

29 June 2022

# **Thick High Grade Rare Earth Element Results**

ABx's current drilling program has discovered a 10 metre thick channel of high-grade rare earth elements (REE) mineralisation at Deep Leads, northern Tasmania

88 new holes completed to date and another 25 holes scheduled to be drilled. Assays for first 20 holes have been received and have tripled the prospective area

This is a significant extension of the ionic adsorption clay (IAC) zone which has achieved excellent extraction rates of 48% to 71% of contained REE under low-cost processing <sup>1</sup>

Six channels of this mineralisation have been identified over considerable distances

ABx Group Limited (ASX: ABX) has received an initial batch of assays from exploration drilling for rare earth element (REE) at Deep Leads deposit, northern Tasmania (see Figures 2 and 3). ABx's mineralisation is mainly the most valuable permanent magnet type of REE.

Hole DL450 was the first hole to reach target depth and it returned 10 metres of REE mineralisation averaging 863ppm TREO, including 6 metres averaging 1,122ppm TREO from 5 metres depth. It discovered the channel that carries the high-grade ionic adsorption clay REE mineralisation westwards towards major channels that are being drilled now.

Hole I	DL45(	0				Permanent magnet REE "SuperMags"					
From	То	TREO	SuperMag	TREO-Ce	Geolo	$Pr_6O_{11}$	$Nd_2O_3$	$Tb_4O_7$	Dy <sub>2</sub> O <sub>3</sub>		
m	m	ppm	ppm	ppm	.09y	ppm	ppm	ppm	ppm		
4	5	143	27	85	100	4.2	17.8	0.7	4.2		
5	6	813	123	325		20.9	86.8	2.3	13.2		
6	7	1158	333	806	Clav	59.2	235.6	5.6	32.9		
7	8	1349	479	1144	layers	86.9	338.2	7.9	46.4		
8	9	1535	546	1373		97.9	379.1	10.1	58.8		
9	10	950	299	789		52.8	207.6	5.6	33.4		
10	11	930	263	787		44.0	173.2	6.3	39.3		
11	12	755	160	701	a state	22.1	92.1	6.0	39.5		
12	13	559	122	502		17.4	71.1	4.4	28.7		
13	14	282	55	248	ar file	7.1	31.0	2.4	14.8		
14	15	302	53	270	and the second	6.8	29.4	2.3	14.9		
15	16	226	40	192		5.5	23.9	1.6	9.5		
16	17	193	35	161	Bedrock	5.0	21.2	1.2	7.6		
17	18	148	29	117	2000 B	4.6	18.3	0.9	5.3		
18	19	226	43	192	1XQ	6.1	25.7	1.5	9.8		

Table 1

Assay results for hole DL450

This intercept is a thick channel of ionic adsorption clay-hosted REE, which is the same type of mineralisation as in DL403 that achieved excellent extraction rates of 48% to 71% under low-cost, relatively benign leaching conditions<sup>1</sup>

The REE mineralisation commences at only 5 metres depth

Note that the hole reached well below the mineralised zone (for the first time).

Intercept 10 metres @ 863ppm TREO, incl 6m @ 1,122ppm TREO

ABx CEO, Mark Cooksey commented, "We've now delineated a channel of thick ionic adsorption clay REE which is good grade, shallow and proven to be easily processed <sup>1</sup>. We await assay results from recent holes into 6 other large channels on the flanks of Deep Leads (see Figure 3). The potential size of REE mineralisation at Deep Leads and the Rubble Mound REE discovery 6 kms east of Deep Leads is becoming substantial. We are also pleased that our improved drilling technology can now penetrate the full thickness of many of our REE mineralisation zones for the first time.

<sup>1</sup> see ASX release 31 May 2022





Figure 1: Deep Leads REE project in recently harvested plantations, northern Tasmania (compare with Figure 2)



Figure 2: Deep Leads drillhole REE grades as total rare earth oxide (TREO). Channel targets shown as green arrows (see Figure 3). Holes DL403 and DL409 achieved good REE extraction rates of 48% to 71% under low-cost, relatively benign leaching conditions and are therefore considered premium targets (see ASX release dated 31 May 2022)

**High grades**: Holes DL450, DL453 and DL462 returned high-grade REE results that extended the area of strong mineralisation. These holes ended while still in the strongly mineralised zone due to drill difficulties with water and broken ground. Hole DL453 intersected 4 metres of clay with high REE grades and assays for shallower samples are still pending. See Table 2.

ABx has drilled 88 new holes at Deep Leads since 19 April. Early results have been received from only 20 holes that are reported here – see Table 2. These results have tripled the prospective area, including 6 major channels shown in Figure 2 above that can extend ABx's



ionic adsorption clay REE mineralisation by over 6.5km towards Rubble Mound discovery – see Figure 3.

## Drilling program continues

ABx's current drillholes in outlying greenfield areas are subject to a Tasmanian State Government, Exploration Drilling Grant Initiative (EDGI) for co-funded exploration drilling projects. ABx and Tasmania's E-Drill's improved drilling technology result in many holes now reaching target depths and collecting cores from important strata using push-tube methods.

The drilling program is planned to continue in July, including testing the 6 major channels at Deep Leads (see Figure 3) and a first pass drill testing of the 6km long extensions between Deep Leads and Rubble Mound project areas.



Figure 3: The REE channels at Deep Leads currently being drill tested are shown in green

This announcement is approved for release by the board of directors.

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#### Table 2: Full REE results from 20 holes at Deep Leads

Hole DL	444				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	$Pr_6O_{11}$	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	$Dy_2O_3$	$Sm_2O_3$	$La_2O_3$	$Y_2O_3$	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	$Gd_2O_3$	Ho <sub>2</sub> O <sub>3</sub>	$\mathrm{Er}_{2}\mathrm{O}_{3}$	$Tm_2O_3$	Yb <sub>2</sub> O <sub>3</sub>	$Lu_2O_3$
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
2	3	363	70	226	10.8	44.3	1.7	13.0	8.8	44.2	74.5	137.0	2.5	9.7	2.2	6.6	0.9	6.0	0.9
3	4	359	76	252	12.1	50.4	1.9	12.0	10.9	46.9	83.4	106.7	3.0	11.9	2.6	7.8	1.1	6.7	1.0
4	2	330	/3 57	239	11.3 8 8	48.1 36.9	1.9	9.7	20.5	42.7 32.4	80.0 64.0	90.4 57.4	3.0	11.8 9.5	2.5	7.3	1.0	5.2	0.9
,	0	247	57	190	0.0	30.9	1.0	5.7	0.0	52.4	04.0	57.4	2.5	9.5	2.1	0.5	0.9	5.5	0.8
Hole DL	445				Permane	nt magne	t REE "Su	perMags"	1										
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	Nd <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	$La_2O_3$	$Y_2O_3$	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
0	1	279	64	216	10.2	42.0	1.7	10.5	9.3	38.3	73.5	63.3	2.6	10.5	2.3	6.8	1.0	5.8	0.9
					-				1										
Hole DL	446	TREA	C	7050.01	Permane	nt magne	t REE "Su	perMags"	6	1.0	N O	6.0	5.0	61.0		5.0	TH O	<b>XI</b> 0	
From	10	TREO	Superiviags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	Nd <sub>2</sub> O <sub>3</sub>	10 <sub>4</sub> 0 <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub>	EU <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	HO <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	1m <sub>2</sub> O <sub>3</sub>	YD <sub>2</sub> O <sub>3</sub>	LU <sub>2</sub> O <sub>3</sub>
1 1	2	<b>ppm</b>	<b>ppm</b>	51	2 6	10.3	0.4	2 /	2 0	10.8	15 5	26 5	0.6	2 1	0.5	1 7	0.2	1 7	0.2
2	3	102	20	63	3.3	13.1	0.4	2.4	2.0	14.8	17.8	39.3	0.6	2.6	0.6	1.8	0.2	1.9	0.2
3	4	167	38	112	6.3	25.3	0.9	5.3	5.1	24.0	30.4	55.2	1.4	5.0	1.0	3.1	0.5	3.3	0.5
					·														
Hole DL	447				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	$La_2O_3$	Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	$Gd_2O_3$	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
5	4	19	3 16	11	0.5	2.1 10.6	0.1	U.6 27	0.5	2.6 10.2	3.U 17 0	1.1	U.1	0.4 2.4	0.1	U.4 1 0	U.1 0 2	U.5	U.1
6	7	82 115	10 25	55 84	3.0	10.0 15.6	0.4	۷.۷ ۲	2.3	10.2 14 R	17.8 28.4	20.8 31 9	0.7 1 1	2.4 3.9	۵.0 1 0	1.9 2 Q	0.3	1.9 2 Q	0.3
	,	115	25			10.0	0.7	5	5.7	14.3	20.4	51.5	1.1	5.5	1.0	2.5	0.4	2.5	0.4
Hole DL	448				Permane	nt magne	t REE "Su	perMags"	1										
From	То	TREO	SuperMags	TREO-Ce	$Pr_6O_{11}$	$Nd_2O_3$	$Tb_4O_7$	$Dy_2O_3$	$Sm_2O_3$	$La_2O_3$	$Y_2O_3$	CeO <sub>2</sub>	$Eu_2O_3$	$Gd_2O_3$	$Ho_2O_3$	$Er_2O_3$	$Tm_2O_3$	$Yb_2O_3$	$Lu_2O_3$
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
4	5	67	10	30	1.6	6.8	0.3	1.8	1.7	5.5	7.1	37.2	0.5	1.6	0.3	1.1	0.1	1.1	0.2
5	6	71	11	33	1.7	7.1	0.4	2.0	1.8	5.6	8.6	37.7	0.6	1.8	0.4	1.2	0.2	1.3	0.2
6	/	69	13	38	1.9	8.2	0.4	2.4	2.2	5.7	10.7	30.6	0.8	2.2	0.5	1.3	0.2	1.4	0.2
Hole DL	448				Permane	nt magne	t REE "Su	perMags"	1										
	-				1														
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	$Dy_2O_3$	$Sm_2O_3$	La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	$Gd_2O_3$	$Ho_2O_3$	$Er_2O_3$	$Tm_2O_3$	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>
From m	To m	TREO ppm	SuperMags ppm	TREO-Ce ppm	Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm	Tb₄O7 ppm	Dy <sub>2</sub> O <sub>3</sub> ppm	Sm <sub>2</sub> O <sub>3</sub> ppm	La <sub>2</sub> O <sub>3</sub> ppm	Y₂O₃ ppm	CeO <sub>2</sub> ppm	Eu <sub>2</sub> O <sub>3</sub> ppm	Gd <sub>2</sub> O <sub>3</sub> ppm	Ho <sub>2</sub> O <sub>3</sub> ppm	Er <sub>2</sub> O <sub>3</sub> ppm	Tm <sub>2</sub> O <sub>3</sub> ppm	Yb₂O₃ ppm	Lu <sub>2</sub> O <sub>3</sub> ppm
From m 7	To m 8	TREO ppm 129	SuperMags ppm 28	TREO-Ce ppm 87	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0	Tb <sub>4</sub> O <sub>7</sub> ppm 0.9	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5	La <sub>2</sub> O <sub>3</sub> ppm 13.6	Y <sub>2</sub> O <sub>3</sub> ppm 26.4	CeO <sub>2</sub> ppm 41.8	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1	Er <sub>2</sub> O <sub>3</sub> ppm 3.1	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5
From m 7 8	To m 8 9	<b>TREO</b> <b>ppm</b> 129 166	SuperMags ppm 28 37	<b>TREO-Ce</b> <b>ppm</b> 87 117	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7	Tb <sub>4</sub> O <sub>7</sub> ppm 0.9 1.2	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6	CeO <sub>2</sub> ppm 41.8 49.3	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7	Lu₂O₃ ppm 0.5 0.6
From m 7 8 9	To m 8 9 10	TREO ppm 129 166 531	SuperMags ppm 28 37 171	TREO-Ce ppm 87 117 478	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5	Tb₄O7 ppm 0.9 1.2 4.3	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2 24.8	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0	CeO <sub>2</sub> ppm 41.8 49.3 53.4	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7
From m 7 8 9 10	To m 8 9 10 11	TREO ppm 129 166 531 814 E mineralisa	SuperMags ppm 28 37 171 277 tion	TREO-Ce           ppm           87           117           478           739	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2 24.8 36.4	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3
From m 7 8 9 10 Hole ende	To m 8 9 10 11 ed in REE	TREO           ppm           129           166           531           814           E mineralisa	SuperMags           ppm           28           37           171           277           tion	TREO-Ce           ppm           87           117           478           739	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2 24.8 36.4	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3	CeO₂ ppm 41.8 49.3 53.4 75.8	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4	Gd₂O₃ ppm 4.9 6.5 26.5 40.2	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6	Lu₂O₃ ppm 0.5 0.6 1.7 2.3
From m 7 8 9 10 Hole ende	To m 8 9 10 11 ed in REE	TREO ppm 129 166 531 814 E mineralisa	SuperMags ppm 28 37 171 277 tion	TREO-Ce           ppm           87           117           478           739	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2 24.8 36.4 perMags"	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3	CeO₂ ppm 41.8 49.3 53.4 75.8	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3
From m 7 8 9 10 Hole ende Hole DL From	To m 8 9 10 11 ed in REE 449 To	TREO ppm 129 166 531 814 E mineralisa	SuperMags ppm 28 37 171 277 tion	TREO-Ce ppm 87 117 478 739 TREO-Ce	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1 Permane Pr <sub>6</sub> O <sub>11</sub>	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub>	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2 24.8 36.4 perMags" Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3
From m 7 8 9 10 Hole ende Hole DL From m	To m 8 9 10 11 ed in REE 449 To m	TREO ppm 129 166 531 814 E mineralisa TREO ppm	SuperMags ppm 28 37 171 277 tion SuperMags ppm	TREO-Ce ppm 87 117 478 739 TREO-Ce ppm	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1 Permane Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm	Tb₄O7 ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O7 ppm	Dy <sub>2</sub> O <sub>3</sub> ppm 5.2 7.2 24.8 36.4 perMags" Dy <sub>2</sub> O <sub>3</sub> ppm	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm
From m 7 8 9 10 Hole ende Hole DL From m 4	To m 8 9 10 11 ed in REE 449 To m 5	TREO           ppm           129           166           531           814           E mineralisa           TREO           ppm           378	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1 Permane Pr <sub>6</sub> O <sub>11</sub> ppm 8.7	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 37.6	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O <sub>7</sub> ppm 1.2	Dy2O3           ppm           5.2           7.2           24.8           36.4           perMags"           Dy2O3           ppm           7.3	Sm2O3 ppm 4.5 6.5 28.1 45.0 Sm2O3 ppm 9.0	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7
From m 7 8 9 10 Hole ende Hole DL From m 4 5	To m 8 9 10 11 ed in REE 449 To m 5 6	TREO           ppm           129           166           531           814           E mineralisa           TREO           ppm           378           295	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60	TREO-Ce ppm 87 117 478 739 TREO-Ce ppm 143 208	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1 Permane Pr <sub>6</sub> O <sub>11</sub> ppm 8.7 8.5	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4	Tb₄O7 ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O7 ppm 1.2 2.00	Dy2O3 ppm 5.2 7.2 24.8 36.4 Dy2O3 ppm 7.3 11.9	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.4	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0
From m 7 8 9 10 Hole ende Hole DL From m 4 5 6	To m 8 9 10 11 ed in REE 449 To m 5 6 7	TREO           ppm           129           166           531           814           E mineralisa           TREO           ppm           378           295           229	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1 Permane Pr <sub>6</sub> O <sub>11</sub> ppm 8.7 8.5 6.2	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6	Tb₄O7           ppm           0.9           1.2           4.3           6.5           t REE "Su           Tb₄O7           ppm           1.2           2.0           1.5	Dy2O3 ppm 5.2 7.2 24.8 36.4 Dy2O3 ppm 7.3 11.9 9.1	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.4 6.6	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8
From         m           7         8           9         10           Hole ende         Hole ende           From         m           4         5           6         Hole DL	To m 8 9 10 11 ed in REE 449 To m 5 6 7 450	TREO           ppm           129           166           531           814           E mineralisa           TREO           ppm           378           295           229	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           26.5         43.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.7           8.5         6.2           Permane         Permane	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6 mt magne	Tb₄O7 ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O7 ppm 1.2 2.0 1.5 t REE "Su	Dy2O3 ppm 5.2 7.2 24.8 36.4 Dy2O3 ppm 7.3 11.9 9.1 9.1	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.4 6.6	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8
From m 7 8 9 10 Hole ende Hole DL From 4 5 6 Hole DL From	To m 8 9 10 11 ed in REE 449 To m 5 6 7 450 To	TREO           ppm           129           166           531           814           E mineralisa           TREO           ppm           378           295           229           TREO	SuperMags ppm 28 37 171 277 tion SuperMags 60 43 SuperMags	TREO-Ce           ppm           87           117           478           739           free-Ce           ppm           143           208           173	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           26.5         43.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.7           8.5         6.2           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.7           8.5         6.2	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6 nt magne Nd <sub>2</sub> O <sub>3</sub>	Tb₄O7 ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O7 ppm 1.5 t REE "Su t REE "Su Tb₄O7	Dy2O3           ppm           5.2           7.2           24.8           36.4           perMags"           Dy2O3           ppm           7.3           11.9           9.1           perMags"           Dy2O3	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.4 6.6	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8
From m 7 8 9 10 Hole ende Hole DL From m 4 5 6 Hole DL From m	To m 8 9 10 11 2d in REE 449 To m 5 6 7 7 450 To m	TREO           ppm           129           166           531           814           E mineralisa           TREO           ppm           378           295           229           TREO           ppm	SuperMags pm 28 37 171 277 tion SuperMags ppm 55 60 43 SuperMags pm	TREO-Ce           ppm           87           117           478           739           IREO-Ce           ppm           143           208           173           208           173	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           5.2         26.5           43.1             Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7           8.5           6.2           Permane           Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.6 37.4 26.6 20 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O <sub>7</sub> ppm 1.2 2.0 1.5 t REE "Su t REE "Su t Bt₄O <sub>7</sub> ppm	Dy2O3           ppm           5.2           7.2           24.8           36.4           perMags"           Dy2O3           ppm           7.3           11.9           9.1           perMags"           Dy2O3           ppm	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.4 6.6 Sm <sub>2</sub> O <sub>3</sub> ppm	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 0.9 1.0 0.9	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm
From m 7 8 9 10 Hole ende From m 4 5 6 Hole DL From m 4	To m 8 9 10 11 449 To m 5 6 7 7 450 7 450	TREO           ppm           129           166           531           814           E mineralisa           ppm           378           295           229           TREO           ppm           378           295           229           TREO           ppm           143	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 SuperMags ppm 27	TREO-Ce           ppm           87           117           478           739           187           187           197           143           208           173           208           173           208           173           85	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           5.2         26.5           43.1             Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7           8.5           6.2           Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           4.2	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6 27.4 26.6 27.4 26.6 27.4 27.4 26.6 27.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.4 27.6 37.6 37.6 37.6 37.6 37.6 37.6 37.6 3	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O <sub>7</sub> ppm 1.2 2.0 1.5 t REE "Su t REE "Su t REE "Su t REE "Su t REE "Su t REE "Su	Dy2O3           ppm           5.2           7.2           24.8           36.4           Dy2O3           ppr           7.2           24.8           36.4           Dy2O3           ppm           7.3           11.9           9.1           perMags"           Dy2O3           ppm           4.2	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.4 6.6 Sm2Q3 ppm 4.2	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7	Tm203 ppm 0.5 0.7 1.9 2.6 Tm203 ppm 0.6 1.0 0.9 Tm203 ppm 0.4	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7
From m 7 8 9 10 Hole ende From m 4 5 6 Hole DL From m 4 5	To m 8 9 10 11 449 To m 5 6 7 450 To m 5 5 6 7	TREO           ppm           129           166           531           814           E mineralisa           205           229           TREO           ppm           378           295           229           TREO           ppm           143           813	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 SuperMags ppm 27 27 123	TREO-Ce           ppm           87           117           478           739           Image: Comparison of the second secon	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           5.2         26.5           43.1             Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7           8.5           6.2           Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           4.2           20.9	Nd2O3 ppm 18.0 23.7 115.5 190.7 Nd2O3 ppm 37.6 37.4 26.6 nt magne Nd2O3 ppm 17.8 86.8	Tb₄O7 ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O7 ppm 1.2 2.0 1.5 t REE "Su Tb₄O7 ppm 0.7 2.3	Dy2O3           ppm           5.2           7.2           24.8           36.4           Dy2O3           ppm           7.2           24.8           36.4           Dy2O3           ppm           7.3           11.9           9.1           perMags"           Dy2O3           ppm           4.2           13.2	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.4 6.6 Sm2Q3 ppm 4.2 17.3	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1 71.3	Y2O3           ppm           26.4           35.6           134.0           194.3           Y2O3           ppm           32.9           77.6           75.1           Y2O3           ppm           22.2           73.4	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3 4.4	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0	Tm203 ppm 0.5 0.7 1.9 2.6 Tm203 ppm 0.6 1.0 0.9 Tm203 ppm 0.4 1.2	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8
From m 7 8 9 10 Hole ende From m 4 5 6 Hole DL From m 4 5 6	To m 8 9 100 11 10 11 10 11 10 10 5 6 7 7 5 6 7 5 6 7 7	TREO           ppm           129           166           531           814           E mineralisa           295           229           TREO           ppm           1378           295           229           TREO           ppm           143           813           1158           1249	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 43 55 60 43 43 27 27 123 333 333	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           85           325           806	Per6011         ppm           4.2         5.2           5.2         26.5           43.1         Permane           Pr6011         ppm           8.7         8.5           6.2         Permane           Pr6011         ppm           4.2         20.9           59.2         20.5	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6 37.4 26.6 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 17.8 86.8 235.6 232.6	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O <sub>7</sub> ppm 1.2 2.0 1.5 t REE "Su t REE "Su Tb₄O <sub>7</sub> ppm 0.7 2.3 5.6	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 4.2 13.2 3.2,9	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.4 6.6 Sm2Q3 ppm 4.2 17.3 48.6	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1 71.3 177.1 26.6	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 195.7	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3 4.4 1.3 4.4 12.3	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2 34.8 40.2	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 2.2	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 2.7	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 1.2 2.9 0.4	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 21.7 8.4 21.7	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Uu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8
From m 7 8 9 10 Hole ende From m 4 5 6 Hole DL From m 4 5 6 7 8	To m 8 9 100 11 10 11 10 11 5 6 7 7 450 7 5 6 7 8 9 7 8 9	TREO           ppm           129           166           531           814           E mineralisa           295           229           TREO           ppm           143           813           1158           1349           125	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 43 SuperMags ppm 27 123 333 479 56	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           REO-Ce           ppm           443           208           173           85           325           806           1143           1233	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           5.2         26.5           43.1         Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7         8.5           6.2         Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7         8.5           6.2         Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         0.9           59.2         86.9           9.7         9.7	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6 nt magne Nd <sub>2</sub> O <sub>3</sub> ppm 17.8 86.8 235.6 338.2 270.1	$Tb_{4}O_{7}$ ppm 0.9 1.2 4.3 6.5 t REE "Su Tb_{4}O_{7} ppm 1.2 2.0 1.5 t REE "Su Tb_{4}O_{7} ppm 0.7 2.3 5.6 7.9 10 10 10 10 10 10 10 10 10 10 10 10 10	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 4.2 13.2 32.9 46.4	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.0 9.4 6.6 Sm <sub>2</sub> O <sub>3</sub> ppm 4.2 17.3 48.6 68.8 76 2	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1 71.3 177.1 260.4	Y2O3           ppm           26.4           35.6           134.0           194.3           Y2O3           ppm           32.9           77.6           75.1           Y2O3           ppm           27.2           73.4           146.7           196.2           252.1	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5 205.1 162.1	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3 4.4 12.3 16.9	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2 34.8 48.3 25.4	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 8.1 2.1	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 26.2 22.2	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 21.4 30.4 27,2	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8
From         m           7         8           9         10           Hole ende         Hole ende           From         m           4         5           6         Hole DL           From         m           4         5           6         7           8         9	To m 8 9 10 11 11 ed in REE 449 To m 5 6 7 7 450 To m 5 6 7 7 8 9 9	TREO ppm 129 166 531 E mineralisa TREO ppm 378 295 229 TREO ppm 143 813 1158 1349 1535 239	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 43 SuperMags ppm 27 123 333 479 546 299	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           TREO-Ce           ppm           443           85           325           806           1144           1373	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           2.6.5         43.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.7           8.5         6.2           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         4.2           20.9         59.2           86.9         97.9           5.2         86.9           97.9         52.8	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 Nd <sub>2</sub> O <sub>3</sub> ppm 37.6 37.4 26.6 37.4 26.6 Md <sub>2</sub> O <sub>3</sub> ppm 17.8 86.8 235.6 338.2 379.1 207.6	$Tb_{4}O_{7}$ ppm 0.9 1.2 4.3 6.5 t REE "Su Tb_{4}O_{7} ppm 1.2 2.0 1.5 t REE "Su Tb_{4}O_{7} ppm 0.7 2.3 5.6 7.9 10.1 5.6	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 4.2 13.2 32.9 46.4 58.8 33.4	Sm <sub>2</sub> O <sub>3</sub> ppm 4.5 6.5 28.1 45.0 Sm <sub>2</sub> O <sub>3</sub> ppm 9.0 9.4 6.6 Sm <sub>2</sub> O <sub>3</sub> ppm 4.2 17.3 48.6 68.8 76.3 39.9	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1 71.3 177.1 260.4 327.2 199.4	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 235.2 205.1 162.1 160.1	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3 4.4 12.3 16.9 19.8 10.6	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2 34.8 48.3 59.4 48.3 59.4 33.0	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 11.2 6.4	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 26.2 33.3 19.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 1.2 2.9 4.2 2.9 4.2 5.2 3.0	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 21.4 30.4 37.3 21.5	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8
From m 7 8 9 10 Hole ende From m 4 5 6 Hole DL From m 4 5 6 7 8 9 10	To m 8 9 10 11 2d in REE 449 To m 5 6 7 7 450 7 8 9 9 10 11	TREO ppm 129 166 531 Emineralisa TREO ppm 378 295 229 TREO ppm 143 813 1158 1349 1535 950 930	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 SuperMags pm 27 123 333 479 546 299 263	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           TREO-Ce           ppm           443           208           173           S5           325           806           1144           1373           789           787	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           26.5         43.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.7           8.5         6.2           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         4.2           20.9         59.2           86.9         97.9           52.8         44.0	Nd2O3 ppm 18.0 23.7 115.5 190.7 115.5 190.7 115.5 37.6 37.6 37.4 26.6 37.4 26.6 37.4 26.6 17.8 8.6 8 235.6 338.2 379.1 207.6 173.2	Tb₄O <sub>7</sub> ppm 0.9 1.2 4.3 6.5 t REE "Su Tb₄O <sub>7</sub> ppm 1.2 2.0 1.5 t REE "Su Tb₄O <sub>7</sub> ppm 0.7 2.3 5.6 7.9 10.1 5.6 7.9	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 4.2 13.2 32.9 46.4 58.8 33.4 39.3	Sm2O3 ppm 4.5 6.5 28.1 45.0 Sm2O3 ppm 9.0 9.4 6.6 Sm2O3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7 203.8	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5 205.1 162.1 160.3 143.1	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2 34.8 48.3 59.4 33.0 35.3	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 11.2 6.3 8.8	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 26.2 33.3 19.3 23.8	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 1.2 2.9 4.2 2.9 4.2 5.2 3.6	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 2.1,4 30,4 37,3 21.5 24,4	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> 3.1 4.3 5.3 3.1 3.5
From m 7 8 9 10 Hole ende From m 4 5 6 7 8 9 10 11	To m 8 9 10 11 11 6 449 To m 5 6 7 450 7 450 7 8 9 9 10 11 12	TREO ppm 129 166 531 Emineralisa TREO ppm 378 295 229 TREO ppm 143 813 1158 1349 1535 950 930 930	SuperMags ppm 28 37 171 277 tion SuperMags ppm 5 60 43 SuperMags ppm 27 123 333 479 546 299 263 160	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           TREO-Ce           ppm           143           208           173           S5           325           806           1144           1373           789           787           701	Permane Permane Permane Pr <sub>6</sub> O <sub>11</sub> ppm 8.7 8.5 6.2 Permane Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 20.9 59.2 86.9 97.9 52.8 4.4.0 22.1	Nd <sub>2</sub> O <sub>3</sub> ppm 18.0 23.7 115.5 190.7 15.5 190.7 10.7 37.6 37.6 37.4 26.6 37.4 26.6 37.4 26.6 17.8 8.8 235.6 338.2 379.1 207.6 173.2 92.1	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 4.2 13.2 32.9 46.4 58.8 33.4 39.3 39.5	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.0 9.4 6.6 Sm2Q3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5 22.4	La <sub>2</sub> O <sub>3</sub> ppm 13.6 16.8 75.2 121.4 La <sub>2</sub> O <sub>3</sub> ppm 25.0 28.6 22.2 La <sub>2</sub> O <sub>3</sub> ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7 203.8 317.5	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5 205.1 162.1 160.3 143.1 54.4	Eu <sub>2</sub> O <sub>3</sub> ppm 1.5 2.0 8.5 13.4 Eu <sub>2</sub> O <sub>3</sub> ppm 2.5 2.9 2.1 Eu <sub>2</sub> O <sub>3</sub> ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2 34.8 48.3 59.4 33.0 35.3 31.7	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 11.2 6.3 8.8 11.2 6.3 8.8	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 26.2 3.3 19.3 23.8 2.3 23.8 27.3	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 1.2 2.9 4.2 5.2 3.0 3.6 3.8	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 2.1,4 30.4 37.3 21.5 24.4 23.1	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> 3.1 4.3 5.3 3.1 3.5 3.7
From m 7 8 9 10 Hole ende Hole DL From m 4 5 6 7 8 9 10 11 11 12	To           m           8           9           10           11           ed in REE           449           To           m           5           6           7           450           To           m           5           6           7           450           To           m           5           6           7           8           9           10           11           12           13	TREO ppm 129 166 531 Emineralisa TREO ppm 378 295 229 TREO ppm 143 1535 1349 1535 950 9300 9300 755 559	SuperMags pm 28 37 171 277 tion SuperMags pm 55 60 43 55 60 43 55 60 43 479 546 299 546 299 263 160 122	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           789           85           325           806           1144           1373           789           787           701           502	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           26.5         24.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.7           6.2         Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.5         6.2           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         4.2           95.2         86.9           97.9         52.8           44.0         22.1           17.4         17.4	Nd2O3 ppm 18.0 23.7 115.5 190.7 nt magne Nd2O3 ppm 37.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 27.4 26.6 37.4 27.4 27.4 27.4 27.4 27.4 27.4 27.4 2	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 pprMags" Dy203 11.9 9.1 Dy203 p.1 Dy203 p.1 2.2 3.11.9 9.1 Dy203 p.1 2.2 3.2 3.2 4.6 4.4 58.8 3.3.4 39.5 28.7	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.4 6.6 Sm2Q3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5 22.4 17.8	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 73.6	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7 203.8 317.5 212.7	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 14.2 34.8 48.3 59.4 33.0 35.3 31.7 23.6	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 HO <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 11.2 6.3 8.8 11.2 6.4	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 26.2 33.3 19.0 26.2 33.3 19.3 23.8 27.3 19.6	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 2.9 4.2 2.9 4.2 5.2 3.0 3.6 3.8 2.8	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 2.1 4.3 0.4 37.3 21.5 24.4 30.4 37.3 21.5 24.4 30.4 37.3 21.5	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 U <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 U <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.5 0.5 0.5 0.5 0.5 0.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
From m 7 8 9 10 Hole ende Hole DL From m 4 5 6 7 8 9 10 11 12 13	To           m           8           9           10           11           ed in Rete           449           To           m           5           6           7           450           To           m           5           6           7           8           9           10           11           12           13           14	TREO ppm 129 166 531 Emineralisa TREO ppm 378 295 229 TREO pm 143 813 1158 1349 1535 950 950 950 950 955 559 282	SuperMags pm 28 37 171 277 tion SuperMags pm 43 SuperMags pm 27 27 23 333 479 546 299 263 160 122 55	TREO-Ce           ppm           87           117           478           739           TREO-Ce           p4           208           173           208           173           80           173           789           787           787           787           787           787           787           787           787           787           782           248	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           26.5         3.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.5           6.2         8.5           6.2         9           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         4.2           S.5         6.2           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         4.2           20.9         59.2           86.9         97.9           52.8         44.0           22.1         17.4           7.1         7.1	Nd2O3 ppm 18.0 23.7 115.5 190.7 nt magne Nd2O3 ppm 37.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 27.4 26.6 37.4 27.4 27.4 27.4 27.4 27.4 27.4 27.4 2	$\begin{tabular}{ c c c c } \hline Tb_4O_7 & ppm & 0.9 & 1.2 & 0$	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 perMags" Dy203 ppm 4.2 13.2 32.9 46.4 58.8 33.4 39.5 28.7 14.8	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5 22.4 17.8 8.5	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 95.3 73.6 29.7	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7 203.8 317.5 212.7 117.3	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0 33.9	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5 2.9	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 1.4.2 34.8 48.3 59.4 33.0 35.3 31.7 23.6 13.0	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 11.2 6.4 7.9 8.7 6.4 3.4	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 7.4 6.3 7.4 6.3 7.4 6.3 7.4 6.3 9.0 26.2 33.3 19.0 26.2 33.3 19.3 23.8 27.3 19.6 9.8	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 2.9 4.2 5.2 3.0 3.6 3.8 2.8 1.3	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 21.4 30.4 37.3 21.5 24.4 30.4 37.3 21.5 24.4 3.2 5.8	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 Lu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 U <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 U <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 U <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0
From m 7 8 9 10 Hole ende From m 4 5 6 7 8 9 10 11 12 13 14	To           m           8           9           10           11           ed in Ret           449           To           m           5           6           7           450           To           m           5           6           7           8           9           10           11           12           13           14           15	TREO           ppm           129           166           531           814           Emineralisa           295           229           TREO           ppm           378           295           229           TREO           ppm           143           813           11535           950           930           7555           282           302	SuperMags pm 28 37 171 277 tion SuperMags pm 43 SuperMags pm 27 123 333 479 546 299 263 140 122 55 53	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           1373           208           177           97           787           789           787           787           787           787           787           787           787           787           782           248           2701	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           26.5         43.1           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         8.5           6.2         Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.5         6.2           Permane         Pr <sub>6</sub> O <sub>11</sub> ppm         4.2           20.9         59.2           86.9         97.9           52.8         44.0           22.1         17.4           7.1         6.8	Nd2O3 ppm 18.0 23.7 115.7 190.7 nt magne Nd2O3 ppm 37.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 27.4 26.6 37.4 26.6 37.4 27.4 27.5 37.4 27.4 27.5 37.4 27.5 37.4 27.5 27.5 37.5 27.5 27.5 27.5 27.5 27.5 27.5 27.5 2	$\begin{array}{c} {} {} {} {} {} {} {} {} {} {} {} {} {}$	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 Dy203 ppm 4.2 13.29 46.4 58.8 33.4 39.5 28.7 14.8 14.9	Sm2Q3 ppm 4.5 6.5 28.1 45.0 Sm2Q3 ppm 9.0 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 6.6 Sm2Q3 ppm 9.4 5.5 Sm2Q3 ppm 9.4 Sm2Q3 ppm 9.4 Sm2Q3 ppm 9.4 Sm2Q3 ppm 9.4 Sm2Q3 ppm 9.4 Sm2Q3 ppm 9.4 Sm2Q3 Sm2Q3 ppm 9.4 Sm2Q3 Sm2 Sm2Q3 Sm2Q3 Sm2 Sm2 Sm2 Sm2 Sm2 Sm2 Sm2 Sm2 Sm2 Sm2	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 73.6 29.7 29.6	Y2O3           ppm           26.4           35.6           134.0           194.3           Y2O3           ppm           32.9           77.6           75.1           Y2O3           PPm           272.6           75.1           Y2O3           P77           73.4           146.7           196.2           252.1           153.7           203.8           317.5           212.7           117.3           141.0	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 CeO <sub>2</sub> ppm 57.9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0 33.9 32.6	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5 2.9 2.5	Gd <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 26.5 40.2 Gd <sub>2</sub> O <sub>3</sub> ppm 7.4 11.6 8.7 Gd <sub>2</sub> O <sub>3</sub> ppm 4.1 1.4 2 34.8 48.3 59.4 33.0 35.3 31.7 23.6 13.0 13.5	Ho2O3 ppm 1.1 1.5 4.8 6.8 Ho2O3 ppm 1.4 2.5 2.0 Ho2O3 ppm 0.9 2.7 6.3 8.8 11.2 6.4 7.9 8.7 6.4 3.4 3.6	Er <sub>2</sub> O <sub>3</sub> ppm 3.1 4.4 13.7 19.3 Er <sub>2</sub> O <sub>3</sub> ppm 4.3 7.4 6.3 Er <sub>2</sub> O <sub>3</sub> ppm 2.7 8.0 19.0 26.2 33.3 19.3 23.8 27.3 19.3 23.8 27.3 19.6	Tm <sub>2</sub> O <sub>3</sub> ppm 0.5 0.7 1.9 2.6 Tm <sub>2</sub> O <sub>3</sub> ppm 0.6 1.0 0.9 Tm <sub>2</sub> O <sub>3</sub> ppm 0.4 2.9 4.2 5.2 3.0 3.6 3.8 2.8 1.3 1.3	Yb <sub>2</sub> O <sub>3</sub> ppm 3.2 4.7 12.5 16.6 Yb <sub>2</sub> O <sub>3</sub> ppm 4.9 6.5 5.4 Yb <sub>2</sub> O <sub>3</sub> ppm 2.7 8.4 21.4 30.4 37.3 21.5 24.4 37.3 21.5 24.4 16.2 5.8 5.5	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.4 1.2 3.1 4.3 5.3 3.1 4.3 5.3 3.1 3.5 3.7 2.5 0.9 0.8
From m 7 8 9 10 Hole ende From m 4 5 6 Hole DL From m 4 5 6 7 8 9 10 11 12 13 14 15	To m 8 9 10 11 11 To m 5 6 7 7 4 50 To m 5 6 7 7 8 9 10 11 12 13 14 15 16	TREO           ppm           129           166           531           814           Emineralisa           295           229           TREO           ppm           378           295           229           TREO           ppm           143           813           1349           1535           950           930           755           259           282           302           226	SuperMags pm 28 37 171 277 tion SuperMags pm 55 60 43 33 479 546 299 263 160 122 55 160 122 55 33 40	TREO-Ce           ppm           87           117           478           739           IREO-Ce           ppm           143           208           173           208           173           208           173           208           1373           789           787           701           502           248           270           192	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           5.2         26.5           43.1             Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7           8.5           6.2           Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           4.2           20.9           59.2           86.9           97.9           52.8           44.0           22.1           17.4           6.8           5.5	Nd2O3 ppm 18.0 23.7 115.5 190.7 Nd2O3 ppm 37.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 17.8 86.8 235.6 338.2 379.1 207.6 173.2 92.1 71.3 1.0 29.4 23.9	Tb₄O7         ppm           0.9         1.2           4.3         6.5           1.2         4.3           6.5         Tb₄O7           ppm         1.2           2.0         1.5           t REE "Su         Tb₄O7           ppm         1.2           2.0         1.5           t REE "Su         Tb₄O7           ppm         0.7           2.3         5.6           7.9         10.1           5.6         6.3           6.0         4.4           2.3         1.6	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 PerMags" Dy203 ppm 4.2 13.2 32.9 46.4 58.8 33.4 39.5 28.7 14.8 14.9 9.5	Sm2Q3 ppm 4.5 6.5 28.1 45.0 9 9 9.0 9.4 6.6 9 9.4 6.6 8 8 8 76.3 39.9 36.5 22.4 17.3 48.6 68.8 8 8.5 8.0 6.0	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 73.6 29.7 29.6 24.9	Y2O3           ppm           26.4           35.6           134.0           194.3           Y2O3           ppm           32.9           77.6           75.1           Y2O3           ppm           22.9           77.6           75.1           Y2O3           ppm           27.2           73.4           146.7           252.1           153.7           203.8           317.5           212.7           117.3           141.0           95.9	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 CeO <sub>2</sub> ppm 234.6 86.4 55.2 234.6 86.4 55.2 235.1 235.1 162.1 160.3 143.1 57.9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0 33.9 32.6 33.7	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5 2.9 2.5 1.9	Gd2O3 ppm 4.9 6.5 26.5 40.2 Gd2O3 ppm 7.4 11.6 8.7 4.1 14.2 34.8 48.3 59.4 33.0 35.3 31.7 23.6 13.0 13.5 9.6	Ho2O3 ppm 1.1 1.5 4.8 6.8 Ho2O3 ppm 1.4 2.5 2.0 Ho2O3 ppm 0.9 2.7 6.3 8.8 11.2 6.4 7.9 8.7 6.4 3.4 3.6 2.2	Er2O3 ppm 3.1 4.4 13.7 19.3 Er2O3 ppm 4.3 7.4 6.3 Er2O3 ppm 2.7 8.0 19.0 26.2 33.3 19.3 23.8 27.3 19.3 23.8 27.3 19.6 9.8 10.6 6.5	Tm203 ppm 0.5 0.7 1.9 2.6 Tm203 ppm 0.6 1.0 0.9 Tm203 ppm 0.4 1.2 2.9 4.2 5.2 3.0 3.6 3.8 2.8 1.3 1.3 0.7	Yb2O3 ppm 3.2 4.7 12.5 16.6 Yb2O3 ppm 4.9 6.5 5.4 Yb2O3 ppm 2.7 8.4 21.4 30.4 37.3 21.5 24.4 23.1 16.2 5.8 5.5 3.5	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.5 0.6 0.8 0.5 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6
From m 7 8 9 10 Hole ende From m 4 5 6 Whee DL From m 4 5 6 7 8 9 10 11 12 13 14 15 16	To m 8 9 10 11 11 To m 5 6 7 8 9 10 11 12 13 14 15 16 17 12	TREO           ppm           129           166           531           814           Emineralisa           295           229           TREO           ppm           378           295           229           TREO           ppm           143           813           1349           1535           950           930           755           559           282           302           226           192	SuperMags pm 28 37 171 277 tion SuperMags pm 55 60 43 43 479 546 299 263 160 122 55 53 160 122 55 53 160 122 55 53 160 122 55 53 160 122 55 53 160 122 55 53 160 122 55 53 160 122 55 55 55 55 55 55 55 55 55	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           789           85           325           1144           1373           789           787           701           248           2701           92           192           161	Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 5.2 26.5 43.1 Permane Pr <sub>6</sub> O <sub>11</sub> ppm 8.7 8.5 6.2 Permane Pr <sub>6</sub> O <sub>11</sub> ppm 4.2 20.9 59.2 86.9 97.9 52.8 44.0 22.1 17.4 6.8 5.5 5.5 5.0	Nd2O3 ppm 18.0 23.7 115.5 190.7 Nd2O3 ppm 37.6 37.4 26.6 37.4 27.7 27.7 27.7 27.7 27.7 27.7 27.7 2	Tb₄O7         ppm           0.9         1.2           4.3         6.5           1.2         4.3           6.5         Tb₄O7           ppm         1.2           2.0         1.5           t REE "Su         Tb₄O7           ppm         1.2           2.0         1.5           t REE "Su         Tb₄O7           ppm         0.7           2.3         5.6           7.9         10.1           5.6         6.3           6.0         4.4           2.3         1.6           1.2         2.4           2.3         1.6           1.2         2.2	Dy203 ppm 5.2 7.2 24.8 36.4 Dy203 ppm 7.3 11.9 9.1 PerMags" Dy203 ppm 4.2 13.2 32.9 46.4 58.8 33.4 39.5 28.7 14.8 14.9 9.5 7.6	Sm2O3 ppm 4.5 6.5 28.1 45.0 Sm2O3 ppm 9.0 9.4 6.6 Sm2O3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5 22.4 17.8 8.5 8.0 6.0 5.0	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 73.6 29.7 29.6 24.9 21.8 2.4	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7 203.8 317.5 212.7 117.3 141.0 95.9 78.6 7.5	CeO2 ppm 41.8 49.3 53.4 75.8 CeO2 ppm 234.6 86.4 55.2 234.6 86.4 55.2 CeO2 ppm 57.9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0 33.9 32.6 33.7 31.4	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5 2.9 2.5 1.9 1.6 10.2 7.4 5.2 9 2.5 1.9 1.6	Gd2O3 ppm 4.9 6.5 26.5 40.2 Gd2O3 ppm 7.4 11.6 8.7 4.1 14.2 34.8 48.3 59.4 33.0 35.3 31.7 23.6 13.0 13.5 9.6 7.8	Ho <sub>2</sub> O <sub>3</sub> ppm 1.1 1.5 4.8 6.8 Ho <sub>2</sub> O <sub>3</sub> ppm 1.4 2.5 2.0 Ho <sub>2</sub> O <sub>3</sub> ppm 0.9 2.7 6.3 8.8 11.2 6.4 7.9 8.7 6.4 3.4 3.6 2.2 1.8	Er2O3 ppm 3.1 4.4 13.7 19.3 Er2O3 ppm 4.3 7.4 6.3 Ppm 2.7 8.0 19.0 26.2 33.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 19.3 23.8 27.3 27.8 27.3 27.8 27.3 27.8 27.3 27.8 27	Tm203 ppm 0.5 0.7 1.9 2.6 Tm203 ppm 0.6 1.0 0.9 Tm203 ppm 0.4 1.2 2.9 4.2 5.2 3.0 3.6 3.8 2.8 3.8 2.8 3.8 2.8 1.3 1.3 0.7 0.7 0.7	Yb2O3 ppm 3.2 4.7 12.5 16.6 Yb2O3 ppm 4.9 6.5 5.4 Yb2O3 ppm 2.7 8.4 21.4 30.4 37.3 21.5 24.4 23.1 16.5 5.8 5.5 3.5 3.5 3.5 3.7	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.7 1.0 0.8 0.5 0.5 0.5 0.6 6 0.6 6 0.6 1.7 2.3
From m 7 8 9 10 Hole ende From m 4 5 6	To m 8 9 10 11 11 5 6 7 8 9 10 11 12 13 14 15 16 17 18 12	TREO           ppm           129           166           531           814           Emineralisa           295           229           TREO           ppm           378           295           229           TREO           ppm           378           295           229           TREO           ppm           143           813           1535           950           930           755           559           282           302           226           193           148	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 43 43 43 479 546 299 263 160 122 55 60 43 479 546 299 263 160 122 55 53 40 122 55 53 40 122 55 53 40 122 55 55 55 55 55 55 55 55 55	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           208           173           208           173           208           173           789           787           701           502           208           209           1144           1373           789           787           701           502           208           2144           2700           192           161           112	Prr6011 ppm 4.2 5.2 26.5 43.1 Permane Pr6011 ppm 8.7 8.5 6.2 Permane Pr6011 ppm 4.2 20.9 59.2 86.9 97.9 52.8 44.0 22.1 17.4 7.4 7.5 5.0 4.6 5.5 5.0 4.6 6.4	Nd203 ppm 18.0 23.7 115.5 190.7 Nd203 ppm 37.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 37.4 26.6 17.2 92.1 71.1 31.0 29.4 23.9 21.2 18.3 25.7	Tb₄O7         ppm           0.9         1.2           4.3         6.5           t REE "Su         Tb₄O7           ppm         1.2           2.0         1.5           t REE "Su         Tb₄O7           ppm         0.7           2.3         5.6           7.9         10.1           5.6         6.3           6.0         4.4           2.3         1.6           1.2         2.3           1.6         1.2           0.9         1.7	Dy203           ppm           5.2           7.2           24.8           36.4           Dy203           ppr           7.2           24.8           36.4           Dy203           ppm           7.3           11.9           9.1           pprMags"           Dy203           ppm           4.2           13.2           32.9           46.4           58.8           33.4           39.3           39.5           28.7           14.8           14.9           9.5           7.6           5.2	Sm2O3 ppm 4.5 6.5 28.1 45.0 Sm2O3 ppm 9.0 9.4 6.6 8 Sm2O3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5 22.4 17.8 8.5 8.0 6.0 5.0 4.4	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 73.6 29.7 29.6 24.9 21.8 18.6 25.0	Y <sub>2</sub> O <sub>3</sub> ppm 26.4 35.6 134.0 194.3 Y <sub>2</sub> O <sub>3</sub> ppm 32.9 77.6 75.1 Y <sub>2</sub> O <sub>3</sub> ppm 27.2 73.4 146.7 196.2 252.1 153.7 203.8 317.5 212.7 117.3 141.0 95.9 78.6 49.5 90.5	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 234.6 86.4 55.2 234.6 86.4 55.2 7 9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0 31.4 3.3 7 32.6 33.7 31.4 31.3	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5 2.9 2.5 1.9 1.6 1.3 1.0	Gd2O3 ppm 4.9 6.5 26.5 40.2 Gd2O3 ppm 7.4 11.6 8.7 4.1 14.2 34.8 48.3 59.4 33.0 35.3 31.7 23.6 13.0 35.3 31.7 23.6 13.5 9.6 7.8 5.5 2.1	Ho2O3 ppm 1.1 1.5 4.8 6.8 Ho2O3 ppm 1.4 2.5 2.0 Ho2O3 ppm 0.9 2.7 6.3 8.8 11.2 6.4 7.9 8.7 6.4 3.6 2.2 1.8 3.4 3.6 2.2	Er2O3 ppm 3.1 4.4 13.7 19.3 Er2O3 ppm 4.3 7.4 6.3 7.4 6.3 2.7 8.0 19.0 26.2 33.3 19.3 23.8 27.3 19.3 23.8 27.3 19.6 6.5 5.3 3.4 4.4	Tm203 ppm 0.5 0.7 1.9 2.6 Tm203 ppm 0.6 1.0 0.9 Tm203 ppm 0.4 1.2 2.9 4.2 5.2 3.0 3.6 3.8 2.8 1.3 1.3 0.7 0.6 0.4	Yb2Q3 ppm 3.2 4.7 12.5 16.6 Yb2Q3 ppm 4.9 6.5 5.4 Yb2Q3 ppm 2.7 8.4 21.4 37.3 21.5 24.4 23.1 16.2 5.5 3.5 3.5 3.1 2.7	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 Uu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Uu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Uu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 0.5 0.6 6 0.6 6 0.6 6 0.5 0.6 6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0
From m 7 8 9 10 Hole ende From m 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Intercent	To m 8 9 10 11 449 To m 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 10 metr 10 10 11 10 10 11 10 10 10 10 10 10 10	TREO           ppm           129           166           531           814           E mineralisa           295           229           TREO           ppm           378           295           229           TREO           ppm           143           813           1535           950           930           755           559           282           302           226           193           143	SuperMags ppm 28 37 171 277 tion SuperMags ppm 55 60 43 43 27 27 23 333 479 546 299 263 160 122 55 53 160 122 55 53 160 122 29 263 333 40 35 29 263 31 20 27 27 263 263 29 263 263 263 263 29 263 263 263 263 27 27 263 263 27 27 263 263 27 27 27 27 27 27 27 27 27 27 27 27 27	TREO-Ce           ppm           87           117           478           739           TREO-Ce           ppm           143           208           173           787           1173           789           787           701           502           248           270           192           161           117           192           117	Pr <sub>6</sub> O <sub>11</sub> ppm           4.2         5.2           5.2         26.5           43.1             Preformane           Pr <sub>6</sub> O <sub>11</sub> ppm           8.7           8.5           6.2           Permane           Pr <sub>6</sub> O <sub>11</sub> ppm           4.2           20.9           59.2           86.9           97.9           52.8           44.0           22.1           17.4           6.8           5.5           5.0           4.6           6.3           RED	Nd203 ppm 18.0 23.7 115.5 190.7 Nd203 ppm 37.6 37.4 26.6 37.4 26.6 Nd203 ppm 17.8 86.8 235.6 338.2 379.1 207.6 173.2 92.1 71.1 31.0 29.4 23.9 21.2 18.3 25.7	$\begin{array}{c} {} {} {} {} {} {} {} {} {} {} {} {} {}$	Dy203           ppm           5.2           7.2           24.8           36.4           Dy203           ppm           7.2           24.8           36.4           Dy203           ppm           7.3           11.9           9.1           Dy203           ppm           4.2           13.2           32.9           46.4           58.8           33.4           39.3           39.5           28.7           14.9           9.5           7.6           5.3           9.8	Sm2O3 ppm 4.5 6.5 28.1 45.0 Sm2O3 ppm 9.0 9.4 6.6 Sm2O3 ppm 4.2 17.3 48.6 68.8 76.3 39.9 36.5 22.4 17.8 8.5 8.0 6.0 5.0 4.4 6.2	La2O3 ppm 13.6 16.8 75.2 121.4 La2O3 ppm 25.0 28.6 22.2 La2O3 ppm 14.1 71.3 177.1 260.4 327.2 199.4 175.3 95.3 73.6 29.7 29.6 24.9 21.8 18.6 25.9	Y2O3           ppm           26.4           35.6           134.0           194.3           Y2O3           ppm           32.9           77.6           75.1           Y2O3           ppm           32.9           77.6           75.1           Y203           ppm           27.2           73.4           146.7           196.2           252.1           153.7           203.8           317.5           212.7           117.3           141.0           95.9           78.6           49.5           90.9	CeO <sub>2</sub> ppm 41.8 49.3 53.4 75.8 234.6 86.4 55.2 234.6 86.4 55.2 7 86.4 55.2 7 9 487.7 352.5 205.1 162.1 160.3 143.1 54.4 57.0 33.9 32.6 33.7 31.4 31.3 3.3	Eu2O3 ppm 1.5 2.0 8.5 13.4 Eu2O3 ppm 2.5 2.9 2.1 Eu2O3 ppm 2.5 2.9 2.1 1.3 4.4 12.3 16.9 19.8 10.6 10.2 7.4 5.5 2.9 2.5 1.9 1.6 1.3 1.9 1.6 1.3 1.9	Gd2O3 ppm 4.9 6.5 26.5 40.2 Gd2O3 ppm 7.4 11.6 8.7 4.1 14.2 34.8 48.3 59.4 33.0 35.3 31.7 23.6 13.0 35.3 31.7 23.6 13.5 9.6 7.8 5.5 9.1	Ho2O3 ppm 1.1 1.5 4.8 6.8 Ho2O3 ppm 1.4 2.5 2.0 Ho2O3 ppm 0.9 2.7 6.3 8.8 11.2 6.4 7.9 8.7 6.4 7.9 8.7 6.4 7.9 8.7 6.4 3.6 2.2 1.8 1.2 2.3	Er2O3 ppm 3.1 4.4 13.7 19.3 Er2O3 ppm 4.3 7.4 6.3 7.4 6.3 7.4 6.3 7.4 6.3 7.4 6.3 9.0 19.0 26.2 33.3 19.6 6.2 33.3 19.3 23.8 27.3 19.6 6.5 5.3 3.4 6.4	Tm203 ppm 0.5 0.7 1.9 2.6 Tm203 ppm 0.6 1.0 0.9 Tm203 ppm 0.4 1.2 2.9 4.2 5.2 3.0 3.6 3.8 2.8 1.3 1.3 0.7 0.6 0.4 0.9	Yb2O3 ppm 3.2 4.7 12.5 16.6 Yb2O3 ppm 4.9 6.5 5.4 Yb2O3 ppm 2.7 8.4 21.4 30.4 37.3 21.5 24.4 23.1 16.2 5.5 3.5 3.5 3.1 2.7 4.7	Lu <sub>2</sub> O <sub>3</sub> ppm 0.5 0.6 1.7 2.3 ppm 0.7 1.0 0.8 Uu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 Uu <sub>2</sub> O <sub>3</sub> ppm 0.7 1.0 0.8 0.7 1.0 0.8 0.5 0.5 0.5 0.6 0.8 0.5 0.5 0.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5

Hole DL	451				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	$Pr_6O_{11}$	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	$Dy_2O_3$	$Sm_2O_3$	$La_2O_3$	$Y_2O_3$	CeO <sub>2</sub>	$Eu_2O_3$	$Gd_2O_3$	$Ho_2O_3$	$\mathrm{Er}_{2}\mathrm{O}_{3}$	$Tm_2O_3$	$Yb_2O_3$	$Lu_2O_3$
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
1	2	103	24	84	3.8	15.4	0.7	4.3	3.5	15.9	29.1	18.8	1.0	3.7	0.9	2.7	0.4	2.4	0.4
2	3	77	16	55	2.3	9.9	0.5	3.4	2.6	8.3	17.5	22.1	0.7	2.6	0.8	2.3	0.4	3.1	0.5
3	4	103	18	56	2.8	11.8	0.5	3.0	2.9	10.2	17.3	46.6	0.8	2.7	0.6	1.6	0.3	1.7	0.3
4	5	345	51	145	8.2	34.5	1.2	7.2	8.0	27.7	39.1	199.6	2.2	7.4	1.4	3.8	0.6	3.7	0.5
5	6	363	85	288	11.3	52.8	3.0	18.0	14.7	38.8	102.6	74.6	4.8	18.8	3.6	9.7	1.3	7.4	1.1
Hole ende	ed in REE	mineralisa	tion																



#### Table 2 continued: Full REE results from 20 holes at Deep Leads

Hole DI	452				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	$Pr_6O_{11}$	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	$Dy_2O_3$	$Sm_2O_3$	$La_2O_3$	$Y_2O_3$	CeO <sub>2</sub>	$Eu_2O_3$	$Gd_2O_3$	$Ho_2O_3$	$Er_2O_3$	$Tm_2O_3$	Yb <sub>2</sub> O <sub>3</sub>	$Lu_2O_3$
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
4	5	239	39	120	6.5	25.8	1.0	6.0	6.3	23.7	33.8	119.5	1.7	5.7	1.3	3.6	0.5	3.4	0.5
5	6	269	56	162	9.2	37.4	1.3	7.9	8.5	30.7	44.6	106.6	2.4	8.0	1.6	4.8	0.7	4.3	0.7
6	7	187	36	134	5.6	22.6	1.1	6.9	5.3	21.0	52.2	52.8	1.6	6.3	1.5	4.5	0.7	4.1	0.7
Hole DI	453				Permane	nt magne	t REE "Su	perMags"	1										
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	Nd <sub>2</sub> O <sub>2</sub>	Tb₄O <sub>7</sub>	Dv <sub>2</sub> O <sub>2</sub>	Sm <sub>2</sub> O <sub>2</sub>	La <sub>2</sub> O <sub>2</sub>	Y <sub>2</sub> O <sub>2</sub>	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>2</sub>	Gd <sub>2</sub> O <sub>2</sub>	Ho <sub>2</sub> O <sub>2</sub>	Er <sub>2</sub> O <sub>2</sub>	Tm <sub>2</sub> O <sub>2</sub>	Yb <sub>2</sub> O <sub>2</sub>	Lu <sub>2</sub> O <sub>2</sub>
m	m	maa	maa	maa	mag	maa	maa	maa	maa	maa	maa	maa	maa	ppm	maa	maa	maa	maa	ppm
2	3	assays p	ending			1.1.			1.1.	F F				P P	1.1.	I' I'	- F F	1.1	- F F
3	4	assays p	ending																
4	5	2721	1041	2491	191.5	736.0	17.8	96.1	154.8	630.9	392.4	230.3	41.7	117.0	17.0	44.5	6.2	39.3	5.5
5	6	1586	480	1252	84.8	333.6	9.4	52.6	71.2	307.3	246.4	334.1	19.5	59.8	9.8	26.9	3.8	23.9	3.3
6	7	1424	368	941	65.4	255.4	7.1	40.1	54.8	218.7	187.9	482.7	15.1	45.4	7.5	20.3	2.8	18.1	2.5
7	8	527	111	316	19.3	74.9	2.4	14.5	16.9	65.0	83.4	210.7	4.7	14.9	2.9	7.9	1.1	7.0	1.0
Hole end	ed in mir	neralisation.	Shallower samp	le assays pend	ling.														
Hole DI	454				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	Nd <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	$Er_2O_3$	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	$Lu_2O_3$
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
2	3	313	77	206	13.4	52.6	1.6	9.0	10.9	44.9	48.6	107.0	3.0	9.7	1.8	4.8	0.7	4.3	0.6
3	4	175	40	110	6.9	27.3	0.8	4.9	5.9	23.8	26.8	65.1	1.7	5.2	1.0	2.7	0.4	2.5	0.4
	455				Permano	nt magne	t RFF "S	nerMags"											
From	To	TPEO	SuperMace	TREO Co	Pr O	Nd O			Sm O	12.0	V.0	CeO	Eu O	Gd O	Ho O	Fr. O	Tm O	Vh.O	10.0
m	m	nnm	nnm	nnm	nnm	nnm	nnm	nnm	nnm	nnm	npm	nnm	nnm	nnm	npm	nnm	nnm	npm	nnm
2	2	187	28	80	4 7	18 7	0.7	4 1	4.6	14 9	19.9	107 5	1 3	4.0	0.8	2.5	0.4	2.8	0.4
3	4	447	34	94	5.7	22.9	0.8	4.8	5.8	17.6	23.1	352 5	1.6	4.8	1.0	2.6	0.4	2.7	0.4
6	7	403	92	288	13.8	60.2	2.6	15.5	14.6	44.9	94.1	114.5	4.6	16.5	3.1	8.6	1.2	7.2	1.1
7	8	270	60	206	9.1	37.8	1.8	11.2	9.7	31.1	74.4	64.2	3.1	11.2	2.3	6.7	0.9	5.5	0.8
Hele P	450				Dorm	nt ma	+ DEC 110	nort4=-"											
HOIE DL	450	TOFO	Cum and days	TREA	Permane	Int magne	TH O	periviags"	See O	10.0	V C	6-0	Ev. C	C1 0	H- 0	Et C	Ter	VE C	111.0
From	10	IKEO	Superiviags	TREU-Ce	Pr <sub>6</sub> O <sub>11</sub>	ING <sub>2</sub> O <sub>3</sub>	10 <sub>4</sub> 0 <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sin <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> U <sub>3</sub>	Y <sub>2</sub> U <sub>3</sub>	CeO <sub>2</sub>	EU <sub>2</sub> O <sub>3</sub>	GG2O3	H0 <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> U <sub>3</sub>	Im <sub>2</sub> O <sub>3</sub>	10 <sub>2</sub> U <sub>3</sub>	
m 2	2	160	20	<b>ppm</b>		10.9	ppm 0.9	4 6	2 ppm	14.9	25.5	72.0	1 2	2 ppm	ppm	2.6	ppm 0.4	2 2 2	0 2
2	Л	160	25	87 74	3.0	19.8	0.8	4.0	4.7	14.0	25.5	75.0 01.4	1.5	4.0 3.0	0.9	2.0	0.4	2.5	0.5
4	5	198	29	96	4.7	18.9	0.8	4.9	4.4	16.8	32.3	101.8	1.3	4.5	1.0	3.0	0.4	2.7	0.4
<u> </u>																			
Hole DI	.457				Permane	nt magne	t REE "Su	perMags"				1							
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	$Y_2O_3$	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	$Gd_2O_3$	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
6	/	53	25	23	1.1	4.8	0.2	1.2	1.2	3.9	6./ 20.7	30.6	0.3	1.1	0.3	0.7	0.1	0.8	0.1
,	ð 0	211 591	25	75 170	4.0	10.1	0.7	4.1	4.0	13.8 21.2	20.7	135.7	1.2	3.8 9.7	1.0	2.5	0.4	2.4	0.4
9	10	442	85	267	12.9	54.5	2.5	5.2 15.4	13.5	43.5	44.0 87.4	175.0	2.0 4.3	13.9	3.2	9.2	1.4	9.0	13
Hole end	ed in REI	E mineralisa	tion	207	12.0	55	2.0	1011	10.0	1010	02.11	1/5/0		10.0	0.2	5.2	1.1	510	1.0
	150				Dormano	nt magne	+ DEE "C	norMage"											
From	.450 To	TREO	SuporMage	TREO Co	Pr O	Nd O			Sm ()	12.0	V O	600	Eu O	Cd O		Er O	Tm O	Vh O	
m	m	nnm	nnm	nnm	nnm	nnm	nnm	nnm	nnm	nnm	npm	nnm	nnm	nnm	nnm	nnm	nnm	nnm	nnm
4	5	60	10	31	15	6.5	03	1.6	1 5	5.9	9.1	28.6	0.5	1.5	0.3	0.9	0.1	1.0	0.1
7	8	117	18	54	2.9	11.7	0.4	2.8	2.9	11.1	14.2	63.6	0.8	2.6	0.6	1.7	0.3	1.7	0.3
8	9	208	27	82	4.4	17.4	0.7	4.3	4.2	16.2	22.5	126.5	1.1	3.9	0.8	2.6	0.4	2.7	0.4
9	10	271	44	156	6.6	27.3	1.3	8.4	6.9	24.0	58.5	114.9	1.9	7.8	1.8	5.1	0.8	4.6	0.8
	450				Permana	nt mages	+ DEE "C	perMage"											
From	.439 To	TDEO	SuperMag	TREO Co		Nd O	Th O	periviags"	Sm O	12.0	V O	600	Eu O	64.0	Halo	Er O	Tm O	Vh O	
m	m	nneu	Superiviags	nne0-08	nnm	nu <sub>2</sub> O <sub>3</sub>	nnm	Dy <sub>2</sub> U <sub>3</sub>	nnm	La <sub>2</sub> U <sub>3</sub>	1 <sub>2</sub> U <sub>3</sub>	002	Lu <sub>2</sub> O <sub>3</sub>	00203	n0 <sub>2</sub> 0 <sub>3</sub>	L1203	nn <sub>2</sub> O <sub>3</sub>	nnm	Lu <sub>2</sub> U <sub>3</sub>
5	6	64	12	42	2 0	7 9	0.3	<del>اانېم</del> ۲ ۲	1 R	8.2	14 4	20.5	0.5	1 9	0.5	1 3	0.2	15	0.3
6	7	39	8	25	1.2	4.9	0.2	1.3	1.1	4.7	7.7	14.5	0.3	1.1	0.3	0.8	0.1	0.9	0.1
7	8	87	18	60	2.8	11.3	0.5	3.1	2.5	10.2	21.1	26.8	0.8	2.8	0.7	2.0	0.3	2.1	0.3
	460				Derror	nt na		nort ("				•							
Hole DL	460	TOFO	Current de la	TREA	Permane	Int magne	TH C	periviags"	See O	10.0	V C	6-0	Ev. C	C10	H= 0	Et O	Ter	VE C	111.0
From	10	TREO	Superiviags	TREU-Ce	Pr <sub>6</sub> O <sub>11</sub>	ING <sub>2</sub> O <sub>3</sub>	10 <sub>4</sub> 0 <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Srn <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> U <sub>3</sub>	CeO <sub>2</sub>	EU <sub>2</sub> O <sub>3</sub>	Ga <sub>2</sub> O <sub>3</sub>	H0 <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Im <sub>2</sub> O <sub>3</sub>	10 <sub>2</sub> 0 <sub>3</sub>	LU <sub>2</sub> O <sub>3</sub>
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
5	ь 7	4U 02	6 7	24		3.8 17	0.2	1.2	0.9	5.U 1 E	8.1 6 F	15.7	0.2	0.9 1 1	0.3 0.2	0.9 0.6	0.1	1.1	0.2
0	/	00	1	22		4./	0.2	1.0	1.1	4.0	0.5	00.9	0.5	1.1	0.2	0.0	0.1	0.0	0.1
Hole DI	.461				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	Nd <sub>2</sub> O <sub>3</sub>	Tb <sub>4</sub> O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
4	5	46	6	18	1.0	3.7	0.1	0.8	0.8	4.2	5.1	27.5	0.2	0.7	0.2	0.5	0.1	0.6	0.1
5	6	94	18	64	2.8	11.3	0.5	3.4	2.7	10.8	23.4	29.8	0.8	3.1	0.7	2.1	0.3	2.0	0.3
Hole DI	462				Permane	nt magne	t REE "Su	perMags"											
From	То	TREO	SuperMags	TREO-Ce	Pr <sub>6</sub> O <sub>11</sub>	$Nd_2O_3$	Tb <sub>4</sub> O <sub>7</sub>	Dy <sub>2</sub> O <sub>3</sub>	$Sm_2O_3$	La <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>	CeO <sub>2</sub>	Eu <sub>2</sub> O <sub>3</sub>	$Gd_2O_3$	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>
m	m	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
8	9	150	32	85	5.8	21.9	0.6	3.3	4.8	24.0	15.2	65.3	1.4	4.0	0.6	1.6	0.2	1.4	0.2
9	10	146	24	68	4.3	15.9	0.5	2.9	3.7	19.1	13.7	77.4	1.1	3.3	0.6	1.5	0.2	1.4	0.2
10	11	280	30	88	5.2	19.8	0.7	4.4	4.7	21.3	19.0	192.2	1.5	4.6	0.8	2.3	0.4	2.3	0.3
11	12	218	36	104	6.1	23.7	0.9	5.1	5.8	23.8	24.1	113.9	1.8	5.5	1.0	2.7	0.4	2.5	0.3
12	13	381	80	188	13.2	56.0	1.7	9.0	14.4	33.4	34.9	192.9	4.2	10.8	1.6	4.0	0.5	3.5	0.5
13	14	612 1540	170	42/	29.4	12U.1	3.2 11 7	10.9	20.9	700'E	/b.3 2505	184.9	7.3 20.4	22.0 72.6	3.1 12 -	ל. b קר בק	1.U A E	0.5 200	0.9
14		- 1 to 1 to 1	427	1242	1 05.7	203.0	11.Z	04./	DD.Ö	220.5	330.3	1 JU/.1	20.4	12.0	12.0	33.7	4.0	20.Ŏ	4.0

Hole ended in REE mineralisation



Table 3Location data for the20 holes at Deep Leadsreported in Table 2

	Hole ID	Northing	Easting
		GDA	94
e)	DL444	5409898	477934
-)/ -)	DL445	5409944	478039
1),	DL446	5410780	478477
m	DL447	5410145	478339
(Y)	DL448	5410121	478399
	DL449	5410178	478414
	DL450	5410185	478360
IN	DL451	5410226	478419
es,	DL452	5410234	478368
ts.	DL453	5410294	478427
	DL454	5410305	478367
	DL455	5410350	478441
nic	DL456	5410360	478395
nd	DL457	5410334	478566
en	DL458	5410379	478607
he	DL459	5410323	478623
Lu	DL460	5410310	478673

5410340

5409261

5409110

478780

478696

478605

DL461

DL462

DL463

#### Glossary of technical terms

**Rare earth elements**: ("REE") are lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), promethium (Pm), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb) and lutetium (Lu). Yttrium (Y) is also usually included with the REE.

**Super magnets and permanent magnets**: REE super magnets are used in electronic and computing equipment, batteries, electric vehicles, wind turbines, mobile phones and military systems. Nd & Pr are used in high-power magnets. Dy, Sm & Tb are used in high-temperature super magnets.

**Ionic adsorption clay REE**: ("IAC") in contrast with hard-rock REE ores, ionic adsorption clay REE mineralisation forms when REE attach loosely to clays and can be recovered by low-cost leaching methods. IAC REE deposits have been mined in southern China and Myanmar. ABx is one of the very few listed companies with proven, authentic IAC REE mineralisation in the channels at Deep Leads.

**Extraction rates from desorption tests**: To assess the potential of extracting

REEs from these prospects, tests are done to measure the "leachability" to "extract" REE under typical IAC desorption conditions that are applied to ionic clay deposits. These leaching tests were conducted by ANSTO in Sydney, which has extensive experience in metallurgical testing of clay-hosted rare earth deposits worldwide. The tests were conducted at "standard" desorption conditions of 0.5 M ammonium sulfate at pH 4 which are low-acid, low-cost processing conditions for ionic adsorption clay REE.

Extraction rates are the proportion of REE contained in the sample that reports to the leach solution. Very few other REE occurrences in Australia have achieved extraction rates that have been achieved on ABx's REE mineralisation in the channels at the Deep Leads project area in northern Tasmania.

#### Qualifying statements

**General:** The information in this report that relates to Exploration Information is based on information compiled by Ian Levy who is a member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Levy is a qualified geologist and is a director of ABx Group Limited.

The information relating to Exploration Information and Mineral Resources in Tasmania has been prepared or updated under the JORC Code 2012. Mr Levy has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity, which has been undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.

Mr Levy has consented in writing to the inclusion in this report of the Exploration Information in the form and context in which it appears.



# JORC Code, 2012 Edition – Table 1 report

### Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (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.	<ul> <li>Drill holes samples to 25 metres maximum depth but typically to 12 metres depth</li> </ul>
	<ul> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration</li> <li>Assess of the determination of minorplication that are Material to the Dublic Depart</li> </ul>	n of any measurement tools or systems used.
	<ul> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation due pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as w Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed inforr</li> </ul>	rilling was used to obtain 1 m samples from which 3 kg was vhere there is coarse gold that has inherent sampling problems. nation.
Drilling techniques	• 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).	<ul> <li>Reverse circulation rotary percussion and push-tube coring</li> </ul>
Drill sample	• Method of recording & assessing core and chip sample recoveries and results assessed.	Weight tests indicated reliable sample recovery
recovery	<ul> <li>Measures taken to maximise sample recovery &amp; ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and arade and whether sample bias may</li> </ul>	
	have occurred due to preferential loss/gain of fine/coarse material.	
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support	Geologically logged in detail by senior geologists.
	appropriate Mineral Resource estimation, mining studies and metallurgical studies.  Whether logging is qualitative or quantitative. Core (or costean, channel, etc.) photography.	Every sample photographed, with photos and logs and assays entered into ABy's proprietary ABacus
	<ul> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	database.
Sub-sampling	• If core, whether cut or sawn and whether quarter, half or all core taken.	Chips are subsampled using bauxite shovel and
techniques	• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	quartering method in accordance with ISO standards
and sample	<ul> <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> </ul>	
preparation	<ul> <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 it</li> </ul>	nstance results for field dunlicate/second-half sampling
	<ul> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	
Quality of assay data	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	<ul> <li>Assaying done at NATA-registered commercial labs of ALS Brisbane Australia and Labwest Minerals Analysis in</li> </ul>
and	• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in	Western Australia. Duplicate interlab assays done.
laboratory	aetermining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc	Desorption extraction tests were conducted by ANSTO at Lucas Heights, Sydney NSW with assays done at ALS
tests	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external lab checks) & whether	Brisbane.



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Criteria	JORC Code explanation	Commentary
	acceptable levels of accuracy (ie lack of bias) & precision have been established.	
Verification of sampling and assaying	<ul> <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> <li>All assaying done at NATA-registered commercial laboratories of ALS Brisbane Australia and Labwest Minerals Analysis Pty Ltd in Western Australia. Duplicate interlab assays showed excellent correspondence.</li> </ul>
Location of data points	<ul> <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> <li>GPS hole locations have been tested for accuracy on many prospects, all satisfactorily – within 1m.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Drilling typically at 50 to 75 metre spacing on mineralised prospects</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>Vertical holes through flat-dipping bauxite is as good as it gets</li> </ul>
Sample security	• The measures taken to ensure sample security.	<ul> <li>Samples collected and assembled onto pallets every day</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>Several audits confirmed reliability</li> </ul>

# 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> <li>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.</li> <li>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.</li> </ul>	<ul> <li>Satisfactory to excellent. All tenements are unencumbered</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	• ABx is the first company to explore for Rare Earth Elements in northern Tasmania.
Geology	Deposit type, geological setting and style of mineralisation.	Bauxite deposit formed on Lower Tertiary basalts





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Criteria	JORC Code explanation	Commentary
Drill hole Information	<ul> <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> <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> <li>GPS location.</li> <li>Airborne Radar RL topography</li> <li>Lidar topography contoured at 1m height intervals</li> <li>All holes are short straight vertical holes</li> </ul>
Data aggregation methods	<ul> <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>	All data are presented.
Relationship between mineralisation widths & intercept lengths	<ul> <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> <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>	<ul> <li>Mineralisation typically 3 to 6 metres thick and Drillholes are sampled at 1 metre intervals</li> </ul>
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• N.A.
Balanced reporting	<ul> <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> <li>All new results are reported in this report</li> </ul>
Other substantive exploration data	<ul> <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>	• N.A.
Further work	<ul> <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> <li>Step-out drilling over a wider area has been planned, work plans submitted and new drill rig configurations have been developed.</li> </ul>