

Diamond Hole Delivers Thick and High Grades - Exercise of Bluebush Ionic Clay REE Option

First diamond hole intercepts 18.5m @ 1,396ppm TREO (25% MREO) including multiple shallow, high-grades up to 3,426ppm TREO (29% MREO)

HIGHLIGHTS

- As a result of the exceptional first diamond drilling assay result, previous reported exploration results and excellent ionic adsorption testwork recoveries, Alvo has exercised the purchase option over 100% of the Bluebush Ionic Adsorption Clay REE Project (“Bluebush IAC”).
- First diamond drill hole BLD004 returned a broad intercept of 34m at 1,090ppm TREO (24% MREO) from surface (0.5m), containing shallow, high-grade intervals including:
 - 18.5m @ 1,396ppm TREO (25% MREO) from 0.5m
 - Inc. 10.5m @ 1,868ppm TREO (26% MREO) from 0.5m
 - Inc. 3.5m @ 2,961ppm TREO (28% MREO) from 4.1m
- All Intervals contain significant Dysprosium (Dy) and Terbium (Tb), the most valuable of the Magnet rare earths.
- Grades compare favourably to neighbouring Serra Verde IAC deposit which hosts an MRE¹ of 911Mt @ 1,200ppm TREO
- Remaining 5 diamond drill hole assay results are expected to be received in the coming weeks
- Auger results across Bluebush confirm the Boa Vista as the priority prospect, highlights include:
 - 11m @ 1,045ppm TREO from 2m to EOH (25% MREO) in BLG0029
 - Inc. 6m @ 1,179ppm TREO (26% MREO) from 3m
 - 8m @ 1,155ppm TREO (25% MREO) from 0m in BLG0198
 - Inc. 4m @ 1,428ppm TREO (26% MREO) from 2m
- Bluebush IAC due diligence has successfully delivered against Alvo’s key acquisition criteria, being:
 - **Grade:** Identified high-grade TREO and MREO zones at Boa Vista²
 - **Scale:** Mineralisation defined over an initial 3.5km strike and 3.0km width (and open), with Alvo diamond drilling intercepting saprolite clay depths of up to 28m
 - **Ionic Clay Extraction:** Magnet rare earth extractions up to 83% (averaging 56%) using weakly acidic (pH 4), ammonium sulphate wash at ambient temperatures³

¹ For details of the Serra Verde Mineral Resource Estimate, please refer to Serra Verde presentation:

<https://www.cetem.gov.br/antigo/images/palestras/2015/iiisbtr/05-denilson-fonseca.pdf>

² ASX Announcement 8 November 2023 - Thick Saprolite Clays Intercepted at Bluebush Ionic REE Project

³ ASX Announcement 2 November 2023 - Metallurgical Tests Confirm Bluebush as Ionic Adsorption Clay REE Project

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PROJECTS

Palma VMS Cu/Zn Project
Bluebush Ionic Clay REE Project

Shares on Issue 93,130,314
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Alvo Minerals Limited (ASX: ALV) (“Alvo” or the “Company”) is pleased to announce the exercise of the binding agreement to purchase the Bluebush Ionic Adsorption Clay (IAC) Rare Earth Project (“**Bluebush IAC**” or “**The Project**”) as well as exploration results. Bluebush is located on the northern half of the Serra Dourada granite, the same host rock of the Serra Verde Ionic Clay REE deposit (“**Serra Verde**”), believed to be the only ionic clay project currently being commissioned outside of China.

Rob Smakman, Alvo’s Managing Director commented on this critical step:

“Our outstanding first diamond drilling assay result and results of exploration across the Project over the last few months have given us great conviction to exercise the option over Bluebush IAC.

*“We signed the option believing the area could contain a project like our neighbours at Serra Verde and the results delivered to date have confirmed that potential. Our acquisition criteria of **Scale, Grade and Ionic Adsorption Clay Mineralisation** have been met and we are very comfortable in formalising the purchase of the Project. We will continue to expand our understanding of the broader Bluebush IAC REE Project and plan to progress towards a maiden Mineral Resource Estimate in the new year.*

“Alvo is now poised to take advantage of the critical minerals thematic, having been able to demonstrate broad and thick zones of high-grade ionic clays. Bluebush has the added advantage of high levels of the more valuable magnet rare earths, which are the most critical for supply chain security across the world. We believe Bluebush represents a truly unique investment opportunity that we were able to secure through our strong in-country relationships.”

Bluebush IAC Exploration Update

Alvo has completed 6 diamond holes (145m) across the Bluebush IAC REE Project, all of which intersected saprolite clay zones⁴ with widths of up to 28m and averaging 18m (See Figures 1 and 2).

Results from hole BLD004 were prioritised at the lab and the results have included mineralisation from surface (0.5m) to the interface of saprock and fresh rock at ~35m, averaging 1,090ppm Total Rare Earth Oxides (TREO) of which, 24% were the more valuable Magnet Rare Earth Oxides (MREO) (no lower cut-off applied - see Table 1 for more information).

Within the broad saprolite clay interval of 34m @ 1,090ppm TREO (24% MREO), high grade intervals included:

- **18.5m @ 1,396ppm TREO (25% MREO) from 0.5m;**
 - **Inc. 10.5m @ 1,868ppm TREO (26% MREO) from 0.5m;**
 - **Inc. 3.5m @ 2,963ppm TREO (28% MREO) from 4.1m.**
- 6m @ 1,019ppm TREO (21% MREO) from 29m

Diamond drilling is considered fundamental for understanding the thickness and type of saprolite in the oxidised profile. Diamond drill hole BLD004 was drilled approximately 4m east of auger drill hole BRL0008 that delivered exceptional TREO values of 6m @ 2,537ppm TREO (21% MREO) (12% Dy+Tb/MREO), including 3m @ 3,415ppm TREO (24% MREO) (12% Dy+Tb/MREO).

The saprolite thickness in the diamond drilling has varied from a minimum of 9.4m in hole BLD006 to 28.3m in hole BLD004, with an average interval of clay intercepted of 18.3m. It is worth noting that the average depth of the auger drilling completed to date across the Bluebush Project is 8.3m and is often not intercepting the full saprolite profile. Many of the auger holes also end in mineralisation indicating that it’s an excellent tool for first pass exploration, but follow-up exploration using diamond, aircore or reverse circulation drilling is required to fully define the Project’s potential.

⁴ ASX Announcement 8 November 2023 – Thick Saprolite Clays Intercepted at Bluebush Ionic REE Project



Table 1: Significant intercepts from diamond BLD004

BLD004	Length (m)	From	Nd ₂ O ₃ ppm	Pr ₆ O ₁₁ ppm	Dy ₂ O ₃ ppm	Tb ₄ O ₇ ppm	TREO ppm	MREO ppm	HREO ppm	% MREO / TREO
	34.3	0.5	177	55	25	4	1090	260	219	24%
Inc.	18.5	0.5	240	74	34	6	1396	354	288	25%
Inc.	10.5	0.5	329	102	48	8	1868	488	414	26%
Inc.	3.5	4.05	517	162	73	13	2691	766	635	28%

Auger drilling has been an important part of the exploration across Bluebush with new results reported in Appendix 3, Tables 4 and 5. Auger is considered the best and fastest first pass for defining the mineralised areas and results have illustrated the Boa Vista prospect as the best target to date. Better new results from Boa Vista include:

- **11m @ 1,045ppm TREO from 2m to EOH (25% MREO) in BLG0029**
 - **Inc. 6m @ 1,179ppm TREO (26% MREO) from 3m**
- **12m @ 1,042ppm TREO from 0m to EOH (21% MREO) in BLG0182**
- **8m @ 1,155ppm TREO from 0m (25% MREO) in BLG0198**
 - **Inc. 4m @ 1,428ppm TREO (26% MREO) from 2m**
- **1.5m @ 1,345ppm TREO from 4m to EOH (29% MREO) in BLG0208**
- **2.4m @ 1,246ppm TREO from 2m to EOH (29% MREO) in BLG0209**

Additional auger drilling (54 holes) has been completed across Bluebush and results of this work will be reported in a timely manner. Following auger results from Sao Bento, the Company has downgraded the prospect and will focus on Boa Vista.

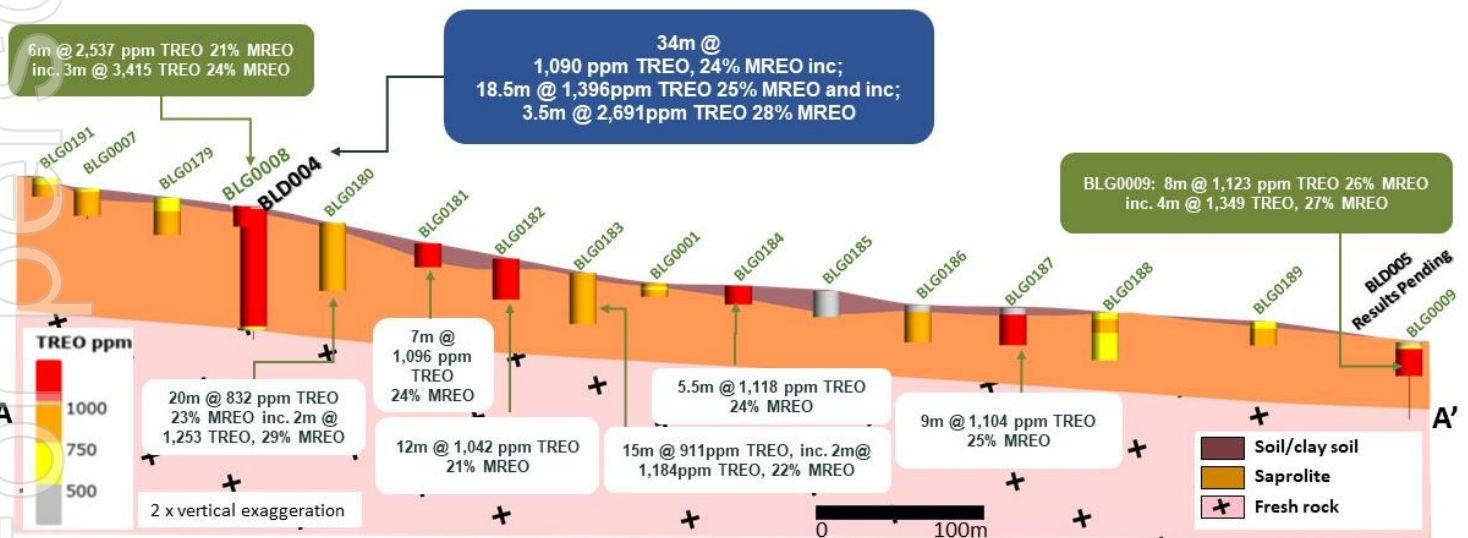


Figure 1: Cross section A-A' through diamond holes BLD004 and BLD005 (results pending). Diamond results are in blue, new auger results in white and previously reported results in green.

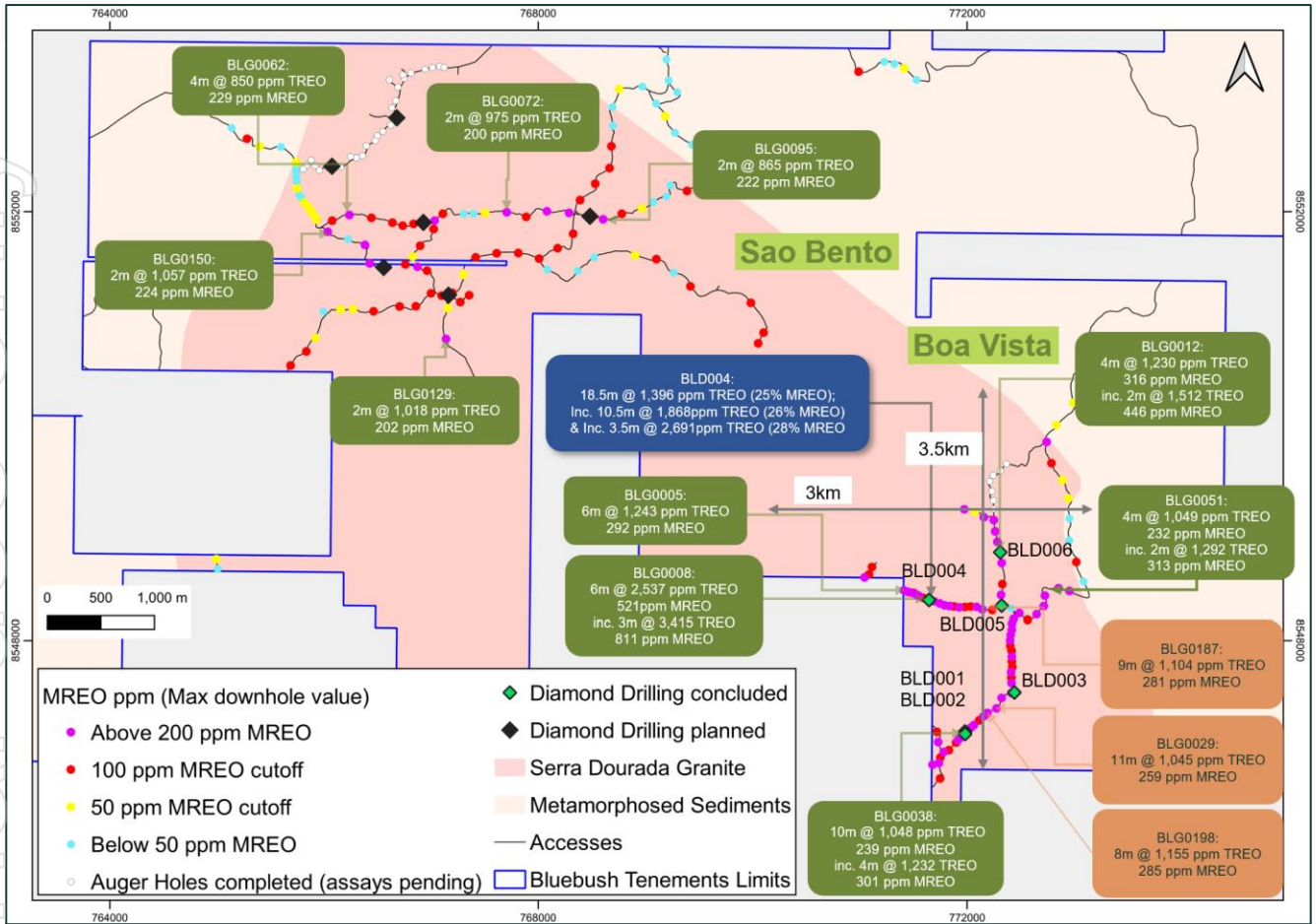


Figure 2: Plan view Bluebush IAC Project with completed diamond holes and significant drilling intercepts (new in blue and orange).

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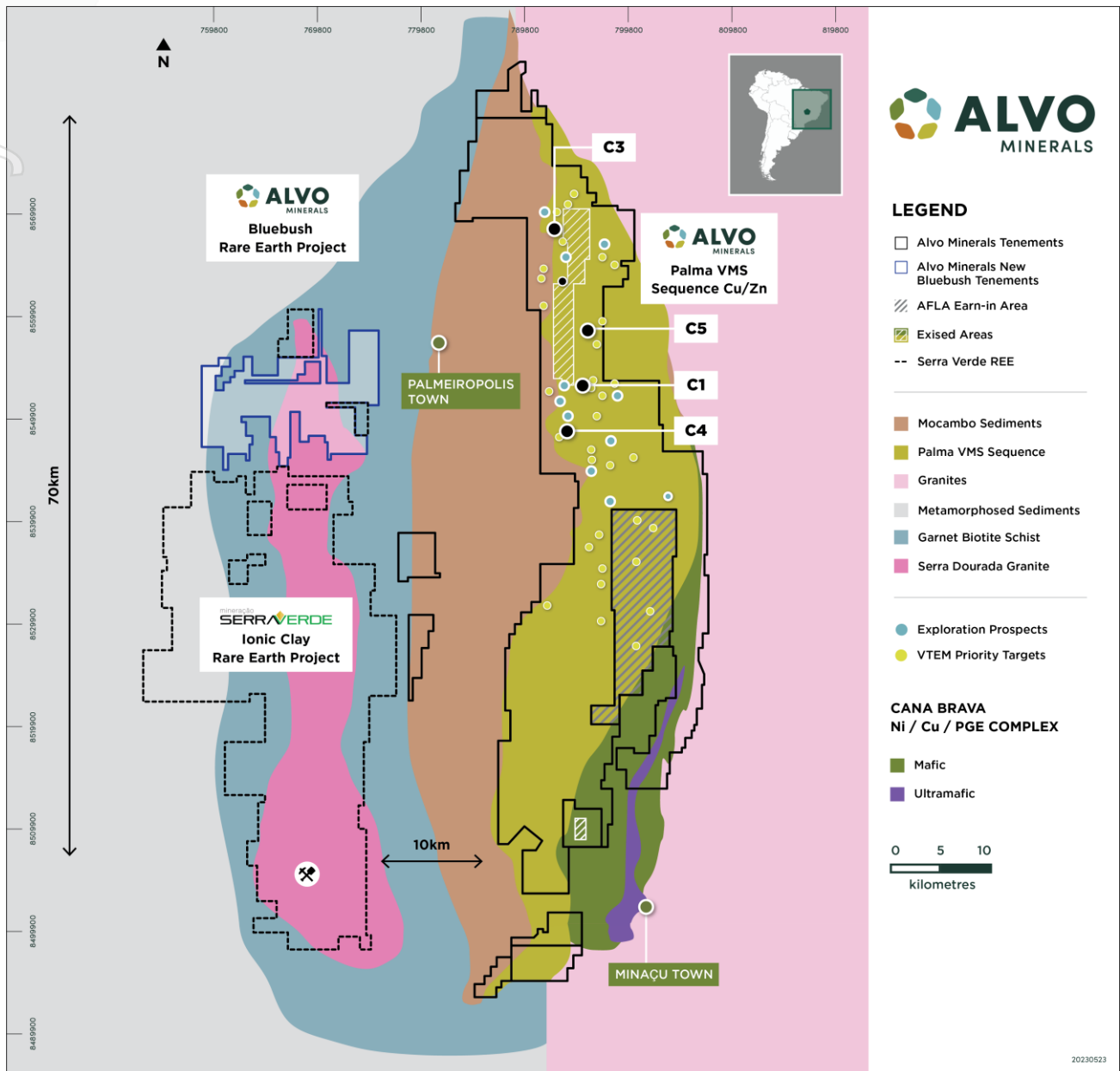


Figure 3: Regional geology and tenement holdings for Alvo's Bluebush REE Project and Palma Project area.

Bluebush IAC Project

Alvo has exercised its option to acquire MINERAÇÃO MATA AZUL S/A, ("**Mata Azul**") a Brazilian company with 8 granted exploration tenements over the Bluebush IAC Project which cover a total of 12,034 hectares (120km²). Bluebush IAC is along strike from and on the same biotite-rich granitic intrusion (Serra Dourada), the same intrusion which hosts the Serra Verde Ionic clay mine (see Figure 3).

Alvo signed the Option agreement in early June 2023, over a project area that had minimal historical exploration, primarily focused on the potential for rare earth and heavy minerals as concentrates. Exploration over the past 6 months was planned and executed to understand whether the Project had the potential to host significant resources of ionic clay-hosted rare earths, similar to the Project's world class neighbour at Serra Verde.



Results released today and over the past months, confirm the boards strong view that the area has the potential to host deposits of ionic clay-hosted rare earths, similar to the neighbouring mine. Ionic clay-hosted deposits are favoured due to their relatively simple and low cost mining and processing, as well as having a higher percentage of the higher value magnet (MREO) and heavy rare earths (HREO).

Alvo's Bluebush Exploration Strategy and Future Work

Alvo is uniquely positioned to rapidly explore and advance Bluebush due to its existing exploration infrastructure, personnel and the equipment the Company has on site in Palmeiropolis.

Now that the Option has been exercised, exploration will shift from confirmatory work as a part of the due diligence to a two-prong strategy.

Exploration work at Boa Vista will focus on drilling and geophysical work designed to advance towards a Maiden Mineral Estimate. Work at Boa Vista will also include a metallurgical testwork program which will be defined in the coming weeks - once all the diamond drilling results have been received.

Exploration will also target the wider tenure, aimed at ensuring that there are no higher priority areas where we have yet to test.

As a systematic, innovative and accelerated exploration program, Alvo intends to:

- Utilise the Loupe Portable Electromagnetic survey system (now operational onsite), to map the thickness and extent of saprolite/clay horizons to prioritise ongoing exploration.
- Auger drilling using Alvo's truck-mounted auger drill rig that has completed 1,471 auger holes for 15,628m⁵ across all of Alvo's Projects since mid-January 2023 (incl. 264 holes for 2,337 at Bluebush).
- Alvo has also recently initiated drilling with a hand-held auger, which is more portable and therefore able to access remote areas of the Project.
- Soil sampling and mapping program is underway, covering areas towards the middle of the Serra Dourada granite. These areas have more difficult access and are therefore being accessed on foot.
- Systematical sampling of the auger and soil samples that are dried overnight, sieved, and analysed using the SciApps X-555 portable XRF analyzer. This analyzer has a higher voltage, providing higher sensitivity for strategic metals, including REEs.
- Samples from ongoing drilling will be sent to an independent lab in Brazil for analysis.

This announcement has been approved for release by the Board of Alvo Minerals Limited.

ENQUIRIES

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⁵ Until end of November 2023



Forward Looking Statements

Statements regarding plans with respect to Alvo's Palma Project and its exploration program are forward-looking statements. Forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside Alvo's control and actual values, results or events may be materially different to those expressed or implied herein. Alvo does not undertake any obligation, except where expressly required to do so by law, to update or revise any information or any forward-looking statement to reflect any changes in events, conditions, or circumstances on which any such forward-looking statement is based.

Competent Person's Statement

The information contained in this announcement that relates to recent exploration results is based upon information compiled by Mr Rob Smakman of Alvo Minerals Limited, a Competent Person and Fellow of the Australasian Institute of Mining and Metallurgy. Mr Smakman is a full-time employee of Alvo and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the "Australasian Code for Reporting of Mineral Resources and Ore Reserves" (or JORC 2012). Mr Smakman consents to the inclusion in this announcement of the matters based upon the information in the form and context in which it appears.

ABOUT ALVO

Alvo Minerals (ASX: ALV) is an active critical minerals exploration company, with a focus on the under-explored Palmeiropolis region of central Brazil.

Alvo is exploring for Rare Earth Elements, with a binding agreement for the purchase of the highly prospective Bluebush Ionic Clay REE project in Central Brazil, adjacent to its existing exploration base. Bluebush is adjacent to and along strike from the Serra Verde Ionic Clay REE project, which is the only Ionic Clay REE project currently in construction outside of China.

The Company is also exploring for base and precious metals, hunting high-grade copper and zinc at its Palma Project, located adjacent to Bluebush in Central Brazil. The Palma Project has a JORC 2012 Inferred Mineral Resource Estimate - 4.6Mt @ 1.0% Cu, 3.9% Zn, 0.4% Pb & 20g/t Ag.

Alvo's strategic intent is to aggressively explore and deliver growth through discovery, leveraging managements' extensive track record in Brazil. There are three phases to the exploration strategy – *Discover, Expand and Upgrade*.

Alvo is committed to fostering best in class stakeholder relations and supporting the local communities in which it operates.



Appendix 1: Bluebush Acquisition Commercial Terms

Commercial Terms

Alvo's wholly owned Brazilian subsidiary Perth Recursos Minerais Ltda. has signed a binding purchase agreement with Mata Azul for 8 exploration permits in Goias and Tocantins state, Central Brazil.

Key terms of the purchase agreement are:

- Alvo will fund and execute exploration across the Project designed to take the Project from initial exploration, Mineral Resource Estimate (“MRE”), Scoping and Pre-feasibility studies (“PFS”). All exploration stages are to be completed according to the JORC code (and relevant Brazilian exploration codes), with the vendor having the right to audit all reports and stages at their expense. At the conclusion of the stages, Alvo will earn an increasing percentage of Mata Azul S/A. The stages are:
 - Presentation of a maiden JORC compliant MRE on the project (Alvo earns 51% in Mata Azul) with a payment of USD\$800,000
 - Presentation of Scoping Study on the Project (Alvo's interest increases to 70% in Mata Azul) with a payment of USD\$800,000
 - Presentation of a PFS on the Project (Alvo's interest increases to 80% in Mata Azul) with a payment of USD\$1,000,000
 - Once Alvo buys the 80% interest in Mata Azul, Alvo can purchase the remaining 20% interest in Mata Azul for 20% of the discounted NPV in the PFS, capped at a maximum value of USD\$20 million (payable in stages).
 - All payments to be made in cash or shares in Alvo (by mutual agreement).
- Additional normal terms have been agreed, which will be included in a purchase and sale contract to be celebrated on exercise of the Option.
- Samples from the auger and diamond drilling will be sent to an independent lab in Brazil for analysis.

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Appendix 2: Full Diamond drill results, collar file, geological log and photo

Table 2: Diamond drill results BLD004 and diamond drill collars

From (m)	Interval (m)	Nd ₂ O ₃	Pr ₆ O ₁₁	Dy ₂ O ₃	Tb ₄ O ₇	TREO	MREO	HREO	MREO/TREO	Significant Intercept
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
0.00	0.50	35	11	10	1	477	57	104	12%	
0.50	0.70	86	26	15	2	958	129	144	14%	
1.20	0.60	101	31	17	2	968	152	166	16%	
1.80	1.20	241	72	33	6	1,454	352	278	24%	
3.00	1.05	246	76	33	6	1,300	361	260	28%	
4.05	0.95	544	170	76	13	2,903	804	654	28%	
5.00	1.00	669	210	101	17	3,426	998	870	29%	
6.00	1.00	463	142	62	11	2,380	678	542	28%	
7.00	0.50	271	89	36	7	1,438	403	315	28%	3.5m @ 2,961ppm TREO (28% MREO)
7.50	0.50	291	90	43	8	1,899	432	363	23%	
8.00	1.00	235	72	42	7	1,475	355	358	24%	
9.00	1.00	335	104	52	9	1,841	500	451	27%	
10.00	0.45	257	79	46	8	1,609	389	379	24%	
10.45	0.55	310	96	41	8	1,778	454	334	26%	10.5 @ 1,868ppm TREO (26% MREO)
12.00	1.50	155	47	22	4	903	228	184	25%	
13.50	1.00	115	35	14	3	733	167	116	23%	
14.50	1.20	117	36	15	3	761	170	118	22%	
15.70	1.30	105	32	11	2	707	151	97	21%	
17.00	1.00	119	36	12	2	703	171	106	24%	
18.00	1.00	100	30	11	2	666	143	91	21%	
19.00	1.00	145	45	15	3	919	208	125	23%	18.5 m @ 1,396ppm TREO (25% MREO)
20.00	0.75	54	16	13	2	475	84	161	18%	
20.75	0.75	17	5	12	1	254	36	166	14%	
21.50	0.50	97	29	11	2	713	140	105	20%	
22.00	1.00	80	24	8	2	497	113	70	23%	
23.00	1.00	101	31	11	2	654	145	102	22%	
24.00	1.00	98	31	18	3	789	150	202	19%	
25.00	1.00	91	28	11	2	627	131	92	21%	
26.00	0.40	87	27	8	2	570	124	71	22%	
26.40	0.60	88	28	9	2	603	127	74	21%	
27.00	1.00	67	21	19	2	641	110	241	17%	
28.00	1.00	29	9	7	1	246	45	84	18%	
29.00	1.00	102	30	20	3	797	155	211	19%	
30.00	1.00	104	32	11	2	703	149	99	21%	
31.00	1.00	305	93	26	5	2,022	430	201	21%	
32.00	1.00	134	44	15	3	931	196	119	21%	
33.00	1.00	135	43	16	3	898	197	120	22%	
34.00	1.00	109	36	16	3	761	164	128	22%	6m @ 1,019ppm TREO (21% MREO)
35.00	0.75	84	26	18	3	618	131	181	21%	
35.75	0.50	60	16	13	2	465	92	127	20%	

Prospect	Drill Hole ID	Easting	Northing	Elevation	EOH (m)	Azimuth	Dip
Boa Vista	BLDH001	771,980	8,547,151	811	21	0	-90
Boa Vista	BLDH002	771,981	8,547,128	780	27	0	-90
Boa Vista	BLDH003	772,441	8,547,516	796	21	0	-90
Boa Vista	BLDH004	771,644	8,548,373	784	39	0	-90
Boa Vista	BLDH005	772,322	8,548,321	754	23	0	-90
Boa Vista	BLDH006	772,309	8,548,819	728	15	0	-90

Table 3: Geological Log for Diamond Hole BLD004

From (m)	To (m)	Interval (m)	Geological unit	Comment
Coord. X: 771,644 Azimuth: 0			DRILL HOLE: BLD004 Prospect: Boa Vista	
Coord Y: 8,548,373 Dip: -90°				
Elev.: 784m SIRGAS2000 ZONE 22S Depth: 38.90m				
0.00	0.50	0.50	SOIL	Dark brown-coloured soil, clayey, presence of quartz coarse grains, organic material (roots).
0.50	6.40	5.90	Saprolite	Saprolite with a clayed sandy texture, orange colour, kaolinite-rich, locally coarse-grained.
6.40	11.00	4.60	Saprolite/ clay	Saprolite with clay texture, brown to grey portions biotite-rich and pale pink portions kaolinite rich.
11.00	12.00	1.00	N.R.	Not recovered interval
12.00	15.70	3.70	Saprolite	Saprolite with clay texture, brown to grey portions biotite-rich and pale pink portions kaolinite rich.
15.70	26.40	8.40	Saprolite	Saprolite with sand clayey texture and grey to yellow colour.
26.40	29.00	2.60	Saprock	Strongly weathered granite, pink-coloured, feldspar-rich, and friable (granite boulder).
29.00	32.20	3.20	Saprolite	Saprolite dark red colour, clayey-sandy texture.
32.20	35.75	3.55	Saprock	Weathered biotite granite, grey to reddish coloured.
35.75	38.90	3.15	Fresh Granite	Biotite granite foliated, reddish coloured, with centimetric intervals of pegmatite.



Drill core photo from BLD004

Appendix 3: Auger drilling significant drillhole intercepts and drill collars

Table 4: Auger drill intercepts

AUGER HOLE ID	From	Length (m)	Nd ₂ O ₃ ppm	Pr ₆ O ₁₁ ppm	Dy ₂ O ₃ ppm	Tb ₄ O ₇ ppm	TREO ppm	MREO ppm	Comments	% MREO / TREO	Prospect
BLG0017	4.0	1.7	146	46	19	3	862	214	Ends in Mineralisation	25%	BOA VISTA
BLG0018	0.0	4.0					NSI	NSI			BOA VISTA
BLG0019	2.0	2.0	163	50	25	4	1,052	242	Ends in Mineralisation	23%	BOA VISTA
BLG0020	0.0	1.0					NSI	NSI			BOA VISTA
BLG0021	0.0	2.0	130	42	17	3	823	191		23%	BOA VISTA
BLG0022	2.0	3.0	167	50	26	5	1,027	248		24%	BOA VISTA
BLG0023	2.0	2.0	147	45	17	3	915	212		23%	BOA VISTA
BLG0025	8.0	1.0	108	31	18	3	752	160		21%	BOA VISTA
BLG0026	1.0	4.0	128	39	17	3	824	187	Ends in Mineralisation	23%	BOA VISTA
BLG0029	2.0	11.0	176	53	26	5	1,045	259	Ends in Mineralisation	25%	BOA VISTA
BLG0030	1.0	1.0	322	76	18	3	1,142	419	Ends in Mineralisation	37%	BOA VISTA
BLG0032	0.0	5.0	107	34	14	2	707	157		22%	BOA VISTA
BLG0033	0.0	9.0	145	46	16	3	865	211		24%	BOA VISTA
Including	2.0	2.0	199	64	17	3	1,075	283		26%	BOA VISTA
BLG0035	0.0	3.8					NSI	NSI			BOA VISTA
BLG0036	3.0	1.0	129	41	16	3	769	189	Ends in Mineralisation	25%	BOA VISTA
BLG0037	2.0	2.0	140	45	17	3	907	205	Ends in Mineralisation	23%	BOA VISTA
BLG0039	2.0	1.0	73	25	10	2	1,067	109	Ends in Mineralisation	10%	BOA VISTA
BLG0041	2.0	1.0	107	35	12	2	865	157	Ends in Mineralisation	18%	BOA VISTA
BLG0042	2.0	2.0	145	45	23	4	901	217		24%	BOA VISTA
BLG0043	3.0	3.0	146	50	16	3	881	216	Ends in Mineralisation	24%	BOA VISTA
BLG0045	0.0	8.0					NSI	NSI			BOA VISTA
BLG0046	2.0	2.0	179	56	30	5	1,103	270	Ends in Mineralisation	25%	BOA VISTA
BLG0047	6.0	1.0	105	34	21	3	822	164	Ends in Mineralisation	20%	BOA VISTA
BLG0049	1.0	3.0	127	41	18	3	882	189		21%	BOA VISTA
BLG0050	1.0	2.0	182	59	20	4	1,037	264	Ends in Mineralisation	25%	BOA VISTA
BLG0056	0.0	4.5					NSI	NSI			SÃO BENTO
BLG0060	0.0	3.0					NSI	NSI			SÃO BENTO
BLG0061	0.0	3.0					NSI	NSI			SÃO BENTO
BLG0063	0.0	3.7					NSI	NSI			SÃO BENTO
BLG0065	0.0	2.8					NSI	NSI			SÃO BENTO
BLG0070	0.0	3.7					NSI	NSI			SÃO BENTO
BLG0071	0.0	3.8					NSI	NSI			SÃO BENTO
BLG0073	0.0	2.0	76	25	16	2	762	119		16%	SÃO BENTO
BLG0077	0.0	5.8					NSI	NSI			SÃO BENTO
BLG0080	4.0	2.0	115	35	23	3	915	176	Ends in Mineralisation	19%	SÃO BENTO
BLG0081	0.0	11.8					NSI	NSI			SÃO BENTO
BLG0083	0.0	5.2					NSI	NSI			SÃO BENTO
BLG0084	0.0	4.8					NSI	NSI			SÃO BENTO
BLG0086	0.0	3.0					NSI	NSI			SÃO BENTO
BLG0089	0.0	4.5					NSI	NSI			SÃO BENTO
BLG0090	0.0	2.0					NSI	NSI			SÃO BENTO
BLG0092	0.0	3.0					NSI	NSI			SÃO BENTO
BLG0093	0.0	2.5					NSI	NSI			SÃO BENTO
BLG0094	0.0	7.6					NSI	NSI			SÃO BENTO
BLG0096	0.0	4.5					NSI	NSI			SÃO BENTO
BLG0097	0.0	5.0					NSI	NSI			SÃO BENTO
BLG0099	0.0	7.7					NSI	NSI			SÃO BENTO
BLG0100	0.0	3.0					NSI	NSI			SÃO BENTO
BLG0103	0.0	6.0					NSI	NSI			SÃO BENTO
BLG0105	0.0	7.4					NSI	NSI			SÃO BENTO
BLG0106	0.0	4.0					NSI	NSI			SÃO BENTO
BLG0107	0.0	7.0					NSI	NSI			SÃO BENTO
BLG0109	0.0	12.0					NSI	NSI			SÃO BENTO
BLG0110	0.0	11.0					NSI	NSI			SÃO BENTO
BLG0111	0.0	1.0					NSI	NSI			SÃO BENTO

AUGER HOLE ID	From	Length (m)	Nd ₂ O ₃ ppm	Pr ₆ O ₁₁ ppm	Dy ₂ O ₃ ppm	Tb ₄ O ₇ ppm	TREO ppm	MREO ppm	Comments	% MREO / TREO	Prospect
BLG0112	0.0	4.0					NSI	NSI			SÃO BENTO
BLG0113	0.0	11.6					NSI	NSI			SÃO BENTO
BLG0117	0.0	4.0	102	31	18	3	781	154		20%	SÃO BENTO
BLG0121	0.0	6.4					NSI	NSI			SÃO BENTO
BLG0123	6.0	2.0	111	33	25	4	865	173		20%	SÃO BENTO
BLG0126	0.0	2.0	96	30	23	3	803	152		19%	SÃO BENTO
BLG0128	0.0	2.0					NSI	NSI			SÃO BENTO
BLG0130	0.0	6.2					NSI	NSI			SÃO BENTO
BLG0133	0.0	4.0					NSI	NSI			SÃO BENTO
BLG0134	0.0	4.0	105	31	17	3	715	156		22%	SÃO BENTO
BLG0135	0.0	3.2					NSI	NSI			SÃO BENTO
BLG0137	0.0	5.7					NSI	NSI			SÃO BENTO
BLG0138	0.0	5.0					NSI	NSI			SÃO BENTO
BLG0140	4.0	1.0	104	32	18	3	822	157	Ends in Mineralisation	19%	SÃO BENTO
BLG0141	0.0	3.5					NSI	NSI			SÃO BENTO
BLG0142	0.0	6.0					NSI	NSI			SÃO BENTO
BLG0143	0.0	11.0					NSI	NSI			SÃO BENTO
BLG0144	0.0	8.4					NSI	NSI			SÃO BENTO
BLG0145	0.0	9.0					NSI	NSI			SÃO BENTO
BLG0146	0.0	8.4					NSI	NSI			SÃO BENTO
BLG0147	0.0	12.0					NSI	NSI			SÃO BENTO
BLG0148	0.0	9.6					NSI	NSI			SÃO BENTO
BLG0151	0.0	1.5					NSI	NSI			SÃO BENTO
BLG0152	2.0	4.0	131	40	22	4	870	197		23%	SÃO BENTO
BLG0155	0.0	2.0	107	33	21	3	787	164		21%	BOA VISTA
BLG0156	0.0	2.0	160	49	28	4	1,099	242		22%	BOA VISTA
BLG0157	0.0	6.0					NSI	NSI			BOA VISTA
BLG0158	0.0	6.0					NSI	NSI			BOA VISTA
BLG0160	0.0	7.5					NSI	NSI			BOA VISTA
BLG0161	0.0	15.0					NSI	NSI			BOA VISTA
BLG0162	0.0	3.0					NSI	NSI			BOA VISTA
BLG0163	0.0	2.5					NSI	NSI			BOA VISTA
BLG0166	0.0	5.0					NSI	NSI			BOA VISTA
BLG0168	0.0	6.0					NSI	NSI			BOA VISTA
BLG0170	0.0	14.0					NSI	NSI			BOA VISTA
BLG0172	0.0	4.0					NSI	NSI			BOA VISTA
BLG0174	0.0	6.4					NSI	NSI			BOA VISTA
BLG0176	0.0	10.0					NSI	NSI			BOA VISTA
BLG0177	0.0	8.0					NSI	NSI			BOA VISTA
BLG0178	0.0	3.0					NSI	NSI			BOA VISTA
BLG0179	4.0	7.0	125	40	20	3	831	188	Ends in Mineralisation	23%	BOA VISTA
BLG0180	0.0	20.0	128	40	18	3	832	190	Ends in Mineralisation	23%	BOA VISTA
Including	4.0	2.0	255	83	25	4	1,253	367		29%	BOA VISTA
BLG0181	0.0	7.0	175	56	23	4	1,096	258	Ends in Mineralisation	24%	BOA VISTA
BLG0182	0.0	12.0	145	45	25	4	1,042	220	Ends in Mineralisation	21%	BOA VISTA
BLG0183	0.0	15.0	127	40	21	3	911	191	Ends in Mineralisation	21%	BOA VISTA
Including	2.0	2.0	175	54	24	4	1,184	257		22%	BOA VISTA
BLG0184	0.0	5.5	181	58	26	4	1,118	269	Ends in Mineralisation	24%	BOA VISTA
BLG0185	0.0	7.8					NSI	NSI			BOA VISTA
BLG0186	2.0	9.0	109	34	19	3	895	164	Ends in Mineralisation	18%	BOA VISTA
BLG0187	2.0	9.0	185	57	33	5	1,104	281	Ends in Mineralisation	25%	BOA VISTA
BLG0188	2.0	4.0	137	43	24	4	853	208		24%	BOA VISTA
BLG0189	2.0	5.0	116	37	19	3	812	175	Ends in Mineralisation	22%	BOA VISTA
BLG0190	0.0	8.0	118	38	18	3	874	177	Ends in Mineralisation	20%	BOA VISTA
Including	6.0	2.0	158	51	26	4	1,072	239		22%	BOA VISTA
BLG0191	2.0	3.5	127	41	18	3	860	188	Ends in Mineralisation	22%	BOA VISTA
BLG0192	2.0	8.0	151	48	23	4	980	226	Ends in Mineralisation	23%	BOA VISTA
BLG0193	2.0	4.0	173	54	23	4	1,050	254		24%	BOA VISTA
BLG0194	0.0	9.0					NSI	NSI			BOA VISTA
BLG0195	2.0	4.0	124	40	17	3	820	184		22%	BOA VISTA
BLG0196	0.0	4.0	120	38	16	3	794	176		22%	BOA VISTA
BLG0197	0.0	11.5					NSI	NSI			BOA VISTA

AUGER HOLE ID	From	Length (m)	Nd ₂ O ₃ ppm	Pr ₆ O ₁₁ ppm	Dy ₂ O ₃ ppm	Tb ₄ O ₇ ppm	TREO ppm	MREO ppm	Comments	% MREO / TREO	Prospect
BLG0198	0.0	8.0	192	60	28	5	1,155	285		25%	BOA VISTA
BLG0199	0.0	10.0	153	46	23	4	945	226		24%	BOA VISTA
Including	6.0	2.0	173	50	29	5	1,062	257		24%	BOA VISTA
BLG0208	4.0	1.5	259	81	37	7	1,345	385	Ends in Mineralisation	29%	BOA VISTA
BLG0209	2.0	2.4	250	76	32	5	1,246	364	Ends in Mineralisation	29%	BOA VISTA
BLG0210	2.0	2.0	186	60	19	3	891	269		30%	BOA VISTA

Table 5: Auger drill collars for holes reported in this release

HOLE_ID	EASTING	NORTHING	RL	EOH	AZIMUTH	DIP	PROJECT	PROSPECT
BLG0017	772156	8549146	753.10	5.70	0	-90	BLUEBUSH	BOA VISTA
BLG0018	772070	8549197	752.95	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0019	771973	8549220	749.62	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0020	772408	8548296	756.24	1.00	0	-90	BLUEBUSH	BOA VISTA
BLG0021	772434	8548199	764.42	10.00	0	-90	BLUEBUSH	BOA VISTA
BLG0022	772417	8548100	775.92	6.70	0	-90	BLUEBUSH	BOA VISTA
BLG0023	772401	8548002	778.86	13.00	0	-90	BLUEBUSH	BOA VISTA
BLG0025	772417	8547805	791.69	11.00	0	-90	BLUEBUSH	BOA VISTA
BLG0026	772410	8547706	794.62	5.00	0	-90	BLUEBUSH	BOA VISTA
BLG0029	772322	8547465	807.10	13.00	0	-90	BLUEBUSH	BOA VISTA
BLG0030	772274	8547367	817.83	2.00	0	-90	BLUEBUSH	BOA VISTA
BLG0032	772112	8547256	822.10	5.80	0	-90	BLUEBUSH	BOA VISTA
BLG0033	772037	8547189	830.87	13.00	0	-90	BLUEBUSH	BOA VISTA
BLG0035	771897	8547048	844.28	3.80	0	-90	BLUEBUSH	BOA VISTA
BLG0036	771829	8546977	843.78	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0037	771781	8546960	840.88	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0039	771717	8547148	827.31	3.00	0	-90	BLUEBUSH	BOA VISTA
BLG0041	771749	8546908	841.53	3.00	0	-90	BLUEBUSH	BOA VISTA
BLG0042	771676	8546841	841.24	5.50	0	-90	BLUEBUSH	BOA VISTA
BLG0043	771736	8546857	842.87	6.00	0	-90	BLUEBUSH	BOA VISTA
BLG0045	771646	8546599	843.74	8.00	0	-90	BLUEBUSH	BOA VISTA
BLG0046	772487	8548252	758.96	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0047	772565	8548191	765.32	7.00	0	-90	BLUEBUSH	BOA VISTA
BLG0049	772715	8548317	747.83	8.00	0	-90	BLUEBUSH	BOA VISTA
BLG0050	772726	8548414	742.87	3.00	0	-90	BLUEBUSH	BOA VISTA
BLG0056	765597	8552604	480.11	4.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0060	765930	8551925	441.21	3.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0061	766075	8551915	434.77	3.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0063	766442	8551942	469.16	3.70	0	-90	BLUEBUSH	SÃO BENTO
BLG0065	766734	8551869	447.95	2.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0070	767395	8551980	435.19	3.70	0	-90	BLUEBUSH	SÃO BENTO
BLG0071	767505	8551987	434.16	3.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0073	767887	8551951	434.10	2.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0077	768181	8551658	439.04	5.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0080	770105	8550870	471.27	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0081	770054	8551062	469.23	11.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0083	769823	8551240	460.91	5.20	0	-90	BLUEBUSH	SÃO BENTO
BLG0084	769630	8551267	457.53	4.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0086	769266	8551430	459.02	3.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0089	768699	8551627	451.94	4.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0090	768523	8551574	463.36	2.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0092	768252	8551358	460.84	3.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0093	768085	8551460	455.12	2.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0094	768406	8551973	453.53	7.60	0	-90	BLUEBUSH	SÃO BENTO

HOLE_ID	EASTING	NORTHING	RL	EOH	AZIMUTH	DIP	PROJECT	PROSPECT
BLG0096	768780	8551980	448.57	4.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0097	768969	8552031	448.20	5.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0099	769198	8552141	455.24	7.70	0	-90	BLUEBUSH	SÃO BENTO
BLG0100	769236	8552245	453.87	3.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0103	769723	8552439	478.55	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0105	769618	8552535	476.91	7.40	0	-90	BLUEBUSH	SÃO BENTO
BLG0106	769438	8552625	472.49	4.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0107	769276	8552736	469.48	7.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0109	769102	8553008	470.16	12.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0110	768972	8553168	475.66	11.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0111	769299	8553115	492.34	1.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0112	769217	8553225	509.98	4.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0113	769197	8553421	525.55	11.60	0	-90	BLUEBUSH	SÃO BENTO
BLG0117	768683	8552610	495.55	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0119	768532	8552260	472.53	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0121	767814	8551613	444.35	6.40	0	-90	BLUEBUSH	SÃO BENTO
BLG0123	767416	8551573	429.63	9.60	0	-90	BLUEBUSH	SÃO BENTO
BLG0126	767355	8551219	422.98	3.40	0	-90	BLUEBUSH	SÃO BENTO
BLG0128	767155	8551098	445.99	2.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0130	767098	8551215	435.47	6.20	0	-90	BLUEBUSH	SÃO BENTO
BLG0133	766705	8551114	426.11	4.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0134	766462	8551069	422.83	4.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0135	766270	8551090	418.53	3.20	0	-90	BLUEBUSH	SÃO BENTO
BLG0137	765993	8551066	414.17	5.70	0	-90	BLUEBUSH	SÃO BENTO
BLG0138	765920	8550821	427.51	5.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0140	765687	8550563	437.00	5.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0141	765738	8552370	489.54	3.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0142	765767	8552156	464.67	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0143	765739	8552414	494.56	11.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0144	765739	8552325	482.03	8.40	0	-90	BLUEBUSH	SÃO BENTO
BLG0145	765747	8552216	469.28	9.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0146	765792	8552122	460.95	8.40	0	-90	BLUEBUSH	SÃO BENTO
BLG0147	765849	8552049	452.65	12.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0148	765876	8552007	450.38	9.60	0	-90	BLUEBUSH	SÃO BENTO
BLG0151	766225	8551743	428.08	1.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0152	766426	8551516	417.27	7.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0155	766961	8551449	405.14	2.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0156	766872	8551485	410.04	3.80	0	-90	BLUEBUSH	SÃO BENTO
BLG0157	766759	8551507	415.77	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0158	766828	8551579	424.82	6.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0160	767023	8551837	433.37	7.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0161	764993	8548756	468.65	15.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0162	765006	8548663	461.57	3.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0163	771527	8553230	677.36	2.50	0	-90	BLUEBUSH	SÃO BENTO
BLG0166	771225	8553398	691.37	5.00	0	-90	BLUEBUSH	SÃO BENTO
BLG0168	773087	8548546	695.85	6.00	0	-90	BLUEBUSH	BOA VISTA
BLG0170	772954	8548930	668.64	14.00	0	-90	BLUEBUSH	BOA VISTA
BLG0172	772945	8549323	617.29	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0173	772890	8549494	612.86	6.00	0	-90	BLUEBUSH	BOA VISTA
BLG0174	772787	8549651	647.10	6.40	0	-90	BLUEBUSH	BOA VISTA
BLG0175	772742	8549849	657.33	17.00	0	-90	BLUEBUSH	BOA VISTA
BLG0176	772833	8550006	641.41	10.00	0	-90	BLUEBUSH	BOA VISTA
BLG0177	772990	8550215	642.86	8.00	0	-90	BLUEBUSH	BOA VISTA
BLG0178	771503	8548438	812.31	3.00	0	-90	BLUEBUSH	BOA VISTA
BLG0179	771594	8548392	803.51	11.00	0	-90	BLUEBUSH	BOA VISTA
BLG0180	771690	8548362	796.14	20.00	0	-90	BLUEBUSH	BOA VISTA
BLG0181	771745	8548341	790.11	7.00	0	-90	BLUEBUSH	BOA VISTA

HOLE_ID	EASTING	NORTHING	RL	EOH	AZIMUTH	DIP	PROJECT	PROSPECT
BLG0182	771790	8548323	785.61	12.00	0	-90	BLUEBUSH	BOA VISTA
BLG0183	771835	8548317	781.41	15.00	0	-90	BLUEBUSH	BOA VISTA
BLG0184	771926	8548305	777.68	5.50	0	-90	BLUEBUSH	BOA VISTA
BLG0185	771978	8548308	776.20	7.80	0	-90	BLUEBUSH	BOA VISTA
BLG0186	772032	8548312	772.05	11.00	0	-90	BLUEBUSH	BOA VISTA
BLG0187	772088	8548309	771.21	11.00	0	-90	BLUEBUSH	BOA VISTA
BLG0188	772141	8548286	769.78	14.00	0	-90	BLUEBUSH	BOA VISTA
BLG0189	772234	8548280	767.14	7.00	0	-90	BLUEBUSH	BOA VISTA
BLG0190	771476	8548443	815.49	9.00	0	-90	BLUEBUSH	BOA VISTA
BLG0191	771524	8548423	809.31	5.50	0	-90	BLUEBUSH	BOA VISTA
BLG0192	772418	8548156	769.18	10.00	0	-90	BLUEBUSH	BOA VISTA
BLG0193	772406	8548053	777.85	7.00	0	-90	BLUEBUSH	BOA VISTA
BLG0194	772402	8547951	782.94	9.00	0	-90	BLUEBUSH	BOA VISTA
BLG0195	772417	8547850	790.09	9.20	0	-90	BLUEBUSH	BOA VISTA
BLG0196	772421	8547753	793.36	15.00	0	-90	BLUEBUSH	BOA VISTA
BLG0197	772412	8547654	796.72	11.50	0	-90	BLUEBUSH	BOA VISTA
BLG0198	772171	8547306	818.24	12.00	0	-90	BLUEBUSH	BOA VISTA
BLG0199	772151	8547291	818.10	11.40	0	-90	BLUEBUSH	BOA VISTA
BLG0200	772131	8547274	819.37	7.00	0	-90	BLUEBUSH	BOA VISTA
BLG0201	772094	8547238	824.78	4.00	0	-90	BLUEBUSH	BOA VISTA
BLG0202	772075	8547222	827.34	6.00	0	-90	BLUEBUSH	BOA VISTA
BLG0203	772059	8547203	829.51	11.90	0	-90	BLUEBUSH	BOA VISTA
BLG0204	772022	8547171	832.45	9.00	0	-90	BLUEBUSH	BOA VISTA
BLG0205	772004	8547151	834.22	9.00	0	-90	BLUEBUSH	BOA VISTA
BLG0206	771987	8547133	835.81	9.00	0	-90	BLUEBUSH	BOA VISTA
BLG0207	771941	8547111	838.13	13.30	0	-90	BLUEBUSH	BOA VISTA
BLG0208	771930	8547089	840.04	5.50	0	-90	BLUEBUSH	BOA VISTA
BLG0209	771913	8547069	842.12	4.40	0	-90	BLUEBUSH	BOA VISTA
BLG0210	772063	8547212	828.86	9.00	0	-90	BLUEBUSH	BOA VISTA

For personal use only



Appendix 4: JORC Tables

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections, note data in this section is extracted from historic reports)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> • <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> • <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i> • <i>Aspects of the determination of mineralisation that are Material to the Public Report.</i> • <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 Nickel that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i> 	<ul style="list-style-type: none"> • Alvo auger drilling: Auger geochemical sampling was completed on 1 or 2 metres continuous samples. The samples are homogenised on a tarp and a representative sample of approximately 1kg is bagged and labelled. Sample information is collected in the field on a tablet. • The samples are dispatched to the independent external lab- SGS Geosol in Goiania. • Sampling was supervised by Alvo Minerals field technicians who described the material of each sample as soil, saprolite or weathered rock.
Drilling techniques	<ul style="list-style-type: none"> • <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> 	<ul style="list-style-type: none"> • Standard-tube diamond drilling by independent drill contractor. Drillhole diameter was variable- HW for collar and friable material, HQ diameter was generally used until the base of complete oxidation and then into fresh rock. Holes are vertical and not oriented. Drill core is not oriented. • Auger drilling was completed using a hydraulic auger drilling machine with a 4.5" auger bit and 2m helicoidal rods. The drilling is open hole, meaning there is a significant chance of contamination from the surface and other parts of the auger hole. Holes are vertical and not oriented.
Drill sample recovery	<ul style="list-style-type: none"> • <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i> • <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i> • <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> 	<ul style="list-style-type: none"> • Recoveries are recorded by both the driller's assistant (on site) and Alvo field assistant once the core has been received at the core shed. Recoveries are measured by comparing the length of the drill run with the amount of core actually recovered. Recovery has averaged 83% for all drilling to date at Bluebush. • Drillers are penalised for poor recovery and are constantly supervised at the rig to ensure care is taken to ensure high recoveries. • No relationship is believed to exist between recovery and grade.

Criteria	JORC Code explanation	Commentary
Logging	<ul style="list-style-type: none"> • 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. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged. 	<ul style="list-style-type: none"> • All holes have been geologically logged by Alvo geologists, to a detail relevant for inclusion in an MRE. Basic geotechnical logging is standard, although with highly weathered clay/saprolite minimal information is collected. • Logging and core processing is both qualitative and quantitative. Core is photographed wet and dry, measured for magnetic susceptibility, conductivity, density, RQD and basic geotechnical logging. All core is structurally logged by geologists to look for planar and linear features. Measurements of these are taken on non-oriented core. • All drilling results reported have been logged by Alvo geologists. Logs include hole number, hole location, date drilled, collar, dip and azimuth as well as qualitative data such as rock type, and descriptions of the colour, alteration, weathering, grainsize, mineralisation and texture. All metreage reported has been logged.
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Drill core is either split by hand or sawn in half. One half (consistently the same half) of the core is sampled. The remaining half is stored by Alvo in its dedicated facility. • Sample size, being generally 1m sample intervals, is appropriate to the material being sampled and considered to be representative.
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The samples are dispatched to SGS in Goiania, where the physical preparation will be done. Analysis will be completed at the SGS Geosol laboratory in Vespasiano (Belo Horizonte) – Minas Gerais state, Brazil. • The SGS Geosol lab sample preparation includes drying, crushing with P75 of 3mm, homogenised, quartered and pulverized of 300g with P95 below 150#. • The SGS Geosol analytical procedures (ICP95A/IMS95A) include lithium metaborate fusion assays by ICP OES/MS, according to standard industry practices. The elements analysed were: Al₂O₃, Ba, CaO, Cr₂O₃, Fe₂O₃, K₂O, MgO, MnO, Na₂O, P₂O₅, SiO₂, Sr, TiO₂, V, Zn, Zr, Ce, Co, Cs, Cu, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Mo, Nb, Nd, Ni, Pr, Rb, Sm, Sn, Ta, Tb, Th, Tl, Tm, U, W, Y, Yb. Also, Loss on Ignition (LOI) was determined by calcining the sample at 1000°C. • No sample duplicates. The Standards and Blanks showed acceptable values.

Criteria	JORC Code explanation	Commentary																																																			
Verification of sampling and assaying	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Significant intercept tables are prepared by Alvo personal and checked by at least one other Company geologist. No twinned holes are being reported. All data was received from Mata Azul in an Access database and checked against lab files (excel and PDF). Adjustments to the data were made- transforming the elemental values into the oxide values. The conversion factors used are included in the table below. Only intervals of saprolite Weighted averages were used to calculate significant intercepts. <table border="1"> <thead> <tr> <th>Element</th> <th>Oxide</th> <th>Factor</th> </tr> </thead> <tbody> <tr><td>Sc</td><td>Sc2O3</td><td>1.5338</td></tr> <tr><td>Ce</td><td>CeO2</td><td>1.1713</td></tr> <tr><td>La</td><td>La2O3</td><td>1.1728</td></tr> <tr><td>Sm</td><td>Sm2O3</td><td>1.1596</td></tr> <tr><td>Nd</td><td>Nd2O3</td><td>1.1664</td></tr> <tr><td>Pr</td><td>Pr6O11</td><td>1.2082</td></tr> <tr><td>Dy</td><td>Dy2O3</td><td>1.1477</td></tr> <tr><td>Eu</td><td>Eu2O3</td><td>1.1579</td></tr> <tr><td>Y</td><td>Y2O3</td><td>1.2699</td></tr> <tr><td>Tb</td><td>Tb4O7</td><td>1.1762</td></tr> <tr><td>Gd</td><td>Gd2O3</td><td>1.1526</td></tr> <tr><td>Ho</td><td>Ho2O3</td><td>1.1455</td></tr> <tr><td>Er</td><td>Er2O3</td><td>1.1435</td></tr> <tr><td>Tm</td><td>Tm2O3</td><td>1.1421</td></tr> <tr><td>Yb</td><td>Yb2O3</td><td>1.1387</td></tr> <tr><td>Lu</td><td>Lu2O3</td><td>1.1371</td></tr> </tbody> </table>	Element	Oxide	Factor	Sc	Sc2O3	1.5338	Ce	CeO2	1.1713	La	La2O3	1.1728	Sm	Sm2O3	1.1596	Nd	Nd2O3	1.1664	Pr	Pr6O11	1.2082	Dy	Dy2O3	1.1477	Eu	Eu2O3	1.1579	Y	Y2O3	1.2699	Tb	Tb4O7	1.1762	Gd	Gd2O3	1.1526	Ho	Ho2O3	1.1455	Er	Er2O3	1.1435	Tm	Tm2O3	1.1421	Yb	Yb2O3	1.1387	Lu	Lu2O3	1.1371
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Location of data points	<ul style="list-style-type: none"> 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. Specification of the grid system used. Quality and adequacy of topographic control. 	<ul style="list-style-type: none"> A GPS is used to locate and records the auger drill collars. No drill holes are downhole surveyed. All location data has been recorded SAD69 (South America 1969 Datum) UTM zone 22S. Topographic control is adequate for the stage of exploration at Bluebush. 																																																			
Data spacing and distribution	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Drillholes are variably spaced utilising existing roads as access. The results reported may be considered in an MRE. No compositing has been applied to the results- apart from weighted averages 																																																			
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> 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 orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. 	<ul style="list-style-type: none"> Auger drilling is shallow and considered as a first pass sampling - generally lines are oriented across the assumed geological terrain. No bias is believed to have occurred. Sampling lengths were generally 0.5-2m downhole, unless there was a specific geological control required by the geologist/technician. No relationship between mineralisation and drilling orientation is known at this stage. 																																																			

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Sample security	<ul style="list-style-type: none"> The measures taken to ensure sample security. 	<ul style="list-style-type: none"> Drillcore is transported from the field to a locked facility by Alvo or drilling staff daily. Samples are prepared in the coreshed by Alvo staff and transported to the lab by a dedicated transport company.
Audits or reviews	<ul style="list-style-type: none"> The results of any audits or reviews of sampling techniques and data. 	<ul style="list-style-type: none"> No audit to date.

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	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The prospects described in the report are all located in Brazil on tenements owned by Mineracao Mata Azul S/A, over which Perth Minerals (Alvo's 100% owned Brazilian Subsidiary) has signed a binding purchase option for up to 100% of the shares in Mata Azul S/A. <table border="1" data-bbox="794 703 1444 1160"> <thead> <tr> <th>Processo</th> <th>Titular</th> <th>Área</th> <th>Fase do processo</th> </tr> </thead> <tbody> <tr> <td>864.251/2004</td> <td>Mineração Mata Azul S A</td> <td>1827,85</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>864.381/2011</td> <td>Mineração Mata Azul S A</td> <td>1456,99</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>864.170/2007</td> <td>Mineração Mata Azul S A</td> <td>1070,8</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>864.059/2012</td> <td>Mineração Mata Azul S A</td> <td>787,88</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>860.066/2009</td> <td>Mineração Mata Azul S A</td> <td>1796,62</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>860.067/2009</td> <td>Mineração Mata Azul S A</td> <td>1875,6</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>864.056/2010</td> <td>Mineração Mata Azul S A</td> <td>95,64</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td>864.612/2008</td> <td>Mineração Mata Azul S A</td> <td>3122,48</td> <td>Autorização de Pesquisa</td> </tr> <tr> <td colspan="2">TOTAL</td> <td>12033,86</td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Alvo has reviewed the publicly available information on the government websites and is comfortable the tenements are in good standing. Additional work will be completed during the due diligence period to verify the veracity of the tenement status and ownership. 	Processo	Titular	Área	Fase do processo	864.251/2004	Mineração Mata Azul S A	1827,85	Autorização de Pesquisa	864.381/2011	Mineração Mata Azul S A	1456,99	Autorização de Pesquisa	864.170/2007	Mineração Mata Azul S A	1070,8	Autorização de Pesquisa	864.059/2012	Mineração Mata Azul S A	787,88	Autorização de Pesquisa	860.066/2009	Mineração Mata Azul S A	1796,62	Autorização de Pesquisa	860.067/2009	Mineração Mata Azul S A	1875,6	Autorização de Pesquisa	864.056/2010	Mineração Mata Azul S A	95,64	Autorização de Pesquisa	864.612/2008	Mineração Mata Azul S A	3122,48	Autorização de Pesquisa	TOTAL		12033,86	
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Exploration done by other parties	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> Exploration was mainly completed by Mata Azul S/A (Project vendors). The work was completed to a high standard for the time and included auger drilling, pitting, trenching and channel sampling. Much of the focus of the historical exploration was completed looking for alluvial and colluvial deposits of REE minerals. Some work was completed by GE21, an independent exploration services company based in Brazil. This work included pitting and auger drilling, comparing against the earlier work of Mata Azul. The work overall appeared to replicate the older work and focussed more on the alluvial potential of the Project. Airborne geophysics. There have been several combined aeromagnetic and radiometric surveys which cover the area, generally flown by Brazilian Government Agencies. These are generally broad spaced and useful for regional context. Maps of radiometrics and magnetics flown by a third party- believed to be Mining Ventures Brazil, covered the area, although the source information is not available. 																																								

Criteria	JORC Code Explanation	Commentary
Geology	<ul style="list-style-type: none"> • <i>Deposit type, geological setting and style of mineralisation.</i> 	<ul style="list-style-type: none"> • The REE occurrences at Bluebush are located on the Serra Dourada Granite (GSD), which is part of the Goiás Staniferous Province. The GSD is an oval and elongated batholith approximately 55km long in the N-S direction by 12km wide. In the intrusion, there have been various phases of post-magmatic alteration identified that generated albitites and greisens mineralized in Sn (Ta-Nb-W), pegmatites mineralized in Be and tourmaline. These granites are generally enriched in U, Th, Nb, F, Li, Ga, Zn and REE including Y with progressive enrichment of the HREE in relation to the LREE in the most metasomatized phases. • Alvo is targeting the saprolite horizon above the granite where enrichment and transformation into ionic adsorption clay REE's may have occurred. Alvo believes the Bluebush project may have the same properties as the Serra Verde Project located 40km to the south.
Drill hole Information	<ul style="list-style-type: none"> • <i>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:</i> <ul style="list-style-type: none"> ○ <i>easting and northing of the drill hole collar</i> ○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i> ○ <i>dip and azimuth of the hole</i> ○ <i>down hole length and interception depth</i> ○ <i>hole length.</i> • <i>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.</i> 	See Collar table in report.
Data aggregation methods	<ul style="list-style-type: none"> • <i>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.</i> • <i>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.</i> • <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i> 	<ul style="list-style-type: none"> • The significant intercepts were calculated using values > 750ppm TREO with up to 3m of consecutive dilution in saprolite samples, generally meter by meter. No upper cuts were used. • To calculate the Total Rare Earth Oxide (TREO) values, the values of CeO₂, La₂O₃, Sm₂O₃, Nd₂O₃, Pr₆O₁₁, Dy₂O₃, Eu₂O₃, Tb₄O₇, Gd₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃ and Y₂O₃ were summed. • To calculate the Magnet Rare Earth Oxide (MREO) values, the values of, Nd₂O₃, Pr₆O₁₁, Dy₂O₃ and Tb₄O₇ were summed. • To calculate the Heavy Rare Earth Oxide (HREO) values, the values of, Dy₂O₃, Tb₄O₇, Gd₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃ and Y₂O₃ were summed. • In hole BLD004, no core was recovered between 11-12m. This No Result (NR) was not included in significant intercept calculations • Weighted averages were calculated for all intercepts.



Criteria	JORC Code Explanation	Commentary
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> • <i>These relationships are particularly important in the reporting of Exploration Results.</i> • <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i> • <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i> 	<ul style="list-style-type: none"> • Mineralisation orientation is not known at this stage, although assumed to be generally flat lying. • The downhole depths are reported, true widths are not known at this stage.
<i>Diagrams</i>	<ul style="list-style-type: none"> • <i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i> 	See diagrams reported in the announcement
<i>Balanced reporting</i>	<ul style="list-style-type: none"> • <i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i> 	All results are reported above the cut-offs described above.
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> • <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i> 	<ul style="list-style-type: none"> • <i>Historical work has been reported previously by Alvo, where work completed generally did not target the clay horizon, more alluvial accumulations of heavy minerals including Monazite and Xenotime the minerals hosting primary REE's.</i> • <i>No other data is considered relevant at this time.</i>
<i>Further work</i>	<ul style="list-style-type: none"> • <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> • <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i> 	<ul style="list-style-type: none"> • Alvo intends to use auger drilling and in areas of high prospectivity, samples will also be tested for their ionic clay potential. • Alvo will conduct soil sampling across the project. A handheld auger has also been purchased and will be utilised to test saprolite horizons in areas of difficult access. • Alvo has recently purchased a Loupe Geophysical mobile electromagnetic equipment, which should be able to map the depth of the saprolite to the granite. Trials are underway with the Loupe system • Alvo has in-house electromagnetic and Induced polarisation survey equipment and is performing FLEM, DHEM and IP surveys in the region. These techniques or others may be utilised during exploration. • Alvo will geologically map and occasionally dig trenches/pits to better understand the under-surface geology and geochemistry.

