



## **ASX Announcement**

**15 September 2017**

### **Lithium and Tantalum Exploration Underway in Argentina**

Dark Horse Resources Limited (ASX:DHR; "DHR", "Dark Horse" or "Company") is pleased to update the market on the status of the Company's Argentinean lithium project activities.

Dark Horse Managing Director, David Mason, with Country Manager Marcelo Sanchez and Exploration Manager Gustavo Fernandez, visited the Company's Lithium pegmatite properties in San Luis and Cordoba provinces during late August - early September 2017 to kick off the exploration and resource definition program.



**Photo 1 - Managing Director, David Mason underground at the Las Tapias Mine indicating the mass of large Spodumene crystals.**



Dark Horse Resources Ltd ACN 068 958 752  
Level 27, 111 Eagle Street, Brisbane QLD 4001  
P: +61 7 3303 0650 F: + 61 7 3303 0681  
E: [info@darkhorseresources.com.au](mailto:info@darkhorseresources.com.au)  
W: [www.darkhorseresources.com.au](http://www.darkhorseresources.com.au)

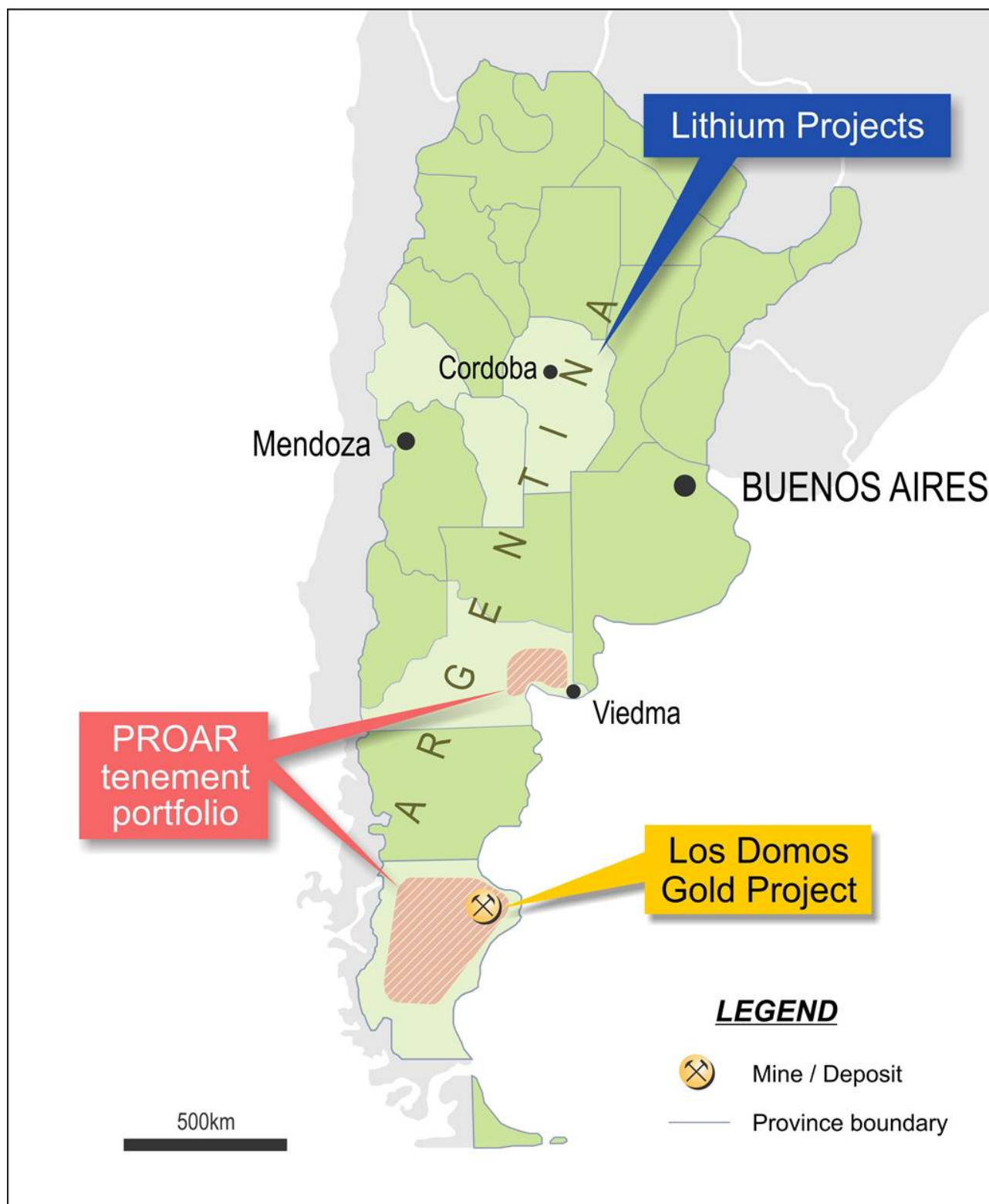


Figure 1 – Location of Dark Horse’s mineral projects in Argentina.



Dark Horse has access to a large portfolio of mineral exploration ground under lease in Argentina through its acquisition of domestic company Pampa Litio SA. Pampa Litio holds four separate exploration licences in the San Luis province (Leon Herido, San Martin, Novillo Negro and El Totoral) totalling 40,000ha, and a group of 5 mining licences and one exploration licence over the Las Tapias Mine (300ha) in Cordoba province (refer **Figure 1** and **Figure 3**). Each of these leases was visited by the executive team and substantial and widespread pegmatites were visually observed throughout, with Lithium mineralisation obvious in many through the presence of observed high-grade concentrations of Spodumene, Lepidolite and Amblygonite minerals.

Of particular significance is the Lithium bearing El Totoral pegmatite in the El Totoral lease, which has been traced at surface for approx. 4.5kms along a north-south strike length (**Figure 2 – all results cited are from the Company's October 2016 market release**). It includes the historic San Luis Mine where massive, large Spodumene crystals can be observed in the old surface workings (**Photos 2 and 3**). As previously reported by Dark Horse in 2016, assay testing of select rock samples containing up to 40% Spodumene has returned the excellent values of up to 3.3% Lithium Oxide and 211g/t of Tantalum Oxide, which is considered ore grade material. Tantalite has a current market price of approximately USD123 per kg.



**Photo 2 – (from left to right) Country Manager, Marcelo Sanchez, Project Geologist, Alejandro Bertin, and Exploration Manager, Gustavo Fernandez at the San Luis Mine within the El Totoral Lithium rich pegmatite.**

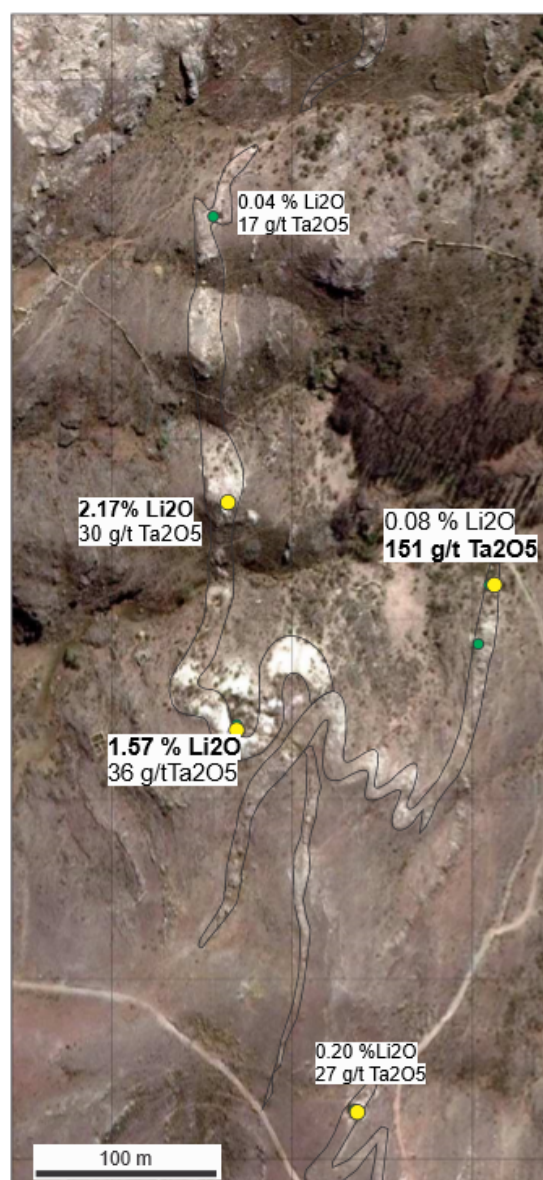
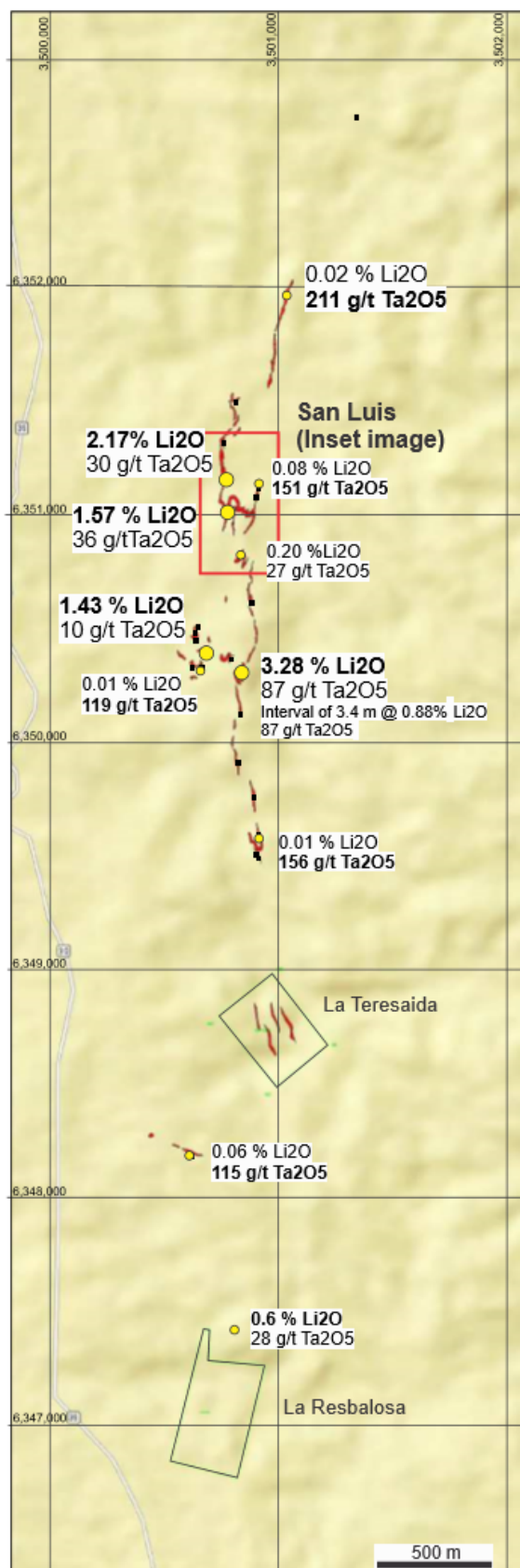


Figure 2: El Totoral- San Luis mine. selected sampled along spodumene bearing pegmatites in the Totoral belt (depicted by red lines). The Li-Ta bearing belt extend for about 4.5 km. Right detail image of complex folded San Luis pegmatite and Li.-Ta rock chip assays





**Photo 3 - A close up photo of the mass of large Spodumene crystals at the San Luis Mine.**

Dark Horse's overriding objective is to discover and define a large Lithium rich pegmatite resource, develop mines to produce Lithium ore, and ultimately a production facility in Argentina manufacturing battery grade Lithium Hydroxide for sale into the international battery and electronic markets. Future sales may extend into a new domestic market for Lithium products as the economy in Argentina continues to transform under the market-reformed current administration.



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Dark Horse is supported in its aggressive business strategy and model from the current trend in some of the major countries of the world establishing regulations for the change to stop selling vehicles that run solely on diesel or petrol fuels, and to incorporate electric vehicle technologies, which are mostly currently based on Lithium batteries. China has very recently also announced this change. A suite of recent public statements and announcements have been made in support of the likely growing demand for Lithium based on forecast battery usage, including:

- Swiss Bank UBS raised its forecasts for global electric car sales by 50% to 14% by 2025 or 14.2 million vehicles compared with its previous projection. It raised the forecast for 2021 to 3.1 million from 2.5 million. **Europe** will lead the way with 30% of its sales electric by 2025. The current share is close to 1%. (*May, 2017 –Forbes*)
- From 2019, all new **Volvo** cars will have electric or hybrid engines, the Swedish auto manufacturer announced, (*July, 2017 – DeZeen.com*) making it the first major automaker to abandon cars and SUVs powered solely by the internal combustion engine. (*July, 2017 - ABC News*)
- **France** will end sales of petrol and diesel vehicles by 2040 as part of an ambitious plan to meet its targets under the Paris climate accord. (*July, 2017 – The Guardian*)
- In 2015, electric vehicles in **Norway** had a 22% market share. Norway has set a target of only allowing sales of 100% electric or plug-in hybrid cars by 2025. (*Norwegian Electric Vehicle Association*)
- As of 2030, Federal States in **Germany** want to ban gasoline and diesel cars. (*October, 2016 – Spiegel*)
- The **UK** has an aspiration of all new cars being electric or ultra-low emission by 2040. (*July, 2017 – The Guardian*) By 2050, all cars on the road will need to have zero emissions. (*July 2017 – CNN Money*)
- **India** is aiming for all-electric car fleet by 2030 (*April, 2017 – Times of India*)
- **Volkswagen** will offer an electric version of all its 300 models by 2030, becoming the latest manufacturer to move away from petrol and diesel. The German firm plans to offer 80 new electric cars across the group by 2025. (*Sep 2017 – BBC.com*)

There is much discussion on the future world demand for Lithium with varying degrees of increases, but there is no doubt that it will be significant, particularly in relation to the current available supply. There is also debate on the pros and cons of Lithium produced from brines, and that produced from pegmatites (as with the Dark Horse type) in terms of capital and operating expenditures, and the superiority of each in the battery production process. However, it is clear that both sources of Lithium will have a major role.



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To achieve its objectives, and based on the exploration results published to date and observations from this trip, Dark Horse will carry out further and systematic exploration comprising geological, geophysical and drilling techniques, and has established an Exploration Target of approximately 30 million tonnes to 60 million tonnes of Lithium ore grading from approximately 0.9% LiO<sub>2</sub> to approximately 1.5% LiO<sub>2</sub>. The Company notes that the potential quantity and grades quoted is conceptual in nature, and that there has been insufficient exploration undertaken to date to estimate a mineral resource, and that it is uncertain if further exploration will result in the estimation of a mineral resource.

Over the course of the next 18-24 months, the Company intends to undertake sufficient exploration to facilitate the estimation of a mineral resource, and has designed the following program:

- Topographic Surveying;
- Systematic mapping and sampling of the widespread outcrops, quarries and underground workings;
- Representative rock chip sampling and assaying;
- Geophysics;
- Drilling programs will be designed to define the geometry, size and grades of the ore bodies;
- Comprehensive assaying of all drill core;
- Metallurgical testing;
- Mineral resource evaluation and estimation in compliance with the JORC Code;
- Preliminary mining feasibility.

Prior geological work by Pampa Litio has shown that the El Totoral pegmatite sequence (as above) and the Las Tapias Mine (refer description below) have significant Lithium potential and deserve early detailed exploration to determine their likelihood of meeting Dark Horse's objectives. Therefore, a two-pronged, simultaneous exploration strategy is planned as:

1. Detailed Programs at both El Totoral and Las Tapias, and
2. Regional Program over the remaining suite of leases.

Photo-geological interpretation and remote sensing work has indicated a plethora of potential pegmatites in each of the San Luis leases. These targets require systematic testing to determine their potential for hosting Lithium resources. Work will commence in the northern Leon Herido lease due to its proximity to Las Tapias (**Figure 3**).

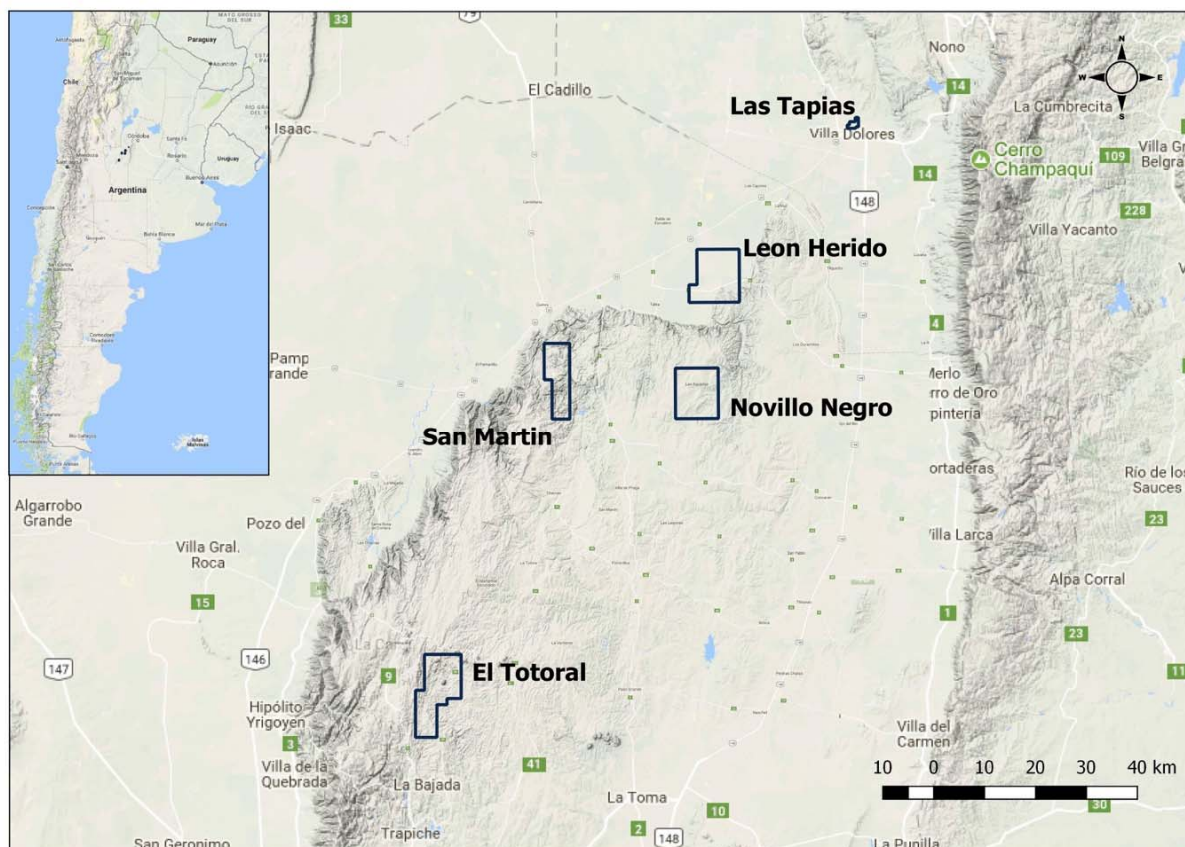
The planned exploration program has been designed in consultation with the Pampa Litio principals.

Geological teams are being organised at present and the field work will commence this month. Exploration will continue throughout 2017 with drill targets expected to be defined in early 2018 for drill commencement in the second quarter of 2018.



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## Las Tapias Mine

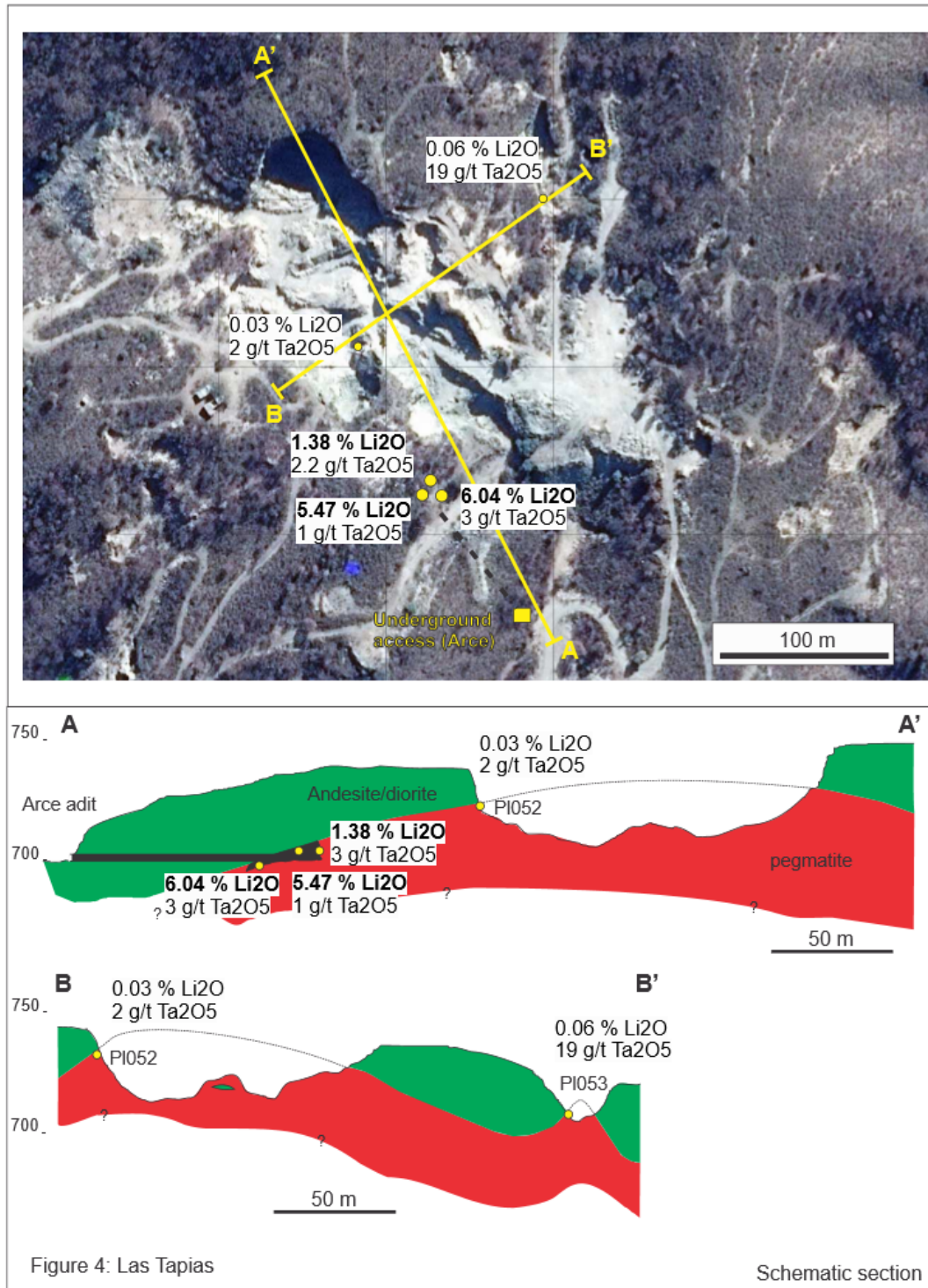
The Las Tapias Mine is a significant Lithium target for Dark Horse. The Company is acquiring the property from the family owners, who work the pegmatite to produce mica for industrial domestic use. Pampa Litio has previously investigated the mine for the presence of Lithium and determined that there is substantial potential for commercial resources. **Figure 4** below depicts the size of the pegmatite on the surface, which is some 300m in length and 75m wide.

The Dark Horse executive team visited these surface workings (**Photo 4**), and some of the historical underground drives, which provides evidence of a significant depth dimension also (at least 50m). Lithium Spodumene crystals are common at both the surface and underground (**Photo 1 and 5**). As previously reported by Dark Horse in 2016, assay testing of rock samples have returned the excellent values of up to 6% Lithium Oxide, which is considered ore grade material.





**Photo 4 - Las Tapias Mine with large Spodumene crystals in the quarry.**



**Figure 4 – A photo of the Las Tapias Mine workings (above) and the location of two cross sections (A-A') and (B-B'), shown geologically below. The red colour is the pegmatite and the green the host rock.**





**Photo 5 - Extremely large Spodumene crystals underground at Las Tapias Mine.**

The Board of Dark Horse looks forward to providing project activity updates as new information comes to hand.

On behalf of the Board  
Mr Karl Schlobohm  
**Company Secretary**

#### **Competent Persons Statement**

The information herein that relates to Exploration Targets and Exploration Results is based on information compiled by Mr Neil Stuart, who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Neil Stuart is a Director of Dark Horse Resources Ltd.

Mr Stuart has more than five years experience which is relevant to the style of mineralisation and type of deposit being reported and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves' (the JORC Code). This public report is issued with the prior written consent of the Competent Person(s) as to the form and context in which it appears.



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**For further information contact:**

**Mr David Mason**

Executive Director, Dark Horse Resources Ltd  
Ltd  
Ph: 07 3303 0650

**Pru Maclean**

Investor Relations, Dark Horse Resources  
Ph: 07 3303 0650

**About Dark Horse Resources:**

Since listing on the Australian Stock Exchange in 2011, Dark Horse Resources (formerly Navaho Gold) has evolved into a diversified exploration company primarily focussed on Argentina. The Company currently has gold, coal, lithium and energy projects in Argentina.

Argentina is undergoing significant political and social reforms, which has created a very attractive destination for mining and diverse project interests.



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# JORC Code, 2012 Edition – Table 1 report template

## Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i></li> </ul>	<ul style="list-style-type: none"> <li>Results in this release relate to visual observations and surface measurements of rock wall faces in quarries, underground workings and rock outcrops in the Pampa Litio San Luis and Cordoba projects.</li> <li>Measurements were made by marking out one square metre sections on the rock faces, dividing them up into matrices of ten centremetre squares, and visually estimating the quantity of Spodumene over these areas to provide an overall percentage of Spodumene per area.</li> <li>Rocks were observed and recorded in outcrop and in the underground workings however, no samples were taken for analysis.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li><i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i></li> </ul>	<ul style="list-style-type: none"> <li>No drilling undertaken</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li><i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li><i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>No drilling undertaken</li> </ul>
Logging	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>A description of outcrops and sub-outcrops including rock type, alteration, structure and mineralization was recorded.</li> <li>A brief description of soil characteristics was recorded.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>N-A</li> <li>N-A</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>No sampling was done.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>No samples were analyzed.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>N-A</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>All rock measurement locations and rock outcrop locations were located using a handheld GPS and are accurate <math>\pm 5m</math>.</li> <li>Reference system used was Gaus Kruger Zone 2 – Campo Inchauspe (Argentina reference coordinates)</li> </ul>
Data spacing and	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the</li> </ul>	<ul style="list-style-type: none"> <li>Rock measurements were taken over known Spodumene and Lithium mineralized areas as determined from previously reported rock chip sample</li> </ul>



Criteria	JORC Code explanation	Commentary
<i>distribution</i>	<p><i>degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></p> <ul style="list-style-type: none"> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<p>assays.</p> <ul style="list-style-type: none"> <li>Sampling is of insufficient density to determine a resource estimate. Additional detailed follow-up sampling is recommended to qualify and quantity the anomalous areas in greater detail prior to drill testing if warranted.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Rock measurements were taken perpendicular to the strike.</li> <li>Orientation of measurements is not expected to contribute to sampling bias.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>N-A</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>N-A</li> </ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Measurements carried out on Tenement El Totoral File 48/R/16 (San Luis, Argentina) which is held by Dark Horse under an Option Agreement with Pampa Litio SA (ASX Announcement October 2016).</li> <li>N-A.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li><i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>Previous exploration has been carried out by Pampa Litio SA under the management of Dr Gustavo Rodriguez, a principal of Pampa Litio SA, which included geological mapping, rock chip sampling and assaying. These results were reported to the ASX in October 2016.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li><i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>Mineralization model corresponds to pegmatities within diorites or intruded into low grade metamorphic schists.</li> <li>In Cordoba province, the project is located in the area of the Achala</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>Batholith; a prominent Devonian aged granite suite that intrudes the central part of the high-grade metamorphic rocks of Sierras de Cordoba.</p> <ul style="list-style-type: none"> <li>• In the San Luis province, the pegmatites intrude the low-grade rocks (phyllites and slates) of Pringles Metamorphic Complex (of possible Ordovician age).</li> <li>• Mineralization style corresponds to late stage, slower cooling of intrusive mineralised fluids from large intrusive bodies, with the subsequent formation of large crystals of a great variety of minerals.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> <li>○ easting and northing of the drill hole collar</li> <li>○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>○ dip and azimuth of the hole</li> <li>○ down hole length and interception depth</li> <li>○ hole length.</li> </ul> </li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• No drilling undertaken</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>• N-A</li> </ul>
Relationship between mineralisation widths and	<ul style="list-style-type: none"> <li>• These relationships are particularly important in the reporting of Exploration Results.</li> <li>• If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> </ul>	<ul style="list-style-type: none"> <li>• Unknown at this stage</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>intercept lengths</i>	<ul style="list-style-type: none"> <li>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').</li> </ul>	
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Plans of outcrop locations are provided in report.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The release includes defined levels of anomalous results however further sampling is required to validate the tenor of results</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No new data at this stage.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>Satellite image processing, Geological mapping 1:2000, Rock chip sampling, Trench sampling, and Drilling. These activities are planned on a 24 month working schedule.</li> </ul>

### 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
<i>Database integrity</i>	<ul style="list-style-type: none"> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Site visits</i>	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Geological interpretation</i>	<ul style="list-style-type: none"> <li>Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li><i>The effect, if any, of alternative interpretations on Mineral Resource estimation.</i></li> <li><i>The use of geology in guiding and controlling Mineral Resource estimation.</i></li> <li><i>The factors affecting continuity both of grade and geology.</i></li> </ul>	
Dimensions	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li><i>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</i></li> <li><i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i></li> <li><i>The assumptions made regarding recovery of by-products.</i></li> <li><i>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</i></li> <li><i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></li> <li><i>Any assumptions behind modelling of selective mining units.</i></li> <li><i>Any assumptions about correlation between variables.</i></li> <li><i>Description of how the geological interpretation was used to control the resource estimates.</i></li> <li><i>Discussion of basis for using or not using grade cutting or capping.</i></li> <li><i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Moisture	<ul style="list-style-type: none"> <li><i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li><i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li><i>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</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>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.</i>	
<i>Metallurgical factors or assumptions</i>	<ul style="list-style-type: none"> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Environmental factors or assumptions</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Bulk density</i>	<ul style="list-style-type: none"> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Classification</i>	<ul style="list-style-type: none"> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of Mineral Resource estimates.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Discussion of relative accuracy/ confidence</i>	<ul style="list-style-type: none"> <li><i>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</i></li> <li><i>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.</i></li> <li><i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>

## Section 4 Estimation and Reporting of Ore Reserves

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

Criteria	JORC Code explanation	Commentary
<i>Mineral Resource estimate for conversion to Ore Reserves</i>	<ul style="list-style-type: none"> <li><i>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</i></li> <li><i>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Site visits</i>	<ul style="list-style-type: none"> <li><i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i></li> <li><i>If no site visits have been undertaken indicate why this is the case.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Study status</i>	<ul style="list-style-type: none"> <li><i>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>



Criteria	JORC Code explanation	Commentary
<i>Cut-off parameters</i>	<ul style="list-style-type: none"> <li><i>The basis of the cut-off grade(s) or quality parameters applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Mining factors or assumptions</i>	<ul style="list-style-type: none"> <li><i>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).</i></li> <li><i>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.</i></li> <li><i>The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.</i></li> <li><i>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</i></li> <li><i>The mining dilution factors used.</i></li> <li><i>The mining recovery factors used.</i></li> <li><i>Any minimum mining widths used.</i></li> <li><i>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</i></li> <li><i>The infrastructure requirements of the selected mining methods.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Metallurgical factors or assumptions</i>	<ul style="list-style-type: none"> <li><i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</i></li> <li><i>Whether the metallurgical process is well-tested technology or novel in nature.</i></li> <li><i>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</i></li> <li><i>Any assumptions or allowances made for deleterious elements.</i></li> <li><i>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.</i></li> <li><i>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Environmental</i>	<ul style="list-style-type: none"> <li><i>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,</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>where applicable, the status of approvals for process residue storage and waste dumps should be reported.</i>	
Infrastructure	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Costs	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Revenue factors	<ul style="list-style-type: none"> <li>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.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Market assessment	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul style="list-style-type: none"> <li>Some market demand information is included, all of which has been referenced in the release.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>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.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Social	<ul style="list-style-type: none"> <li>The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>

Criteria	JORC Code explanation	Commentary
Other	<ul style="list-style-type: none"> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Classification	<ul style="list-style-type: none"> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>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.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>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.</li> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>



Criteria	JORC Code explanation	Commentary
	<i>estimate should be compared with production data, where available.</i>	

## Section 5 Estimation and Reporting of Diamonds and Other Gemstones

(Criteria listed in other relevant sections also apply to this section. Additional guidelines are available in the 'Guidelines for the Reporting of Diamond Exploration Results' issued by the Diamond Exploration Best Practices Committee established by the Canadian Institute of Mining, Metallurgy and Petroleum.)

Criteria	JORC Code explanation	Commentary
<i>Indicator minerals</i>	<ul style="list-style-type: none"> <li>Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Source of diamonds</i>	<ul style="list-style-type: none"> <li>Details of the form, shape, size and colour of the diamonds and the nature of the source of diamonds (primary or secondary) including the rock type and geological environment.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Sample collection</i>	<ul style="list-style-type: none"> <li>Type of sample, whether outcrop, boulders, drill core, reverse circulation drill cuttings, gravel, stream sediment or soil, and purpose (eg large diameter drilling to establish stones per unit of volume or bulk samples to establish stone size distribution).</li> <li>Sample size, distribution and representivity.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Sample treatment</i>	<ul style="list-style-type: none"> <li>Type of facility, treatment rate, and accreditation.</li> <li>Sample size reduction. Bottom screen size, top screen size and re-crush.</li> <li>Processes (dense media separation, grease, X-ray, hand-sorting, etc).</li> <li>Process efficiency, tailings auditing and granulometry.</li> <li>Laboratory used, type of process for micro diamonds and accreditation.</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Carat</i>	<ul style="list-style-type: none"> <li>One fifth (0.2) of a gram (often defined as a metric carat or MC).</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Sample grade</i>	<ul style="list-style-type: none"> <li>Sample grade in this section of Table 1 is used in the context of carats per units of mass, area or volume.</li> <li>The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For alluvial deposits, sample grades quoted in carats per square metre or carats per cubic metre are acceptable if accompanied by a volume to weight basis for calculation.</li> <li>In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive sample grade (carats per tonne).</li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>

Criteria	JORC Code explanation	Commentary
Reporting of Exploration Results	<ul style="list-style-type: none"> <li>• Complete set of sieve data using a standard progression of sieve sizes per facies. Bulk sampling results, global sample grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample head feed and tailings particle granulometry.</li> <li>• Sample density determination.</li> <li>• Per cent concentrate and undersize per sample.</li> <li>• Sample grade with change in bottom cut-off screen size.</li> <li>• Adjustments made to size distribution for sample plant performance and performance on a commercial scale.</li> <li>• If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from size distribution of exploration diamond samples.</li> <li>• The weight of diamonds may only be omitted from the report when the diamonds are considered too small to be of commercial significance. This lower cut-off size should be stated.</li> </ul>	<ul style="list-style-type: none"> <li>• Not Applicable</li> </ul>
Grade estimation for reporting Mineral Resources and Ore Reserves	<ul style="list-style-type: none"> <li>• Description of the sample type and the spatial arrangement of drilling or sampling designed for grade estimation.</li> <li>• The sample crush size and its relationship to that achievable in a commercial treatment plant.</li> <li>• Total number of diamonds greater than the specified and reported lower cut-off sieve size.</li> <li>• Total weight of diamonds greater than the specified and reported lower cut-off sieve size.</li> <li>• The sample grade above the specified lower cut-off sieve size.</li> </ul>	<ul style="list-style-type: none"> <li>• Not Applicable</li> </ul>
Value estimation	<ul style="list-style-type: none"> <li>• Valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing exploration samples.</li> <li>• To the extent that such information is not deemed commercially sensitive, Public Reports should include: <ul style="list-style-type: none"> <li>○ diamonds quantities by appropriate screen size per facies or depth.</li> <li>○ details of parcel valued.</li> <li>○ number of stones, carats, lower size cut-off per facies or depth.</li> </ul> </li> <li>• The average \$/carat and \$/tonne value at the selected bottom cut-off should be reported in US Dollars. The value per carat is of critical importance in demonstrating project value.</li> <li>• The basis for the price (eg dealer buying price, dealer selling price, etc).</li> </ul>	<ul style="list-style-type: none"> <li>• Not Applicable</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li><i>An assessment of diamond breakage.</i></li> </ul>	
<i>Security and integrity</i>	<ul style="list-style-type: none"> <li><i>Accredited process audit.</i></li> <li><i>Whether samples were sealed after excavation.</i></li> <li><i>Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.</i></li> <li><i>Core samples washed prior to treatment for micro diamonds.</i></li> <li><i>Audit samples treated at alternative facility.</i></li> <li><i>Results of tailings checks.</i></li> <li><i>Recovery of tracer monitors used in sampling and treatment.</i></li> <li><i>Geophysical (logged) density and particle density.</i></li> <li><i>Cross validation of sample weights, wet and dry, with hole volume and density, moisture factor.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>
<i>Classification</i>	<ul style="list-style-type: none"> <li><i>In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne). The elements of uncertainty in these estimates should be considered, and classification developed accordingly.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable</li> </ul>