Pilbara Minerals
...Powering a sustainable energy future

ASX / MEDIA ANNOUNCEMENT

MONDAY 10 MAY 2021

Exceptional Initial Drilling Results Adjacent To Former Altura Tenement Boundary

IMPRESSIVE HIGH-GRADE RESULTS SET TO ADD TO PILGANGOORA'S EXISTING ENDOWMENT

KEY POINTS

- Strategic development and extensional drilling adjacent to the historical Altura tenement boundary and near the proposed South Pit further defines zones of high-grade pegmatite mineralisation.
- 7,009 drill metres completed to date of a proposed 9,500 metre program.
- Select assay results received from the first nine holes in the program include:
    - **15m @ 2.35% Li_2O** and 100ppm Ta_2O_5 from 142m (PLS1315)
    - **22m @ 1.27% Li_2O** and 87ppm Ta_2O_5 from 125m (PLS1316)
    - **18m @ 2.01% Li_2O** and 75ppm Ta_2O_5 from 168m (PLS1319)
    - **18m @ 1.81% Li_2O** and 80ppm Ta_2O_5 from 150m (PLS1320)
    - **20m @ 1.55% Li_2O** and 89ppm Ta_2O_5 from 174m (PLS1321)
- Interpreted pegmatite intercepts (assays pending) also point to additional near-surface mineralisation adjacent to the old Altura tenement boundary and South Pit areas.
- Drilling continues, which will inform a proposed combined Pilgangoora Project resource update anticipated during the September 2021 Quarter.

Australian lithium producer Pilbara Minerals Limited (ASX: PLS) is pleased to report significant initial assay results from exploration and resource extension drilling programs at its 100%-owned Pilgangoora Lithium-Tantalum Project (**Project**) in Western Australia.

The results continue to demonstrate the world-class endowment of the Pilgangoora deposit and provide strong support for the continued growth in the Project's mineral endowment.

Current drilling is targeting the previously under-explored region adjacent to the recently acquired Altura Lithium Operations (**ALO**) tenement boundary, with the intention of further optimising the future pit inventories in the area. Zones of high-grade pegmatite mineralisation have been further defined outside of the current Mineral Resource, adjacent to the historical Altura tenement boundary and Pilbara Minerals' planned future South Pit development.

Results from this drill program will be incorporated into an updated combined Pilgangoora Project Mineral Resource (including the compilation and integration of the former Altura Lithium Operations resource), which is scheduled for release in the September Quarter 2021[1].

Pilbara Minerals' Managing Director and CEO, Ken Brinsden, said the initial drilling results and interpreted pegmatite intercepts were exceeding expectations.

"*The area adjacent to the old Altura tenement boundary has always offered significant exploration potential and was considered one of the benefits for Pilbara Minerals undertaking the Altura asset acquisition," he said.*

"These results from the current program confirm the potential endowment of this area and we

[1] Pilbara Minerals is undertaking a review of the Altura Lithium Operations' previously stated Mineral Resource and Ore Reserve dated 9 October 2019 (using its own economic assumptions and modifying factors) and will release an update to the market once completed.

intend to work hard on this area in the coming months to add further value to the integrated operations.

"The Pilgangoora Project is one of the world's great lithium resources which will play an important part in raw materials supply across the globe, including value-added products, as the global decarbonisation push and electrification drive gathers significant momentum."

Investors are invited to view a live webcast of the Company's Strategy & Outlook Forum for investors on Tuesday, 11 May 2021, which will be livestreamed from Perth, including a synchronised slide presentation. The livestream will commence at 8.30am WST / 10.30am AEST. You can register to view the webcast by clicking on the link below:

https://webcast.boardroom.media/pilbara-minerals-limited/20210511/NaN6088aa2c8e52070019c85e5a

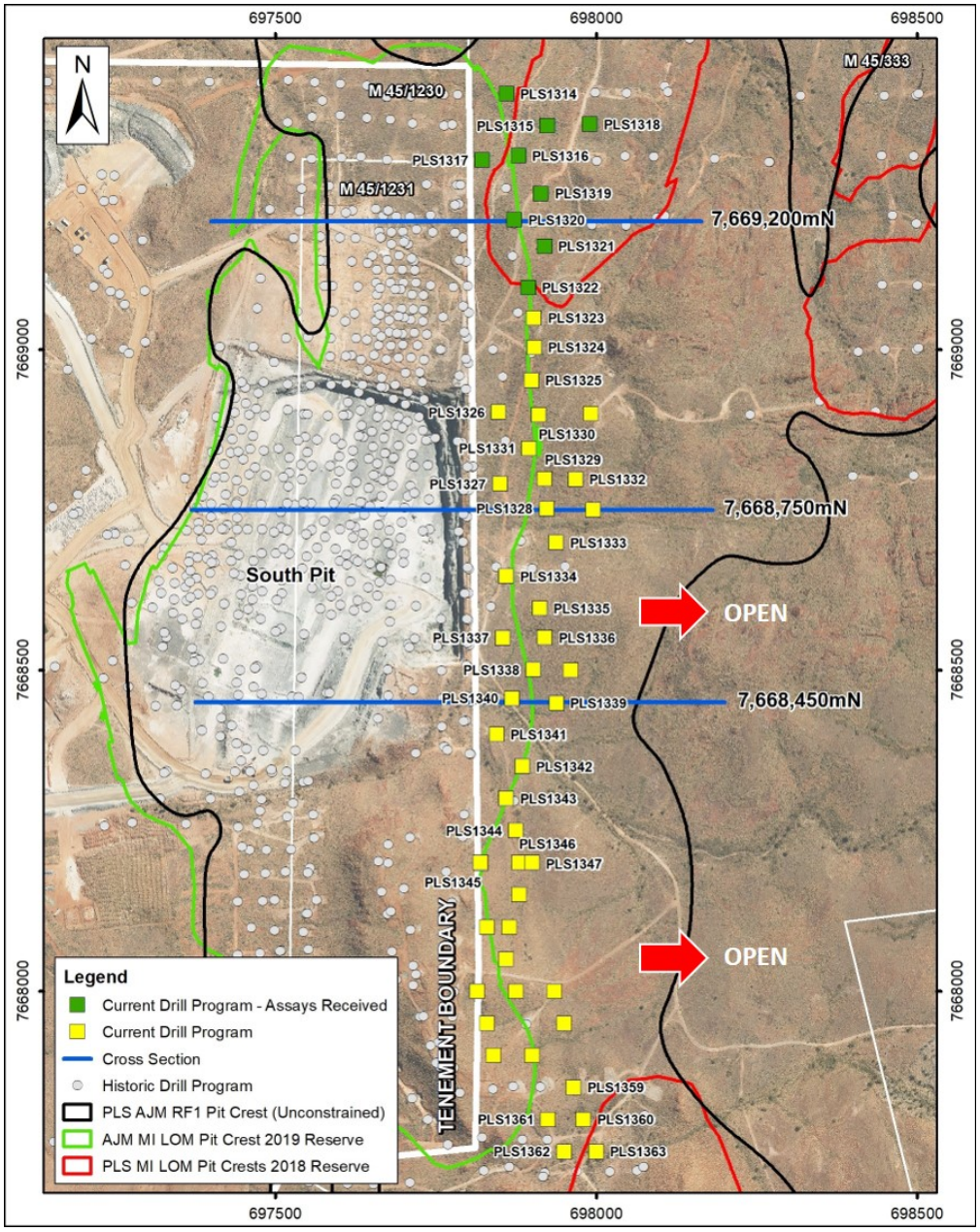

Figure 1 – Drill Hole Location Summary Plan

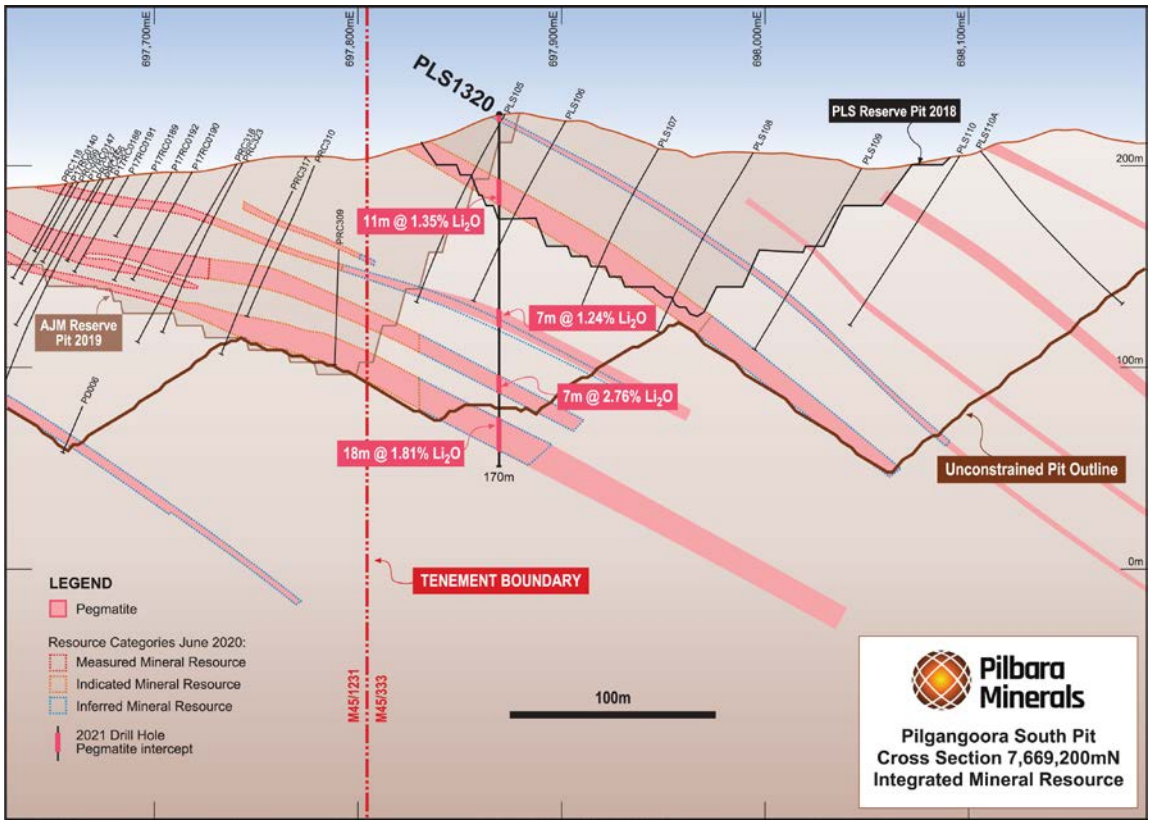

Figure 2 – Cross Section 7,669,200mN

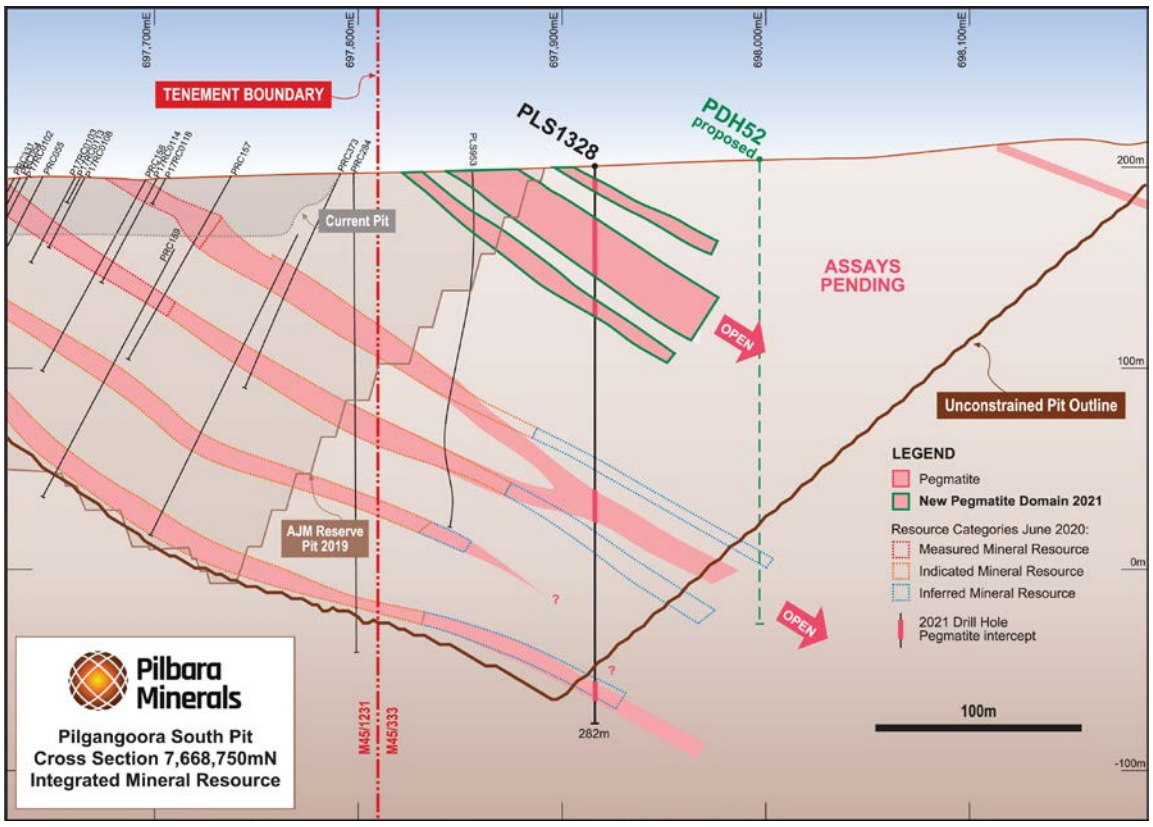

Figure 3 – Cross Section 7,668,750mN

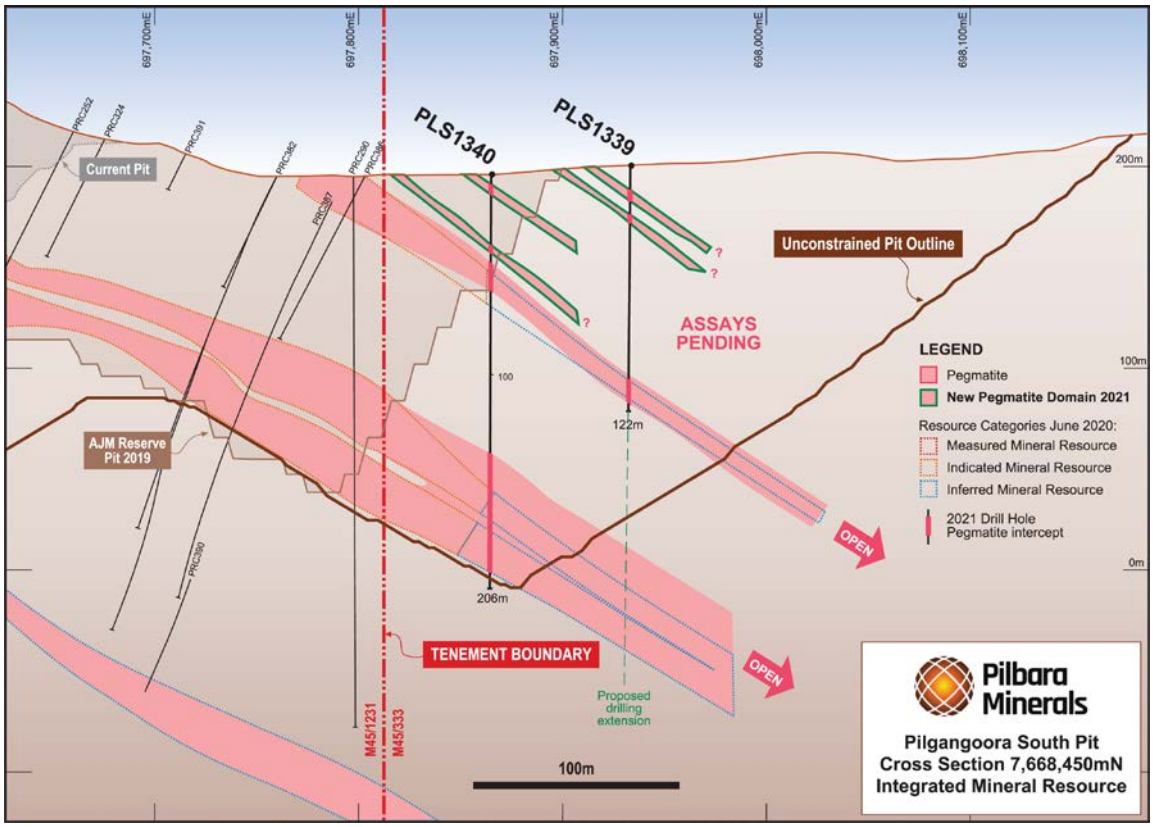

Figure 4 – Cross Section 7,668,450mN

Figure 5 – View north over South Pit and Drilling Area

Release authorised by Ken Brinsden, Pilbara Minerals Limited's Managing Director.

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MORE INFORMATION

ABOUT PILBARA MINERALS

Pilbara Minerals is the leading ASX-listed pure-play lithium company, owning 100% of the world's largest, independent hard-rock lithium operation. Located in Western Australia's resource-rich Pilbara region, the Pilgangoora Project and Operation produces a spodumene and tantalite concentrate. The significant scale and quality of the operation has attracted a consortium of high quality, global partners including Ganfeng Lithium, General Lithium, Great Wall Motor Company, POSCO, CATL and Yibin Tianyi.

While it continues to deliver a low-cost, quality spodumene to market, Pilbara Minerals is pursuing a growth and diversification strategy to become a sustainable, low-cost lithium producer and fully integrated lithium raw materials and chemicals supplier in the years to come.

Through execution of this strategy, Pilbara Minerals is positioned to become a major player in the rapidly growing lithium supply chain, underpinned by increasing demand for clean energy technologies such as electric vehicles and energy storage as the world pursues a sustainable energy future.

COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration Results and Exploration Targets is based on and fairly represents information and supporting documentation prepared by Mr John Holmes (full-time Exploration and Geology Manager of Pilbara Minerals Limited). Mr Holmes is a shareholder of Pilbara Minerals. Mr Holmes is a member of the Australasian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Holmes consents to the inclusion in this report of the matters based on his information in the form and context in which they appear.

APPENDIX 1 – DRILL HOLE COLLAR TABLE

Hole ID	North GDA94	East GDA94	RL	Dip	Azimuth	Depth (m)
PLS1314	7669399	697860	200	-90	0	132
PLS1315	7669349	697924	209	-90	0	168
PLS1316	7669302	697879	210	-90	0	148
PLS1317	7669296	697822	204	-90	0	114
PLS1318	7669351	697990	218	-90	0	86
PLS1319	7669243	697914	223	-90	0	191
PLS1320	7669202	697873	225	-90	0	170
PLS1321	7669161	697920	217	-90	0	198
PLS1322	7669097	697894	216	-90	0	193
PLS1323	7669049	697903	208	-90	0	205
PLS1324	7669004	697904	205	-90	0	222
PLS1325	7668952	697899	205	-90	0	216
PLS1326	7668902	697848	202	-90	0	198
PLS1327	7668790	697850	199	-90	0	212
PLS1328	7668752	697923	200	-90	0	282
PLS1329	7668799	697920	206	-90	0	262
PLS1330	7668898	697911	210	-90	0	240
PLS1331	7668846	697895	207	-90	0	244
PLS1332	7668798	697968	211	-90	0	130
PLS1333	7668699	697938	202	-90	0	240
PLS1334	7668647	697860	201	-90	0	273
PLS1335	7668597	697912	213	-90	0	228
PLS1336	7668551	697920	209	-90	0	90
PLS1337	7668551	697855	202	-90	0	198
PLS1338	7668501	697902	204	-90	0	207
PLS1339	7668449	697938	200	-90	0	122
PLS1340	7668457	697869	195	-90	0	206
PLS1341	7668400	697841	199	-90	0	194
PLS1342	7668348	697881	203	-60	270	222
PLS1343	7668304	697866	200	-70	270	226
PLS1344	7668250	697870	202	-60	270	172
PLS1345	7668199	697821	211	-60	270	110
PLS1346	7668200	697880	200	-60	270	139
PLS1347	7668200	697900	200	-90	0	185
PLS1359	7667850	697965	200	-60	270	148
PLS1361	7667800	697925	200	-60	270	110
PLS1360	7667800	697980	200	-60	270	118
PLS1362	7667750	697950	200	-90	0	100
PLS1363	7667750	698000	200	-90	0	110

APPENDIX 2 – DRILL HOLE INTERCEPTS (0.5% Li_2O lower cut-off grade)

Hole ID	From (m)	To (m)	Thickness (m)	Li2O %	Ta2O5 (ppm)
PLS1314	70	72	2	1.86	77.5
PLS1314	107	121	14	1.59	73.93
PLS1315	20	31	11	1.57	90.91
PLS1315	100	103	3	1.38	57.33
PLS1315	131	137	6	0.91	46.92
PLS1315	142	157	15	2.35	100.67
PLS1315	160	167	7	2.08	44.86
PLS1316	5	17	12	1.45	71.58
PLS1316	88	90	2	1.53	142
PLS1316	104	107	3	1.89	87
PLS1316	119	121	2	0.7	21
PLS1316	125	147	22	1.27	86.64
PLS1317	65	68	3	1.55	66.67
PLS1317	73	80	7	1.13	62.64
PLS1317	94	111	17	1.13	131.59
PLS1318	10	13	3	1.99	89.67
PLS1318	35	37	2	1.31	63
PLS1318	67	82	15	1.39	78.53
PLS1319	15	17	2	0.85	61.5
PLS1319	46	61	15	1.59	79
PLS1319	120	122	2	1.42	69.5
PLS1319	141	143	2	1.25	76.5
PLS1319	153	158	5	1.16	74.4
PLS1319	168	186	18	2.01	74.94
PLS1320	33	44	11	1.35	97.55
PLS1320	88	89	1	0.52	48
PLS1320	97	104	7	1.24	133.29
PLS1320	131	138	7	2.76	165.14
PLS1320	150	168	18	1.81	80.39
PLS1321	29	30	1	0.58	82
PLS1321	57	75	18	1.27	69.83
PLS1321	122	123	1	0.75	53
PLS1321	153	162	9	1.35	112.89
PLS1321	174	194	20	1.55	89.45
PLS1322	59	63	4	1.96	56.25
PLS1322	69	79	10	1.74	68.2
PLS1322	116	123	7	1.66	86.14
PLS1322	143	144	1	0.58	204
PLS1322	157	164	7	1.96	55.43
PLS1322	174	180	6	1.86	50

Note: All Intercepts as at 7th May 2021

JORC Code, 2012 Edition – Table 1 report

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 (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	Pilbara Minerals Limited (PLS) have completed 39 exploration RC drill holes for 7,009m as at 9 May 2021.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	RC holes were sampled every metre, with samples split on the rig using a cyclone splitter. The sampling system consisted of a rig mounted cyclone with cone splitter and dust suppression system. The cyclone splitter was configured to split the cuttings at 85% to waste (exploration RC holes to be captured in 600mm x 900mm green plastic mining bags) and 15% to the sample port in draw-string calico sample bags (10-inch by 14-inch).
	Aspects of the determination of mineralisation that are Material to the Public Report. *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	Exploration drill holes were all RC, with samples split at the rig, samples are then sent to Nagrom laboratory in Perth and analysed for a suite of multi-elements. Analysis was completed by XRF and ICP techniques.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Exploration RC Drilling was completed by Mt Magnet Drilling utilising an RCD300-2 track mounted drilling rig with a truck mounted booster & auxiliary compressor (900cfm/350psi) coupled to a V8 booster up to 1000psi. Drilling used a reverse circulation face sampling hammer. The sampling system consisted of a rig mounted cyclone with cone splitter and dust suppression system.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Sample recovery was recorded as good for RC holes.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Whilst drilling through the pegmatite, rods were flushed with air after each 6 metre interval.
	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.	Samples were dry and recoveries are noted as “good.”
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	1m samples were laid out in lines of 20 or 30 samples with cuttings collected and geologically logged for each interval and stored in 20 compartment plastic rock-chip trays with hole numbers and depth intervals marked (one compartment per 1m). Geological logging information was recorded directly onto digital logging system (OCRIS) and information validated and transferred electronically to Database administrators in Perth. The rock-chip trays are stored on site at Pilgangoora in a shelved 40 ft sea container.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Logging has primarily been quantitative.
	The total length and percentage of the relevant intersections logged.	The database contains lithological data for all holes in the database.
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.*	RC samples were generally dry and split at the rig using a cyclone splitter, which is appropriate and industry standard.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Samples have field duplicates, field standards and blanks as well as laboratory splits and repeats.

Criteria	JORC Code explanation	Commentary
	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.	Field duplicates were taken approximately every 20m, and standards and blanks every 50 samples.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Drilling sample sizes are considered to be appropriate to correctly represent the tantalum and lithium mineralization at Pilgangoora based on the style of mineralization (pegmatite) and the thickness and consistency of mineralization.
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.*	Samples were submitted to Nagrom Laboratories in Perth and analysed for a suite of 25 elements. Samples were subject to a sodium peroxide fusion and analysed using ICPOES and ICPMS techniques.
	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.	No geophysical tools were used to determine any element concentrations used in this resource estimate.
	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.	Duplicates of the samples were taken at twenty metre intervals with blanks and standards inserted every 50m. Comparison of duplicates by using a scatter chart to compare results show the expected strong linear relationship reflecting the strong repeatability of the sampling and analysis process. Drilling contains QC samples (field duplicates, blanks and standards plus laboratory pulp splits, and SGS internal standards), and have produced results deemed acceptable.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.*	No diamond twins were carried out during this drilling campaign.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	An electronic database containing collars, surveys, assays and geology is maintained by Trepanier Pty Ltd, an Independent Geological consultancy.

Criteria	JORC Code explanation	Commentary
	Discuss any adjustment to assay data.	Li was converted to Li_2O for the purpose of reporting. The conversion used was Li_2O = Li x 2.153
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Holes were surveyed using DGPS in GDA94, Zone 50. Down hole surveying of drill holes was conducted using a Gyro tool. Measurements were recorded at the bottom of each hole and every 10m up hole for vertical holes and continuous readings for angle holes. Drill hole collar locations were surveyed at the end of the program by a differential GPS (DGPS).
	Specification of the grid system used.	The grid used was MGA (GDA94, Zone 50)
	Quality and adequacy of topographic control.	The topographic surface used was supplied by Pilbara Minerals.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drilling spacings for the exploration RC holes varied between 50m to 75m apart.
	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.	The interpretation of the mineralised domains are supported by a moderate drill spacing, plus both geological zones and assay grades can be interpreted with confidence.
	Whether sample compositing has been applied.	No compositing
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.*	The mineralisation dips approximately 45-60 degrees at a dip direction of 090 degrees The drilling orientation and the intersection angles are deemed appropriate.
	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.	No orientation-based sampling bias has been identified.
Sample security	*The measures taken to ensure sample security.*	Chain of custody for PLS holes were managed by PLS personnel.

Criteria	JORC Code explanation	Commentary
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Sampling techniques for historical assays have not been audited. The collar and assay data have been reviewed by checking all of the data in the digital database against hard copy logs. All PLS assays were sourced directly from Nagrom laboratory.

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*	PLS owns 100% of tenements M45/1256, M45/333, M45/511 and M45/1259
	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.	No known impediments.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Talison completed RC holes in 2008 GAM completed RC holes between 2010 and 2012. Altura completed holes between 2010 and 2018
Geology	*Deposit type, geological setting and style of mineralisation.*	The Pilgangoora pegmatites are part of the later stages of intrusion of Archaean granitic batholiths into Archaean metagabbros and metavolcanics. Tantalum mineralisation occurs in zoned pegmatites that have intruded a sheared metagabbro.
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, including 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 plus hole length.* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	Refer to Appendix 2

Criteria	JORC Code explanation	Commentary
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 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.*	Exploration results have been received for drill holes PLS1314 to PLS1322.
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').*	Down hole intercepts have been reported and are tabled in APPENDIX 2. Reported intercepts are not true width. Cross sections illustrate the modelled pegmatite domains and intersections.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	See Figure 1. Cross sections showing selected holes from the program are presented as Figures 2 to 4.
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.*	Comprehensive reporting of drill details has been provided in Appendix 1
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.*	All meaningful & material exploration data has been reported.
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.*	The aim is to upgrade the existing JORC compliant resource calculation.