmatite ores from the Mount Cassiterite and Tinstone open pits. The ores were crushed, milled and fed into the Wodgina plant's advanced gravity separation plant.

With recent increases in both the demand for and the price of Lithium, re-assaying of a limited number of in-situ pegmatite samples indicated the potential viability of the extraction of Lithium. It was also noted that the some of the pegmatites are known to contain spodumene. Subsequently in March-April 2016, a program was instituted to retrieve as many RC pulp samples as possible from storage at Wodgina and re-assay the pegmatite zones for Li_2O%.

The pegmatite mined at Mt Cassiterite has the following approximate composition:

- 50% Albite
- 20% K-feldspar
- 15% Spodumene
- 10% Quartz
- 5% Muscovite/Sericite/Zinnwaldite

In addition, it contains minor quantities of lepidolite, biotite, fluorite, white beryl and lithium phosphate minerals, with no obvious mineral zoning. The pegmatite is very hard rock, usually fresh at surface, and distinctive in outcrop. K-feldspar and spodumene exist as phenocrysts in a fine-grained (1mm) albite-quartz matrix, which is veined by 10cm thick massive quartz stringers and 1mm thick green sericite-albite veinlets. Texturally the pegmatite is extremely complex, showing evidence of multiple silicification and albitisation events.

QAQC has been carried out by the submission of a series of standards and internal laboratory repeats. Li_2O standards represent approximately 1 in 36 samples. Laboratory repeats and splits represent approximately 1 in 20 samples. The QAQC has produced acceptable results.

Database management and validation has been carried out in Micromine 2018 SP3 Software; raw Li_2O ppm data was provided in Excel spreadsheet format by Nagrom Laboratories.

A detailed geological re-interpretation of the pegmatites was carried out by GAM for the Tantalum Mineral Resource Estimate carried out by Cube Consulting in September 2013. Widenbar subsequently modified this on the basis of new RC drill holes in the Cassiterite Pit area in 2016.

For the current updated model, a completely new interpretation of the pegmatite geology for the whole deposit has been created using a Categorical Indicator Modelling methodology to generate three-dimensional wireframe solids. The pegmatite wireframes have been used to flag the data used and create the “empty” blocks used as input to an Ordinary Kriging estimation methodology.

The MRL 2016-2018 drilling programs have identified extensive new mineralisation beneath the Cassiterite North East area to the north east of Cassiterite pit. In addition, logging and assays from the 82,800 blast holes has been used to further refine the delineation of the pegmatite bodies.

An area in the south east has been manually interpreted as five sub-vertical domains and modelled separately from the main body of mineralisation.

The new Li_2O data has been flagged with the updated pegmatite geological interpretation and statistical analysis and variography has been carried out. Assay intervals have been composited to 1m intervals. A top cut of 5% Li_2O has been applied to the data.

A Kriging Neighbourhood Analysis study was carried out to optimise parameters for an Ordinary Kriging Resource estimation of Li_2O. Interpolation has been carried out using an unfolding methodology that allows the search ellipses to vary with the changes in dip and plunge of the pegmatite bodies.

The block model has cell sizes of 5m (East) by 10m (North) by 2.5m (RL), with sub-cells to 1m x 1m x 0.5m. The block model is rotated 41° to align with the strike of the orebody.

Density data has been reviewed and in the Cassiterite Pit area has been assigned as for the previous 2013 tantalum resource model, based on geology and oxidation state. In practice all of the Li_2O mineralised pegmatite remaining after mining is fresh. Analysis of new geophysical logging of the MRL drill holes has allowed a revision of the density in the Cassiterite North East area to 2.80 t/m^3.

Table 4 Density Assignment

Material	Density (t/m^3)
Fill	1.80
Oxide Waste	2.32
Transitional Waste	2.80
Fresh Waste	2.96
Oxide Pegmatite	2.30
Transitional Pegmatite	2.53
Fresh Pegmatite	2.68

Block model validation has been carried out by drill-hole plan and section review of data vs model, by statistical comparison, and by sectional and plan swathe plots. All validation methods have produced acceptable results.

Figure 6 Li_2O Block Model and Data on Section in centre of Cassiterite North East Area

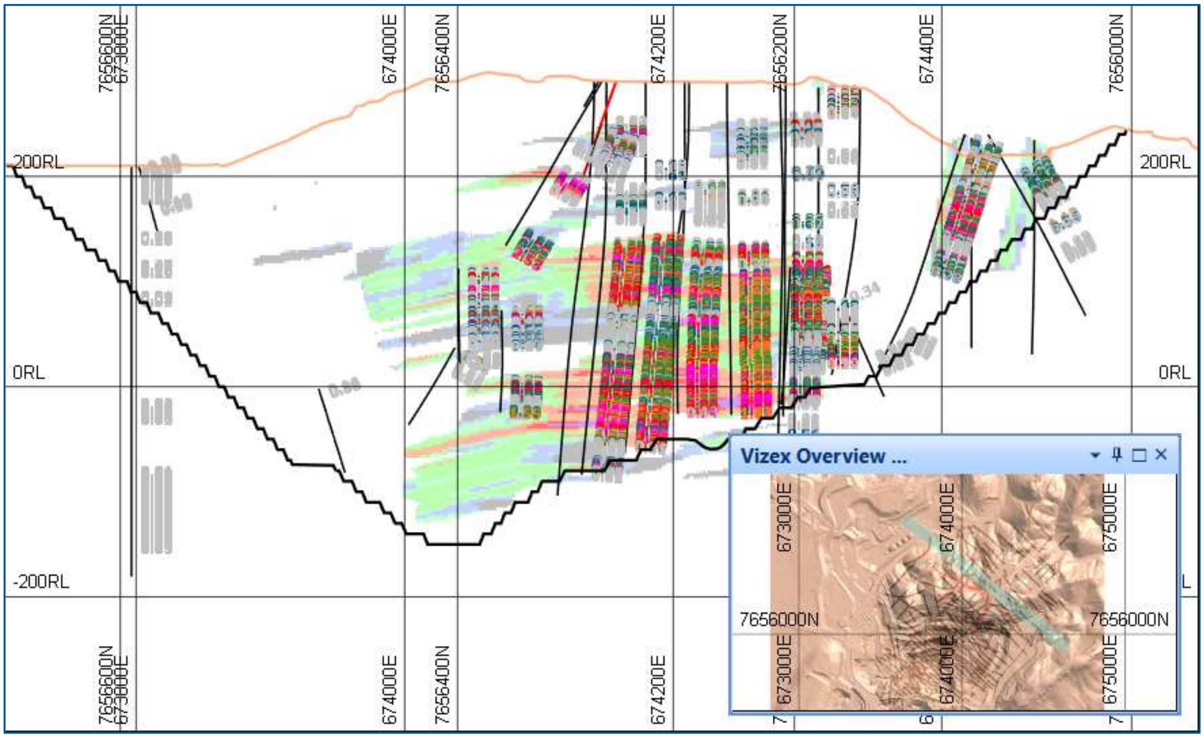
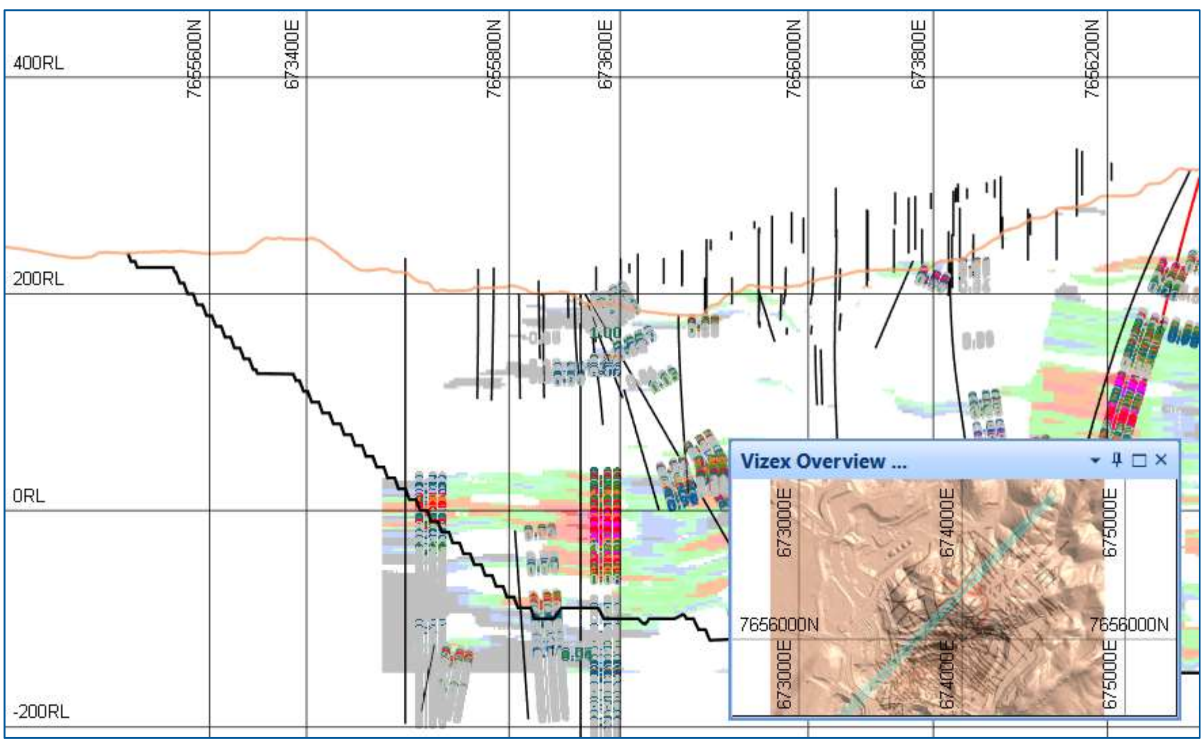


Figure 7 Li_2O Model and Data on Typical Long Section



Considerable time has been spent on resource classification of both the May 2018 and October 2018 resource models. Previous resource estimates prior to May 2018 had incomplete assay data from some MRL drill holes and various gaps in information. Also there had been an emphasis on producing a total resource rather than focusing on the Indicated/Inferred breakdown. The resource models produced between late 2016 and July 2017 only used an Indicated classification in areas beneath the mined-out Cassiterite pit. At this stage an understanding was still developing of the North East pegmatites and production information had only just been made available.

Between July 2017 and May 2018 a considerable amount of work was done by MRL staff and by Widenbar and Associates to refine and validate the estimation methodology and interpretations used in generating the Wodgina block model. In addition, a considerable amount of new learnings were developed as a result of mining activity. This resulted in re-definition of the unfolding and control planes for interpolation of the main pegmatite bodies, and a new manual interpretation of vertical pegmatite domains in the south east part of the deposit. The opportunity was also taken during this nine-month period to re-evaluate the classification criteria, as this had only previously been done for Inferred and not Indicated material. This involved 3-d spatial analysis of kriging output such as kriging variance, slope of regression, numbers of samples, average distance to samples etc.

The result of all this work was a new model with re-definition of the Indicated material, which had not been reviewed in detail before this. Thus the May 2018 increase in Indicated material was a result of a nine month period of re-analysis of all of MRL's 263 drill holes.

The May 2018 resource classification has been extensively reviewed and modified with the additional data provided by the drilling programs up to October. To generate the updated resource classification, long sections spaced at 25m intervals were used to display overlaid plots of the block model showing kriging variance, search pass, average distance to samples etc in relation to the existing and new holes. Outlines were digitised on these long sections to define the area of Indicated material, and a wireframe was constructed to assign the classification into the block model.

Examples of some of the displays used are illustrated in the images below. In general, areas combining estimation in the first search pass with relatively low kriging variance and a moderate average distance to samples are required to enable classification as Indicated. This generally corresponds to a drill spacing of around 40m by 40m.

Pegmatite material outside the Indicated wireframe and down to an RL of -150m RL has been assigned to the Inferred category, but there is also a limiting string in plan view which defines the extent of the Inferred and excludes poorly estimated target mineralisation.

Figure 8 Long Section Kriging Variance with Indicated Outline in Red

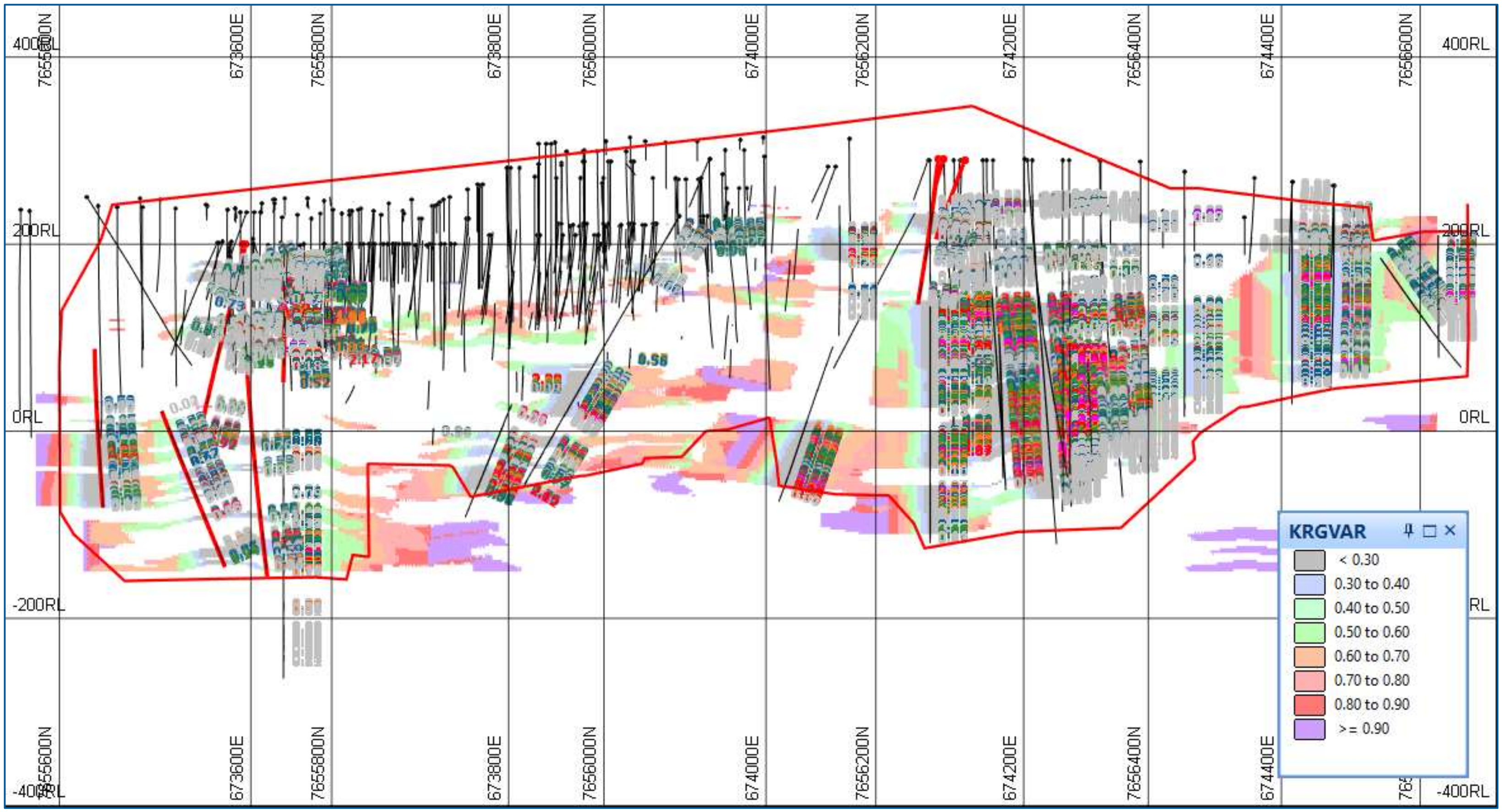


Figure 9 Long Section Average Distance to Samples with Indicated Outline in Red

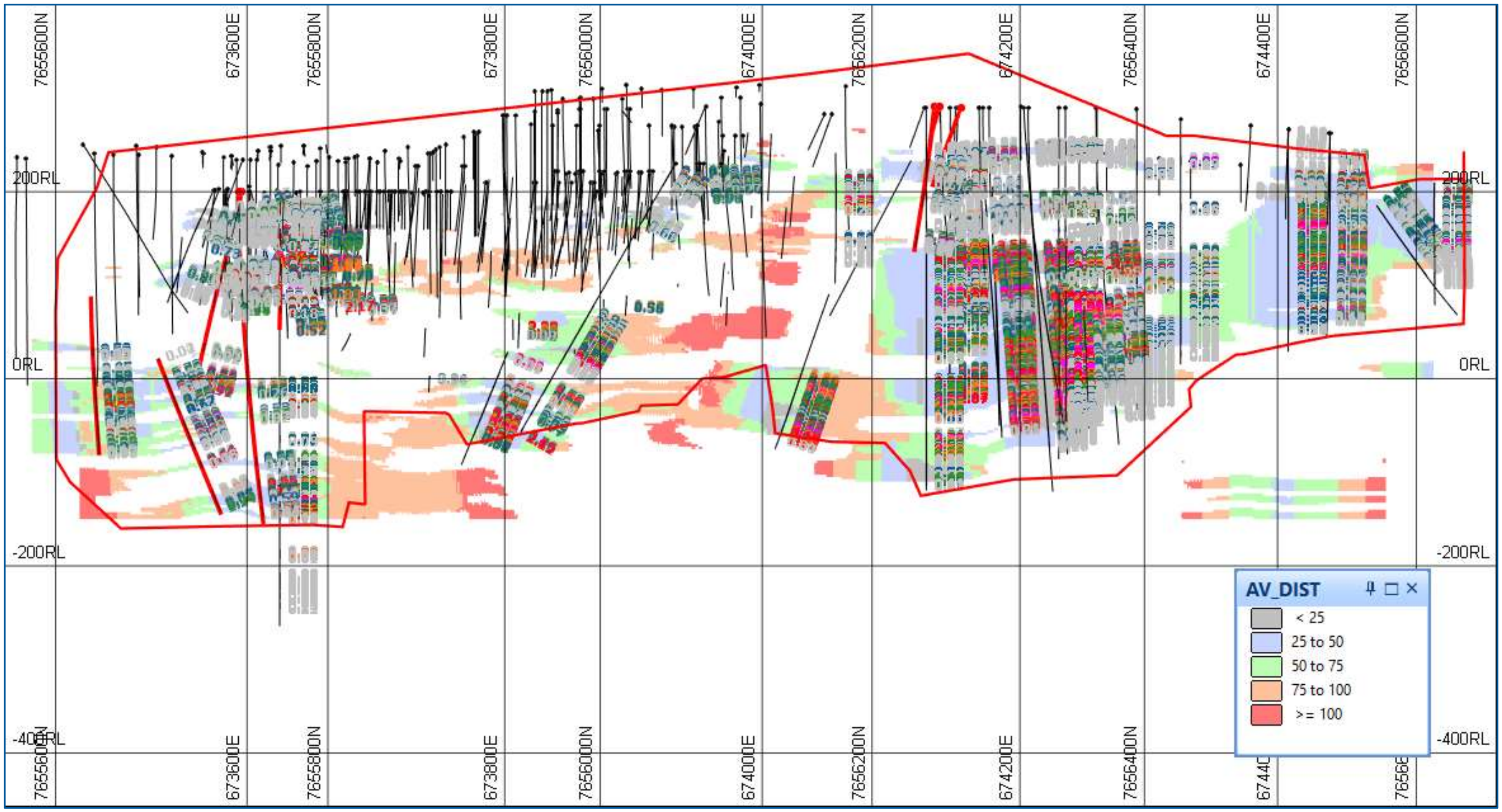


Figure 10 Plan of Final Resource Classification

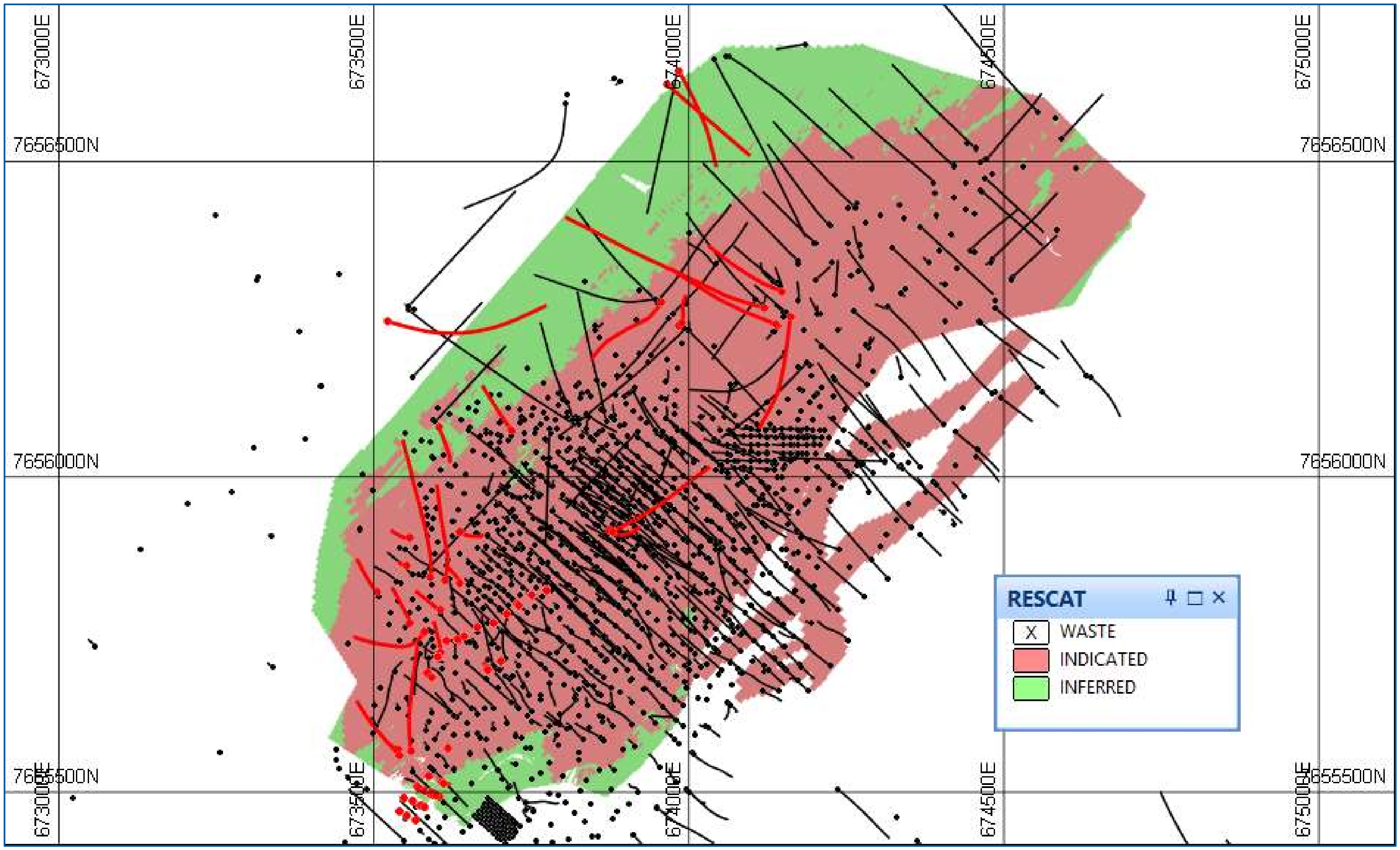
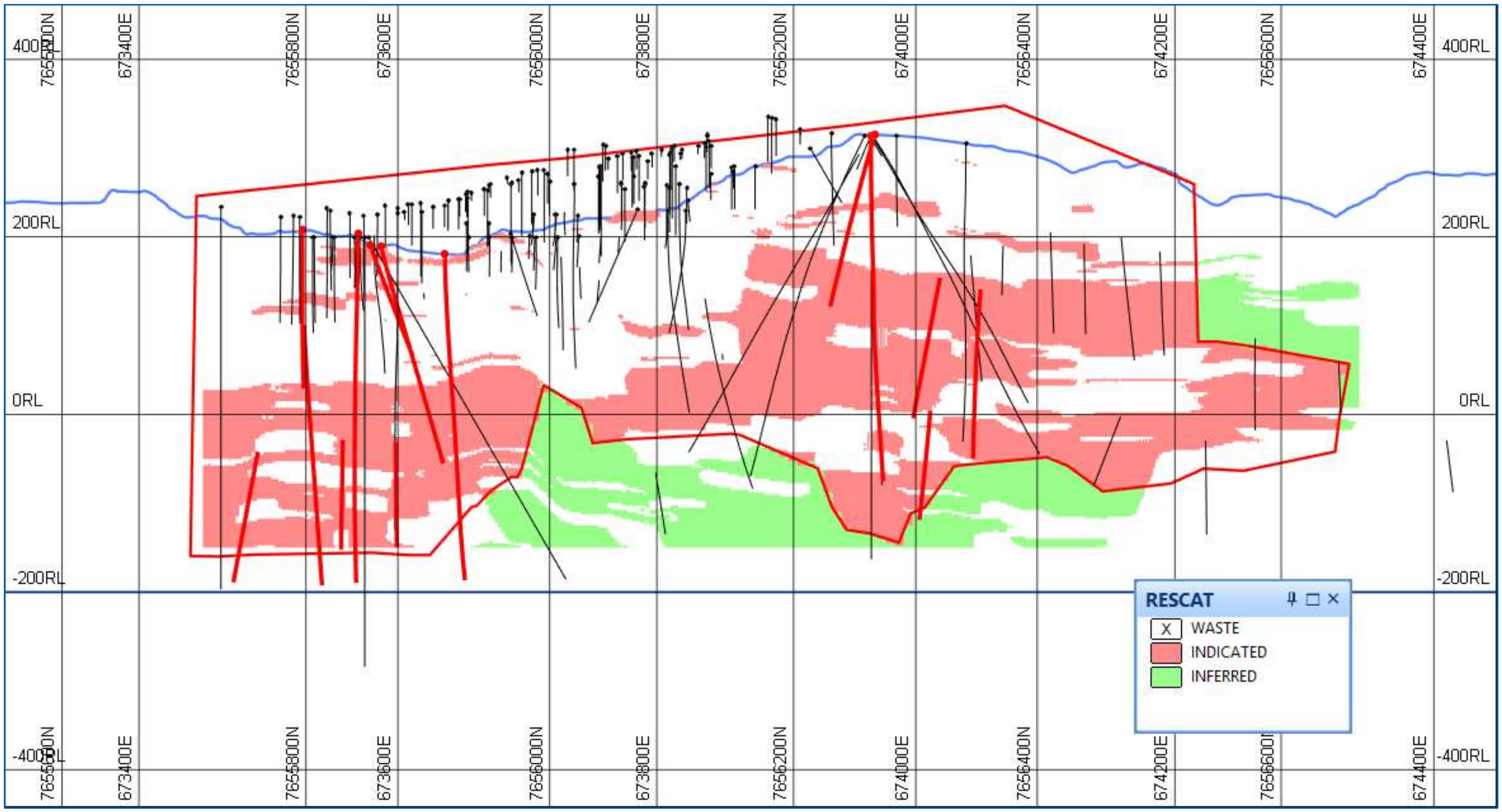


Figure 11 Long Section of Final Resource Classification

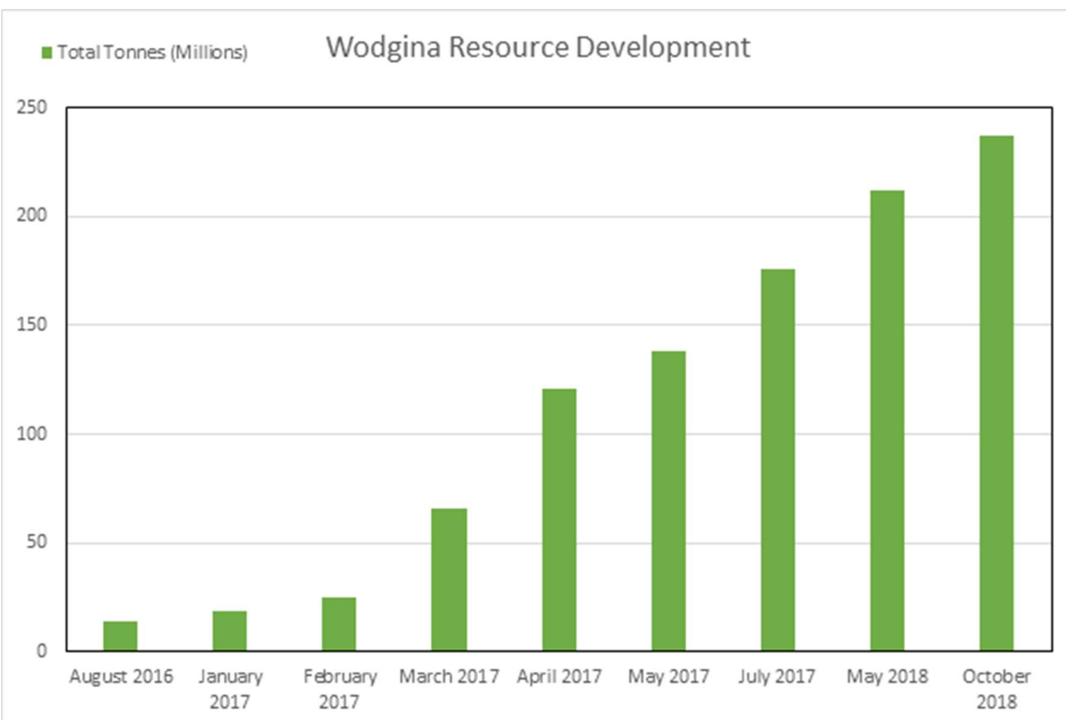


The table below shows the changes in total resource over the period August 2016 to October 2018. These are the ASX-reported changes.

Table 5 Wodgina Resource Classification Development

	Indicated		Inferred		Total	
	Mt	Li2O%	Mt	Li2O%	Mt	Li2O%
Aug-16	6.2	1.34	7.9	1.51	14.1	1.31
Jan-17	7.4	1.37	11.3	1.44	18.7	1.41
Feb-17	10.8	1.43	14.5	1.34	25.3	1.38
Mar-17	10.9	1.44	54.6	1.37	65.5	1.38
Apr-17	10.9	1.44	109.9	1.26	120.8	1.28
May-17	16.5	1.36	121.6	1.23	138.1	1.24
Jul-17	23.6	1.36	152.1	1.18	175.7	1.2
May-18	153.4	1.22	58.2	1.25	211.6	1.23
Oct-18	177	1.19	59.9	1.19	236.9	1.19

Figure 12 Wodgina Total Resource Development



A review has also been carried out of where the changes to Indicated and Inferred between the May 2018 and October 2018 models have taken place.

Overall the changes are summarised below.

Table 6 Classification Changes May 2018 to October 2018

PEGMATITE	October	May	Difference
	2018	2018	
RESOURCE	Tonnes	Tonnes	Tonnes
CLASSIFICATION	(Millions)	(Millions)	Increase
INDICATED	177.04	151.10	25.93
INFERRED	59.88	58.23	1.66
TOTAL	236.92	209.33	27.59
Depleted to End September 2018			

October 2018 Model							
RESOURCE	Cutoff	Tonnes	Li2O	Fe	Al2O3	SiO2	Ta2O5
CLASSIFICATION	Li2O%	(Millions)	%	%	%	%	%
INDICATED	0.50	177.04	1.19	1.61	15.61	71.92	0.017
INFERRED	0.50	59.88	1.19	1.62	15.49	72.43	0.012
TOTAL	0.50	236.92	1.19	1.61	15.58	72.05	0.016
Depleted to End September 2018							

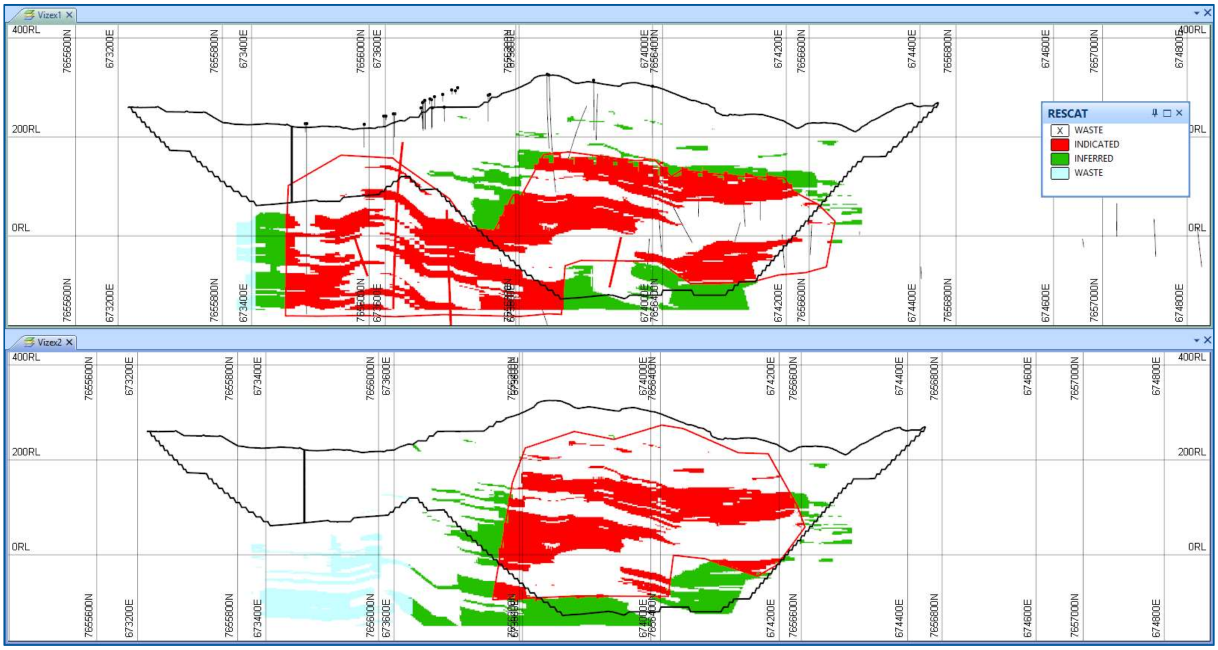
May 2018 Model							
RESOURCE	Cutoff	Tonnes	Li2O	Fe	Al2O3	SiO2	Ta2O5
CLASSIFICATION	Li2O%	(Millions)	%	%	%	%	%
INDICATED	0.50	151.10	1.22	1.65	15.55	71.83	0.018
INFERRED	0.50	58.23	1.25	1.62	15.55	72.22	0.014
TOTAL	0.50	209.33	1.23	1.64	15.55	71.94	0.016
Depleted to End September 2018							

There are two main areas of change:

- In the north east area, infill drilling has downgraded some material slightly, that was previously classified as Indicated; and
- On the western margins where there is new drilling, previous Inferred and Unclassified material has been converted to Indicated and Inferred respectively. As much of this material is significantly lower grade than the main areas of pegmatite in the centre and north of the deposit, the overall grade has been reduced.

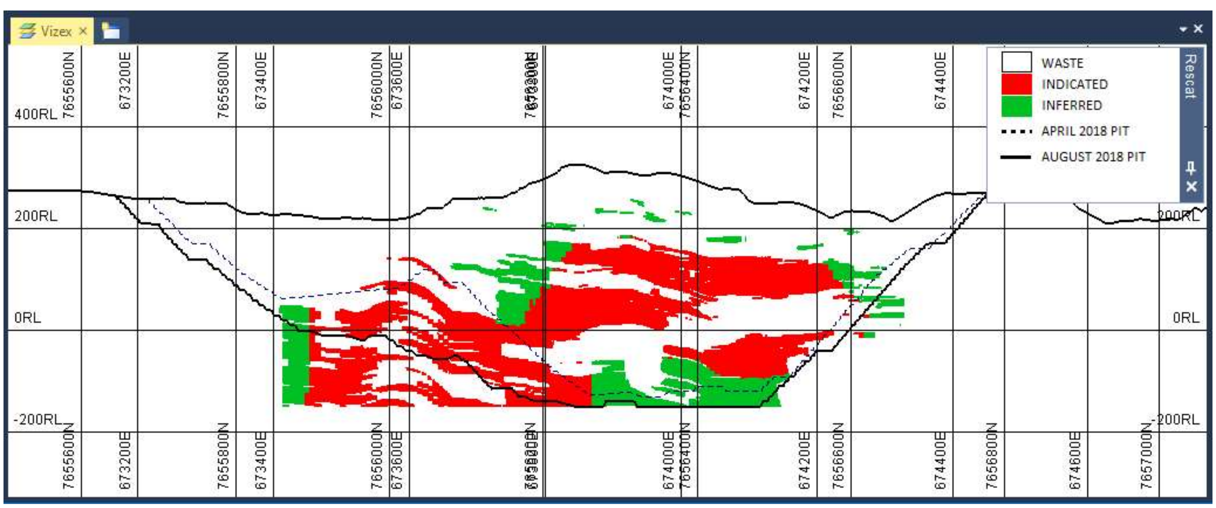
Figure 13 below shows a long section at the west edge of the deposit where new drilling has increased the amount of indicated material where there was previously just Inferred and Target mineralisation. The newly added Indicated material is outside of the April 2018 Final Pit Design, but has been captured by the August 2018 re-design as shown in Figure 14.

Figure 13 October 2018 Model Classification (Top) vs May 2018 Model (Bottom)



The August 2018 pit design following re-optimisation is shown in Figure 14 below with the previous April 2018 Pit design.

Figure 14 October 2018 Model Classification with April and August 2018 Pit Designs



Comparison of the July 2017 and October 2018 resource models to 2018 financial year crusher production data is summarized in Table 7 below.

Table 7 Resource Model Reconciliation with Crusher Production Data

SOURCE	INDICATED	INFERRED	Cutoff	Tonnes (dmt)	Li2O	Fe	SiO2	Al2O3	Ta2O5
	% of Total	% of Total	Li2O%	(Millions)	%	%	%	%	%
Crusher				4.2	1.46	3.60	69.28	14.52	0.026
07 2017 Model	54	46	0.85	3.8	1.46	2.14	69.08	15.59	0.033
10 2018 Model	100	0	0.85	4.3	1.48	2.40	70.47	15.19	0.027
Reconciliation Period 30062017 - 30062018									

A cut-off grade of 0.85% Li_2O was applied to each model to align expected model grades with the observed crusher Li_2O grades. Neither resource model accounts for ore loss or dilution.

The 07 2017 model underestimated tonnage whereas the 08 2018 model closely approximates observed ore tonnage. The 08 2018 model provides a higher confidence level as all mined material sits in the Indicated category. This is to be expected as the 08 2018 Model includes a substantial quantity of close spaced blast hole data within the mining area that was not available for the 07 2017 Model.

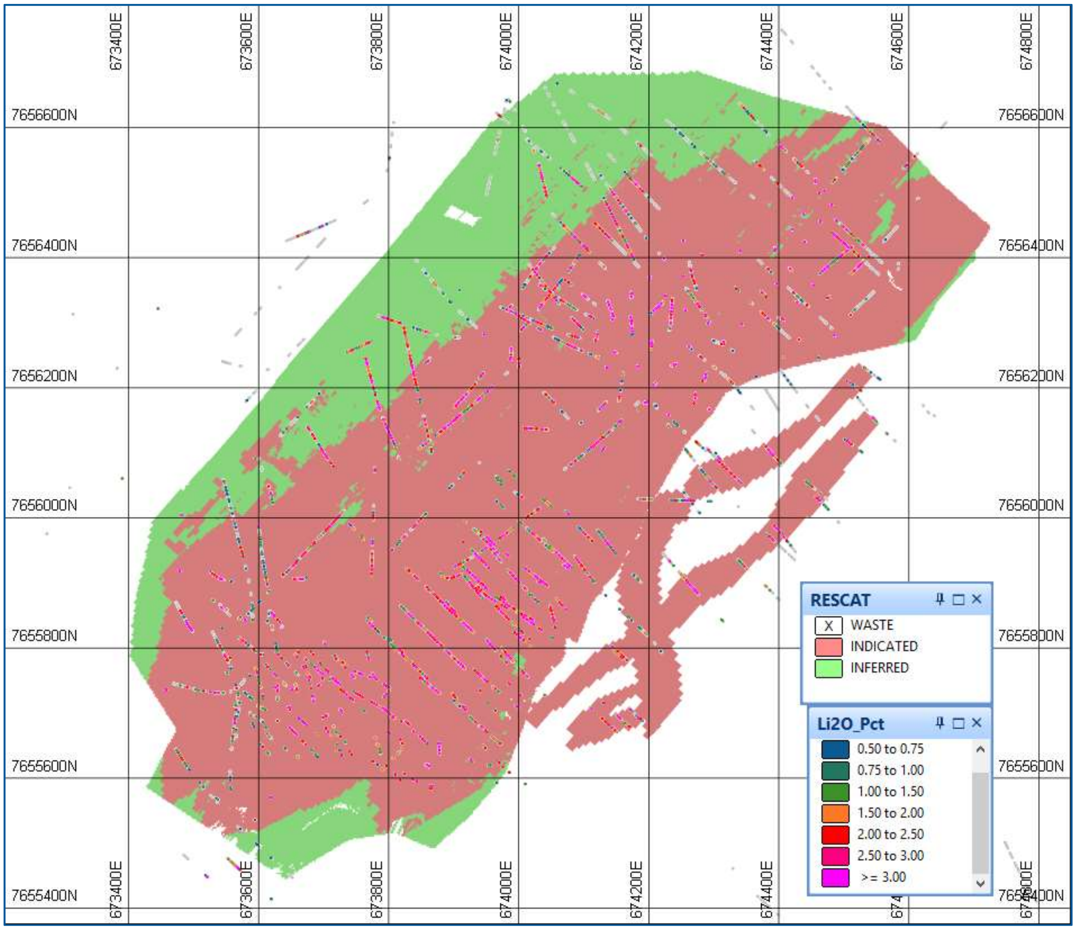
Final Classification Statement

The Wodgina October 2018 Mineral Resource has been classified in the Indicated and Inferred categories, in accordance with the 2012 Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code). A range of criteria has been considered in determining this classification including:

- Grade and geological continuity
- Data quality
- Drill hole spacing
- Kriging efficiency and variance, number of samples and average distance to samples.

Final classification has resulted in the Indicated and Inferred areas shown in Figure 15 below with unclassified areas remaining as Target Mineralisation.

Figure 15 Final Resource Classifications



A qualitative risk assessment review has been carried out on the Mineral Resource Estimate, based on the general approach used by resource estimation practitioners and consultants to indicate in relative terms the level of risk or uncertainty that may exist with respect to resource estimation.

Relative levels of risk have been assessed as generally Low occasionally tending towards Moderate with respect to certain aspects of the estimation.

ORE RESERVE UPDATE FOR THE WODGINA LITHIUM PROJECT

Table 7 Wodgina Hard Rock Ore Reserve Estimate

October 2018 Update							
RESERVE	**Cutoff**	**Tonnes**	**Li2O**	**Fe**	**Al2O3**	**SiO2**	**Ta2O5**
CLASSIFICATION	**Li2O%**	**(Millions)**	**%**	**%**	**%**	**%**	**%**
PROBABLE	**0.50**	**151.94**	**1.17**	**1.49**	**15.65**	**72.10**	**0.017**
TOTAL	**0.50**	**151.94**	**1.17**	**1.49**	**15.65**	**72.10**	**0.017**
Depleted to end of September 2018							

- The Ore Reserve of 151.9 Million dry tonnes grading 1.17% Li_2O, 1.49% Fe, 15.65% Al_2O_3, 72.1% SiO_2 and 0.017% Ta_2O_5 is based on:
    - The upgraded hard rock Mineral Resource in this announcement of 236.9 Million tonnes grading 1.19% Li_2O, 1.61% Fe, 15.58% Al_2O_3, 72.05% SiO_2 and 0.016% Ta_2O_5;
    - Feasibility level studies undertaken by MRL; and
    - Results from production to date with the site operational since re-commencement of mining in February 2017.

- A mining model with ore loss and dilution has been produced by regularisation of the sub-celled geological Mineral Resource model using a selective mining unit block size of 10.0m (length) by 10.0m (width) by 5.0m (depth) with cut-off grade application post regularisation.

- This was followed by:
    - Open pit optimisation using Whittle 4X software;
    - Sensitivity analysis, pit shell and phase selection;
    - Detailed open pit stage designs with a minimum mining width of 30 metres; and
    - Mine scheduling and costing.

- Operational waste dump and short term stockpile designs are in place with conceptual designs for the later phases of stockpiling and waste dump expansion.

- The Ore Reserves have been classified based on their Mineral Resource classification within the pit design in turn based on the 60% Revenue Factor shell, with only Indicated Mineral Resources converted to Probable Ore Reserves. The pit design used for calculating Ore Reserves contains 34.5 Million tonnes at 1.13% Li_2O of Inferred Mineral Resources that are included in the mine plans. While no Inferred Mineral Resources are reported in the Ore Reserves these have the potential to increase the mining inventory with further drilling and metallurgical testing. The Ore Reserve is a subset of the Mineral Resources.
- All required environmental approvals are in place for the current Wodgina mine operation, the new spodumene processing plant, a 65MW power station and tailings storage facilities.
- All required native title and heritage agreements are in place for the current operation underway. These include Native Title and Heritage agreements with the Karriyarra people.

- Additional approvals for expansion of mining and infrastructure including an aerodrome are currently being sought.
- Current and planned mining is by use of conventional open pit methods. The current primary mine production fleet comprises a Hitachi EX3600 excavator, 2x CAT 994 FEL's and Caterpillar CAT789D Haul trucks or similar equivalents with all required infrastructure for mining currently in place.
- Waste rock characterisation studies have been completed and indicate Potentially Acid Forming material. Waste characterisation continues to be undertaken as part of ongoing operations.

The key parameters used for conversion of the Mineral Resources to Ore Reserves include (but are not limited to) the following:

Production

- Annual production of 750,000 dry metric tonnes of 6% Li_2O Spodumene concentrate. This plant is currently under construction and will be delivered in three trains, each with a capacity of 250ktpa (see ASX announcement dated 01 April 2018 for further details);

Processing

- An overall Lithium metal processing recovery of 65%; and
- A cut-off grade of 0.5% Li_2O as required to achieve target plant feed grades;

Geotechnical / Mining

- An overall pit slope of 43° as estimated from past and present mining practices; and
- Ore recovery of 100% supported by reconciliation of actual production against the mining model.

Pricing

- Pricing estimates of DSO and Spodumene products are internal price forecasts based on:
  - Prices received for existing DSO and Spodumene products from MRL lithium operations at Wodgina and Mt Marion; and
  - External price forecast studies;
- Exchange rate from MRL corporate projections;
- No deleterious content discounts have been applied;

Costs

- Transportation costs have been estimated using projections of actual operating costs;
- Government royalties have been included in the costs;
- Treatment and processing costs have been estimated based on various existing commercial MRL Crushing and Lithium and Iron Ore processing operations

This Ore Reserve is the economically mineable part of the Indicated Mineral Resource. It includes allowances for mining ore loss and dilution. Appropriate assessments and studies have been carried out and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments indicate at time of reporting that extraction can be reasonably justified.

Ends

COMPETENT PERSON'S STATEMENT

The information in this report that relates to Mineral Resources is based on information compiled by Mr Lynn Widenbar, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Widenbar is a full time employee of Widenbar and Associates Pty Ltd. Mr Widenbar has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves'. Mr Widenbar consents to the inclusion in the report of the matters based on his information in the form and context that the information appears.

The information in this report that relates to the Ore Reserve estimate is based on, and fairly represents, information compiled by Mr Ross Jaine, who is a full time employee of MRL and a Member of the Australasian Institute of Mining and Metallurgy. Mr Jaine has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves'. Mr Jaine consents to the inclusion in this report of the matters based on his information in the form and context in which they appear.

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg RC 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.*	• Samples have been derived from RC drill hole pulps stored from previous drilling campaigns. • Historic RC chip samples were collected at 1m intervals and split with a riffle splitter prior to 2008. RC samples were split with a cone splitter after 2008, to produce a sub-sample of 3-5kg for analysis. • Samples have also been collected from the MRL drilling campaigns conducted between July 2016 and October 2018 • RC – Rig mounted cone splitter used, with samples falling through an inverted cone splitter, splitting the sample in 90/10 ratio. 10% off-split retained in a calico bag. 90% split residue stored on ground. All pegmatite intercepts sampled at 1m intervals plus 2m of adjacent waste sent for lab analysis. • Deposits have been sampled by RC drilling.
Drilling techniques	• *Drill type (eg core, RC, 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.).*	• The original database consists of 1,691 holes of which 1,167 holes are RC, 39 holes are diamond and 155 are RAB holes. 330 holes are unknown type. • 1,510 of these holes are logged in detail and used for pegmatite modelling. • The MRL campaigns currently consist of 295 RC holes with ten diamond hole tails and two diamond holes. • Samples for Li_2O analysis were taken from relatively recent Historic RC drill holes. • RC drilling was carried out using a face sampling hammer and a 142mm diameter bit. • Blast hole drilling was carried out with Atlas Copco BH rigs using a 140mm diameter bit.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have*	• Sample recoveries for historic RC and diamond drilling are recorded on original logs but are not available in a digital format. • Historic sample recoveries are near 100% in the pegmatite, sample loss mainly occurs in shear zones and occasionally on contacts. Most loss is recorded at the start of holes, near collars. • MRL recoveries are almost all logged as 80%. • There is a low probability of preferential loss of sample

Criteria	JORC Code explanation	Commentary
	occurred due to preferential loss/gain of fine/coarse material.	having an effect on the grade of pegmatites. • RC – Approximate recoveries are recorded as a percentage based on visual and weight estimates of the sample. • Percussion – Approximate recoveries are not recorded. • There is no known relationship between sample recovery and grade.
Logging	• *Whether core and chip samples have been geologically and geo-technically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	• All historic holes (diamond & RC) are geologically logged in as much detail as possible. Main rock type is logged and then a secondary rock type if present such as on contacts, mineralisation and any alteration as well as accessory minerals are logged in detail. • MRL holes are logged for lithology, colour, mineralogy, grain size, texture, alteration, weathering and hardness. • Oxidation surfaces and weathering are logged. • Diamond holes were orientated and core logged for geotechnical qualities. • Chip samples have been logged by qualified Geologists to a level of detail sufficient to support a MRE, mining studies and metallurgical studies. • RC – logging was carried out on a metre by metre basis and at the time of drilling. All intervals were logged. • Percussion – blast hole logging was carried out on a hole by hole basis using visual controls and geochemical analysis to split the lithology into pegmatite and waste. • Logging is qualitative and quantitative.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Historic RC chip samples are collected at 1m intervals and split with a riffle splitter prior to 2008. RC samples were split with a cone splitter after 2008, to separate a sub-sample of 3-5kg for analysis. Occasionally the sample was <1kg but generally at near surface positions. • When moist or wet ground conditions were experienced in historic drilling, the cyclone was washed out between each sample and run further to ensure no inter-sample contamination. The rig had a dust collection system that involved the injection of water into the sample pipe before the sample reached the cyclone. This water injection prevented fines being lost out of the top of the cyclone. This system was employed to minimise dust fines being released into the atmosphere in the work area and to minimise the possibility of the sample being positively biased by the loss of the lighter minerals such as quartz, feldspar, and mica, thus effectively concentrating the heavier ore minerals such as tantalite. • RC – Cyclone mounted cone splitter used. • RC chips were dried at 100C. All samples below approximately 4kg were totally pulverised in LM5's to nominally 85% passing a 75µm screen. The few samples generated above 4kg were crushed to <6mm and riffle split first prior to pulverisation.

Criteria	JORC Code explanation	Commentary
		• The measures taken to ensure the RC sampling is representative of the in situ material collected included the insertion of a duplicate sample at an incidence of 1 in 20. • Commercially prepared certified reference materials (CRM) were inserted amongst the drill samples. • For RC samples, no formal heterogeneity study has been carried out or nomographed. An informal analysis suggests that the sampling protocols currently in use are appropriate to the mineralisation encountered and should provide representative results. As such sample sizes are considered appropriate. • For the BH percussion drilling samples of 3-5kg were collected for testing. • The measures taken to ensure the BH percussion sampling is representative of the in situ material collected included the insertion of a duplicate sample with each sample submission.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Li2O has been assayed by ICP005 at Nagrom Laboratories. • The original RC pulps were subject to stringent QAQC and laboratory preparation procedures and are considered reliable for the purposes for which they are being used. • QAQC protocols used for the RC drill samples included the insertion of one of three types of CRM's at an incidence of 1 in 36, and the repeat analysis of field duplicate samples at an incidence of 1 in 20. Lab protocols included duplicate analysis at an incidence of 1 in 20 and pulp repeat analysis at an incidence of 1 in 20. • The level of accuracy and precision of the assay determination is considered to be sufficient to form the basis for the resource estimation and is reflected in the Resource classification. • No hand held analytical instruments were used in the field. • QAQC data is assessed on import into the database and reported as a single set and by drill program.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Some twinned holes were originally drilled, but there are no twins available for the current Li2O assays. • Primary data was made available in a validated access database that had been previously used for a JORC 2012 compliant MRE. • Significant intersections not verified. • Sample data is stored using a customised access database using semi-automated or automated data entry. Hard copies of primary data stay in the field during the exploration campaign. To be brought back to the Perth office post campaign for storage. • No adjustments were made to the assay data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine*	• All data used in the estimation was in MGA94; elevation is standardised to AHD. • Historic collar locations were surveyed by a real-time

Criteria	JORC Code explanation	Commentary
	workings and other locations used in Mineral Resource estimation. • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	differential GPS which achieves an accuracy of ± 0.01m. All down-hole survey data was converted to Wodgina Mine Grid and corrected for magnetic declination. • For the 2016, 2017 and 2018 RC drilling, all except for a few collapsed holes were gyro surveyed to compare the data. Gyro-derived data was recorded at the surface and 5m intervals down-hole to the end of the hole. North seeking (NS) gyros were used to survey both vertical and inclined drill holes. Ultimately, the NS gyro-surveyed data was accepted as the most-accurate of the down-hole surveys and this data was adopted into the database to project the drill hole strings. • For earlier (pre-2008) RC drilling programs down-hole surveying took place using a single shot Eastman down-hole camera, equipped with a "high-dip" compass for all vertical holes. For diamond holes survey shots were taken every 20m and at the end of hole. The RC holes had camera shots taken at either 40m or 50m intervals, as well as the end of hole. All camera shots were taken inside the 6m stainless steel starter rod. • Collar positions were recorded using a hand held GPS. Post-drilling collar positions were recorded using a Differential GPS. • The grid system is MGA Zone 51 (GDA94) for horizontal data and AHD (based on AusGeoid09) for vertical data. • Topographic control is from Digital Elevation Contours (DEM) 2016 based on 1m contour data.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Drilling for the historic data at the Cassiterite pit is generally on a 25m by 25m grid, with some infill holes drilled as close as 10m by 10m. • Drill spacing for the new infill data to test for Li2O is typically 25m x 25m in Cassiterite pit, • There was a 200m gap between the two areas with no Li2O data. The recent MRL drill program has in-filled the area of missing assays to approximately 50m x 50m. • RC holes at Cassiterite NE are generally based on 40m x 40m drill spacing. • 93% of the assays are 1m in length; 1m composites have been calculated for resource estimation. • The data spacing and distribution is sufficient to establish geological and or grade continuity appropriate for future mineral resource and classifications to be applied. • RC samples are composited to 1m through the mineralisation and two metres either side.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling*	• More than half the historic holes are drilled vertical and the rest varies between -50° and -80°, drilled to the east and west. The mineralised pegmatites are predominantly interpreted to be a series of flat to shallow west and east dipping lenses (on the Wodgina local grid). Holes have been orientated accordingly to

Criteria	JORC Code explanation	Commentary
	orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	intersect the mineralised pegmatites perpendicular where possible. • The orientation of sampling is designed to be perpendicular to the main mineralisation trends where possible. MRL holes are predominantly drilled at -60° or -90° so as to intersect the local pegmatites at approximately right angles. • The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
Sample security	• *The measures taken to ensure sample security.*	• The historic RC samples were sourced on site from storage containers. • Sample security is not considered an issue. • RC – All samples are bagged in numbered calico bags, grouped into larger tied polyweave bags, and placed in a large bulka bag with a sample submission sheet. The bulka bags are transported via freight truck to Perth, with consignment note and receipted by external laboratory (NAGROM). • All sample submissions are documented and all assays are returned via email. • Sample pulp splits are stored in MRL facilities. • Blast hole samples are bagged in numbered calico bags and prepared at the onsite lab facility for analysis prior to being dispatched with consignment note and receipted by external laboratory (NAGROM) in Perth. All sample submissions are documented and all assays are returned via email.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Sampling procedures have been reviewed as part of the current MRL process and are considered adequate by the Competent Person. • All recent sample data has been reviewed internally by MRL Geologists. • No external audits have been carried out on the sample data.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The drilling is located on M45/50-I and M45/365-I held in the name of Wodgina Lithium a 100% subsidiary of MRL. M45/50-I is not up for renewal until 2026 and M45/365-I is not up for renewal until 2030. The tenements were previously wholly owned by Global Advanced Metals Wodgina Pty Ltd (formerly Talison Wodgina Pty Ltd). • Wodgina is located wholly within Mining Licence M45/50, M45/353, M45/383 & M45/887. • The tenements are within the Karriyarra native title claim and are subject to the Land Use Agreement dated March 2001 between the Karriyarra People and Gwalia Tantalum Ltd (now Global Advanced Metals & superceded by Wodgina Lithium).

Criteria	JORC Code explanation	Commentary
		• The tenement is in good standing and no known impediments exist.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The original proponent of the project, Pan West Tantalum Pty Ltd, began mining and processing tantalite ore at Wodgina in August 1989, from the Wodgina open pit. • Drilling at Mt Cassiterite has been carried out by a number of different drilling contractors and by a variety of different methods over the years. Drilling carried out by the Pan West JV included 3,825m of air track; 1,145m of RC drilling and 204m of diamond drilling. • Since Sons of Gwalia Ltd purchased the project in 1995, six development-drilling programs have been completed at Mt Cassiterite. The first, in 1996, involved a track mounted RC rig completing a 3,464m drilling program, a resource extension program during 1998-99 comprised 17,586m of RC drilling and 2,225m of diamond drilling, a further resource extension program in 2001 comprised 18,694m of RC drilling, A RC infill-drilling program in Mt Tinstone area was commenced in February 2002 and totalled 5,432m, further resource drilling was conducted in 2002/03 consisting of 12,805m of RC drilling, as a result of this program, an infill-drilling program was carried out which targeted the East Ridge mining area, which totalled 2,948m. • Additional resource drilling, completed in March 2004, consisted of 3,866m RC drilling and later infill-drilled for a total of 12,930m. • MRL has carried out RC drilling of 295 holes between September 2016 and October 2018 for a total of 76,849m. • A total of 34,416 assays from the 2016-2018 program were available for use in the MRE. • All exploration during the current reporting period was carried out by MRL.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The 3600-2800Ma North Pilbara basement terrane consists of a series of ovoid multiphase granitoid-gneiss domes bordered by sinuous synformal to monoclinal greenstone belts. • The Wodgina Greenstone Belt is a north to northeast plunging synclinal structure 25km long and 5km wide, preserved as a roof pendant separating the Yule and Carlindi granitoid complexes. It is composed principally of interlayered mafic and ultramafic schists and amphibolite, with subordinate komatiite, clastic sediments, BIF and chert. The komatiitic and metasedimentary units within the Wodgina area are tentatively correlated to the Kunagunarrina and Leilira Formations respectively. • Archean volcanic activity and sedimentation was followed by the intrusion of Archean granitic batholiths with consequent deformation and metamorphism of the sequence. Late stage granitic intrusions resulted in the emplacement of simple and complex pegmatite sills and barren quartz veins.

Criteria	JORC Code explanation	Commentary
		• The Wodgina pegmatite district contains a number of prospective pegmatite groups, including the Wodgina Deposit. • The Wodgina lithium mineralisation is hosted within a number of sub-parallel, sub-horizontal, northeast trending pegmatite intrusive bodies with a dip at between 5° to 30° to the west-southwest. • At this time individual pegmatites vary in strike length from approximately 200m to 400m. The thinner near surface pegmatites vary from 10m to 30m in thickness, but vary locally from less than 2m to up to 35m thick. The massive basal pegmatite varies from 120m to 200m thick. The pegmatites intrude the mafic volcanic and meta-sedimentary host rocks of the surrounding greenstone belt. • The lithium in the Cassiterite Pit and shallower pegmatites occurs as 10 - 30 cm long grey-white spodumene crystals within medium grained pegmatites comprising primarily of quartz, feldspar, spodumene and muscovite. Typically the spodumene crystals are oriented orthogonal to the pegmatite contacts. Some zoning of the pegmatites parallel to the contacts is observed, with higher concentrations of spodumene occurring close to the upper contact. In the massive basal pegmatite, the spodumene is distributed within fine-grained quartz, feldspar, spodumene and muscovite matrix.

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:*
	  ○ *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.*
		• The assets of the Wodgina Tantalum Project have been held in a private equity entity since August 2007. As a result exploration results for the Wodgina Project have not been made public since that time.
		• Collar details attached.

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.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of*	• Reported exploration results are uncut. • Reported aggregate Li_2O intercepts based on geological intervals of continuous pegmatite greater than or equal to 2m. • Reported aggregate Li_2O intercept grades are a weighted average based on assay interval length.

Criteria	JORC Code explanation	Commentary
	low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Apparent thickness as down hole length is reported.
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.*	• Appropriate maps and diagrams are included in the body of the MRE 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.*	• All holes related to the Wodgina drilling program are reported here.
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.*	• No other meaningful data to report.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further work will include depth extensions and large-scale step out drilling. No timeframe has been set for this work to be completed. • As part of the main document.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• The historic database has been previously validated for a JORC 2012 compliant MRE. • The database has also been reviewed and validated using Micromine software. • Raw assay files provided digitally by the laboratory have been used and imported. • The MRL drilling data has been captured using MRL's standardised database procedures. • No database issues have been noted.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The Competent Person visited site on 22nd February 2017, and reviewed geology in the Cassiterite Pit, RC drilling, sampling and excavations in the TSF3 area.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Confidence in the geological interpretation is considered to be moderately high, outcrop is exposed in open pit floors and walls and drilling data at a spacing of 25x25m, which provides sufficient information to define the mineralised pegmatite lenses. • The structural controls on the pegmatites are relatively complex resulting in folded and faulted outcomes, which prevent a high level of certainty. This is most apparent to the west where vertical pegmatites are interpreted, without appropriately orientated drilling. • Uncertainty related to the identification of the mineralisation has been simplified by the assumption that all mineralisation is contained within pegmatite – a readily identified rock contrasting strongly with the surrounding host rocks. • The logged, interpreted and wireframe geology has been assumed to be the mineralisation boundary.
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.*	• Pegmatite three dimensional wireframes have been created using an unfolded indicator modelling methodology. • Comparison with previous manual interpretations shows a good correlation. • The pegmatite lenses have been interpreted to a maximum depth of 400m below the surface. • The Li2O area of the resource consists of two main areas of the Cassiterite deposit, respectively 200m x 300m and 100m x 200m.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters*	• All modelling and estimation has been carried out in Micromine 20181SP3 software. • A conventional rotated, sub-celled block model framework has been set up. Cell sizes are based on approximately half to one quarter the nominal drill hole spacing. (5m East x 10m North x 2.5m RL). Sub-cells are 1m East, 1m North and 0.5m RL to provide a detailed representation of the pegmatites. • Block model grade estimates have been generated using Ordinary Kriging interpolation. Search and

Criteria	JORC Code explanation	Commentary
	used. • *The availability of check estimates, previous estimates and/or mine production records and whether the MRE takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	sample number parameters have been set up following variography and Kriging Neighbourhood Analysis. • Estimation is carried out in three passes, with a first search of 60m x 60m x 10m, a second search of 120m x 120m x 10m and a final pass of 200m x 200m x 25m. • Primary estimation is carried out on Li2O%. • Estimation is limited to material coded as pegmatite. • Estimation is carried out in unfolded space. • A top cut of 5% Li2O has been used to mitigate the effect of a small number of high grade outliers. • Block model validation has been carried out by several methods, including: • Drill Hole Plan and Section Review • Model versus Data Statistics by Domain • Easting, northing and RL swathe plots • All validation methods have produced acceptable results. Comparison of the Resource model with production data for the FY2018 period reconciles strongly for both lithium grade and contained metal.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• Economic analysis is not available as yet, so the resource has been reported at a range of cut-offs.
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.*	• Mining is by conventional open pit. No mining factors have been applied to the resource model. • As the pegmatite lenses interpolated for Li2O have relatively limited vertical extent (generally less than 200m below the current topography) no lower limit has been placed on the likelihood of extraction.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining*	• No assumptions applied

Criteria	JORC Code explanation	Commentary
	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.	
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• The Wodgina Project is an active mining area and has a history of mining. • No environmental assumptions have been made or considered as part of this estimate.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Dry Bulk density of the rock types within the estimated area has been assigned based on the division of rock type and weathering condition. • The source data was the conclusions of the May 2006 Study by Arthur and MacDonald. In this study specific gravity determinations were obtained for over 200 different samples. These results were compared to core bulk density measurements and values used historically. The conclusion derived a table of recommended bulk density values to be used in future resource modelling work. • A value of 1.8gm/cm3 has been assigned to unconsolidated fill within the pits. • A review of MRL down hole geophysical logging data has resulted in a density of 2.80 being applied to pegmatites in the Top Dump area and 2.73 in the Cassiterite Pit area.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity*	• The mineral resource has been classified in the Indicated and Inferred categories, in accordance with the 2012 Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code). A range of criteria has been considered in determining this classification including: • Geological and grade continuity • Data quality. • Drill hole spacing.

Criteria	JORC Code explanation	Commentary
	and distribution of the data). • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• Modelling technique and kriging output parameters. • The Competent Person is in agreement with this classification of the resource.
Audits or reviews	• *The results of any audits or reviews of MREs.*	• No audits have been carried out; internal reviews have been carried out by MRL staff.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the MRE using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The risk assessment review which has been carried out on the Wodgina Pegmatites Li2O Resource Estimate is qualitative in nature and based on the general approach used by resource estimation practitioners and consultants to indicate in relative terms the level of risk or uncertainty that may exist with respect to resource estimation which have cumulative effects on project outcomes. • Relative levels of risk have been assessed as generally low occasionally tending towards moderate with respect to certain aspects of the estimation.

SECTION 4 – ESTIMATION AND REPORTING OF ORE RESERVES

(Criteria listed in section 1, and where relevant in section 2 and 3, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Mineral Resource estimate used for conversion to Ore Reserves dated 18 October 2018 was compiled by Mr Lynn Widenbar of Widenbar and Associates Pty Ltd and is based on: historical drilling information provided and prepared by Cube Consulting during September 2013; and recent exploration drilling completed by MRL: from September 2016 to July 2017; February to April 2018; and May to October 2018. • The Mineral Resource estimate is based on a cut-off grade of 0.5% Li2O. • The Mineral Resource estimate is not additional to the Ore Reserve estimate. The Ore Reserve estimate is a sub-set of the Mineral Resource estimate.

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Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The Competent Person is Mr Ross Jaine (MAusIMM) a full-time employee of MRL. • A number of visits were undertaken prior to and during recommencement of mining operations at the site.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• The Ore Reserve estimate is based on feasibility level studies undertaken by MRL and the results of production to date with the site operating since re-commencement of mining in February 2017.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• A cut-off of 0.5% Li2O has been used to achieve required plant feed grades.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	**Mining Method** • Current and planned mining of the resource is by use of conventional open pit methods. The current primary mine production fleet comprises a Hitachi EX3600, 2x Caterpillar 994 front-end-loaders and Caterpillar CAT789D Haul trucks or similar equivalents. • Mine designs comprise detailed pit designs for the Life-of-Mine plan. Operational waste dump and short term stockpile designs are in place with conceptual designs for the later phases of stockpiling and waste dump expansion. **Optimisation** • The deposit was optimised using Whittle Optimisation software. • Indicated and Inferred Mineral Resource categories were used in the Whittle Optimisation process. • An overall slope of 43° has been used for optimisation as estimated from past and present mining practices. • Dilution and ore loss has been modelled by regularisation of the geological resource model using a selective mining unit of 10.0m (length) by 10.0m (width) by 5.0m (depth) with the cut-off grade applied after regularisation. • A minimum mining width of 30m has been used in the pit designs. • A 0.7% Li2O cut-off and a 95% ore recovery factor has been applied in the optimisation and generation of the pit shells • The 0.60 revenue factor shell has been selected as the basis for the pit design revision **Mine Plan** • Inferred Mineral Resources were included in the optimisation and 34.5Mt at 1.13% Li2O of Inferred Mineral Resources are included in the mine plans. No

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		Inferred Mineral Resources have been reported in the Ore Reserves. **Infrastructure requirements of the selected mining method** • The Wodgina Project is currently operational with all required infrastructure for mining in place.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• An upgrade of the existing processing facilities and site infrastructure at Wodgina is in progress to support a 750ktpa spodumene plant producing 6% spodumene concentrate. This plant: is currently under construction; will be delivered in three trains, each with a capacity of 250ktpa; and is planned for steady state Q4 FY19. • When completed the processing plant will consist of: o A three-stage crushing circuit – primary crushing, secondary crushing, high-pressure grinding rollers (HPGRs) with capacity of 10mtpa ; o A modular wet processing plant – three parallel trains each producing 250ktpa of spodumene; o Ball milling, de-sliming and iron removal stages; o A conventional spodumene flotation circuit; and o Filtration of the spodumene concentrate to <10% moisture for transport to Port Hedland for shipping
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• All required environmental approvals are in place for the Wodgina mine operation, including a new process plant, power station and tailings storage facility. • Waste rock characterisation studies have been completed and indicate Potentially Acid Forming material. Waste characterisation continues to be undertaken as part of ongoing operations. • Additional approvals for expansion of mining and infrastructure activities including an aerodrome are currently being sought.

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Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• Existing infrastructure in place supports current operational DSO production requirements at 5.28Mtpa.
		• Major additional infrastructure requirements for the spodumene concentrate plant include an upgrade of the existing processing facilities and site infrastructure at Wodgina to support a 750ktpa spodumene plant producing 6% spodumene concentrate. This plant: is currently under construction; will be delivered in three trains, each with a capacity of 250ktpa; and is planned for steady state Q4 FY19.
		• When completed the processing plant will consist of:
		• A three-stage crushing circuit – primary crushing, secondary crushing, high-pressure grinding rollers (HPGRs) with capacity of 10mtpa ;
		• A modular wet processing plant – three parallel trains each producing 250ktpa of spodumene;
		• Ball milling, de-sliming and iron removal stages;
		• A conventional spodumene flotation circuit; and
		• Filtration of the spodumene concentrate to <10% moisture for transport to Port Hedland for shipping
		• Camp: Upgrade to 750-room accommodation facility
		• Additional Infrastructure required currently under construction or planned are:
		  o Power station: 32 x 2MW gas gen-sets totalling 65MW
		  o Airstrip capable of landing jet aircraft

Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Capital requirements have been estimated through the MRL group's internal specialist engineering capability • Future operating costs were estimated using a combination of existing DSO operating costs with adjustments from spodumene concentrate plant pre-feasibility studies. • The cost estimates are in AUD with the exchange rate sourced internally from MRL corporate projections • Transportation costs have been estimated using projections of actual operating costs • Government royalties have been included in the costs • No deleterious content discounts have been applied • Treatment and processing costs have been estimated based on various existing MRL Crushing and Lithium and Iron Ore processing operations • Pricing estimates of DSO and Spodumene products are internal price forecasts based on prices received for existing DSO and Spodumene products from MRL lithium operations at Wodgina and Mt Marion and external price forecast studies

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Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• The exchange rate has been sourced internally from MRL corporate projections • Transportation costs have been estimated using projections of actual operating costs • Government royalties have been included in the costs • No deleterious content discounts have been applied • Treatment and processing costs have been estimated based on various existing MRL Crushing and Lithium and Iron Ore processing operations • Pricing estimates of DSO and Spodumene products are internal price forecasts based on prices received for existing DSO and Spodumene products from MRL lithium operations at Wodgina and Mt Marion and external price forecast studies • The Spodumene revenue estimates are based on an overall metal recovery of 65%

Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*
	• *A customer and competitor analysis along with the identification of likely market windows for the product.*
	• *Price and volume forecasts and the basis for these forecasts.*
	• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*
		• Numerous external assessments forecast high Lithium demand underpinned by Electric Vehicle rechargeable battery demand
		  ○ A competitor analysis has been undertaken evaluating ; or
		  ○ Price and Volume forecasts.
		• MRL currently markets and manages lithium DSO and Spodumene products and specifications to customers utilising in house marketing expertise
		• Projected pricing estimates of DSO and Spodumene products are based on consideration of: prices received for existing DSO and Spodumene products from MRL lithium operations at Wodgina and Mt Marion;
		• External Lithium Pricing Forecasts

Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• Whittle 4X analysis was undertaken to identify the economic portions of the deposit • Sensitivity analysis using +/- 20% from assumed values indicates the project is most sensitive to direct revenue factors such as price, metallurgical recovery, processing and mining cost. • A discount rate of 7.3% was applied
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• All required native title and heritage agreements are in place for the current operation underway. These include Native Title and Heritage agreements with the Karriyarra people.

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Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• Identified risks include the following: ○ Overall wall angles for optimisation with further studies to confirm or modify currently underway
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• The Ore Reserves have been classified based on their Mineral Resource classification within the 60% Revenue Factor shell, with all Indicated Mineral Resources converted to Probable Ore Reserves. • This classification appropriately reflects the Competent Person's view • No Probable Ore Reserves have been derived from the Measured Mineral Resources
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• There have been no external audits or reviews of the Ore Reserve estimates. • There have been internal peer reviews confirming the Ore Reserve estimates.

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Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Factors other than revenue/price and cost factors that may affect the global tonnages and grade estimates include: the geological interpretation; ore recovery and mining dilution estimates; and processing performance. • Reconciliation of FY2018 actual production of 4.2Mt versus the Mineral Resource model of indicates favourable recovery at 98% of ore tonnes; and 99% of Li2O grade as predicted by the model. • No other assessments of the relative accuracy or confidence limits of the Ore Reserve have been undertaken. • The Ore Reserves have been tested for sensitivity to price, cost and geotechnical design parameters and found to be relativity insensitive to perceivable variations to these variables