

## Fuse has been lit for the battle for Lindian's Kangankunde Project

A large number of stocks improved last week with the entry into the new financial year. That should not be surprising. The gains though, were mostly recoveries from falls the previous weeks. There was little change to the overall sentiment other than a gentle tone of optimism.

Much of the media has been focusing on the abysmal standard of the candidates for the US Presidential election, but the US markets don't seem to be losing any sleep over them. Does that mean that the US investors just can't be bothered, or that it is not relevant to expectations, or is it just an example of their heads in the sand? The rising gold price last week might be a better measure of the level of concern.

### *The fuse has been lit under Kangankunde*

Last Monday Lindian Resources released the findings of its feasibility study on the Kangankunde Rare Earths Project, Stage One. Blind Freddy could have told you the numbers would be good, given the technical releases over the last six months, but the actual numbers exceeded my expectations.

Now that the numbers are available for public scrutiny, I don't think it is going to be long before we start to see mobilisation of corporate raiders who will want to gain control of what is not only truly world class, but which is the pre-eminent, pre-production rare earths project.

Whoever has control of Kangankunde, it will be the most strategic rare earths project in the world. The Chinese will be busting their balls to get control of it. They can't afford to let a Western World party to bring it into production. With it, the Chinese can weaponise the rare earths business even further. They will be able to undercut every other rare earths development that might come into production. They will be able to blow projects like that being attempted by Hastings out of the water.

If the Western world is serious about relieving itself from the tyranny of Chinese control it will be doing everything it can to keep it in friendly hands. That brings companies like BHP, Fortescue, Lynas and RIO to the table. None of these companies would be comfortable making a pre-emptive strike before a feasibility study provides the answers to tick all of the boxes. They don't want to run the risk of getting over-excited in a public fashion on speculative projects. However, with a publicly released Feasibility Study, the gloves will come off as they sharpen their pencils.

None of these companies will confirm or deny their interest. None of them will be disclosing their hands prematurely, but if rumours are correct, the troops are being mobilised already. The fuse has been lit. We just have to wait a little longer to see how big the bang will be when the first shot is fired. This is an example of a special situation that will feature, even in a bear market.

### *What is so good about the numbers?*

The preproduction capex is only A\$60m, which is one third of the recent market capitalisation of Lindian. There is nothing intimidating about this portion, so it can be readily financed with equity capital.

A project with a capital payback of less than two years is generally regarded as very favourable. Large projects with long mine lives are frequently looking at four years as a reasonable proposition. The other useful figure is the projected mine life. Stage One's mine life is a lengthy 45 years. The very low waste to ore ratio of less than 0.2:1 is a great advantage.

The FOB operating cost of US\$2.92/kg TREO for the first five years is well below the US\$6-8/kg level generally regarded as the required economic unit cost to make a project worth developing. Most other projects are probably going to have a cost of > US\$10/kg, though very few of the prospective companies have released this figure.

Metallurgy is the most difficult aspect of the ionic clay rare earth deposits. Similarly difficult are those with monazite and xenotime crystals that need to be cracked. Kangankunde will be much easier with a simple flowsheet based on gravity and magnetic separation, with limited use of reagents. Almost no radioactivity is another advantage.

The total recovery of TREO is expected to be only 60%, to a concentrate grade of 55%. Nevertheless, the economics still look impressive. It remains to be seen whether it would be worthwhile trying to improve these recovery rates with subsequent modifications.

### *The Bottom Line*

Lindian has moved with impressive speed to get a Feasibility Study released only about two years from when it first acquired Kangankunde. Most other rare earth wannabes are still trying to figure out what their next trick will be, after rushing to the market to boast that they have rare earths.

The expected construction and commissioning timelines for Kangankunde are very short; the former in Q4 of 2024, and the latter a year later. While rare earth prices are low now, they won't be down at these levels forever. Nevertheless, even at these suppressed prices the numbers look good. The Company should be in the right space when the sector turns up again. If any company can develop a profitable operation, it will be Lindian. Most of the other rare earth companies will be left standing at the gate.

I say the fuse has been lit on corporate activity, but I don't know how long it is. One thing is for certain though - the raiders will be running their ruler over this one as they strategise their acquisition tactics.

*Disclosure: Interests associated with the author own shares in Lindian Resources .*

**Ark Mines has a placer rare earth project in QLD**

Whilst on the topic of rare earths, I was introduced to an unusual style of rare earths deposit last week. When I sat down with the Company on Tuesday the market capitalisation was \$8.5m with a share price of 15¢. By the end of the week it was up to \$14m with the shares peaking at 29.5¢ on Friday. So why did it perform so well?

In May, Ark (AHK) released its maiden Indicated Mineral Resource Estimate of 21.7 Mt at 1,419 ppm monazite equivalent at Sandy Mitchell. While it calls it a rare earth deposit, the resource features a basket of heavy minerals including ilmenite, rutile and zircon. The rare earth competent is found in the monazite and xenotime.

Located between the Palmer and Mitchell Rivers, along the road from Chillagoe in Far North Queensland, the resource appears in a placer sands deposit in the top 12m of the horizon above basement metamorphic rocks such as gneiss that has weathered in-situ. While the Company describes it as a placer deposit, such a feature usually occurs as a result of transportation and deposition in a sedimentary fashion. The observation of angular quartz particles in the sands suggests the material hasn't travel very far.

Back in the 1990s the ground was prospected for uranium. The scintillator went crazy but the prospectors didn't find any uranium. The radioactivity was subsequently found to be coming from the extensive spread of monazite.

Last week ARK announced an Exploration Target of 1.3-1.5 Bt at 1,250 to 1,490 monazite equivalent. That seems to be the stimulant that caused the rise in the share price.

My first thought on hearing of the monazite and the xenotime was that this material requires cracking to release the rare earths from the crystal lattice. That means that a concentrate will have to be produced and shipped off to a specialist refinery.

Test work conducted by Ark has shown that it can reject up to 50% of the volume by screening off the +2mm material, then passing the fines through a simple gravity separation process to achieve a 51.9% TREO concentrate.

The next steps for Ark will involve further drilling, metallurgical and process flow art work and the preparation of economic studies. Mining will be low cost free digging with a continuous process of extraction and rehabilitation. Bulk samples could be processed in the Currumbin Minerals facility at the Gold Coast

**The Bottom Line**

Treating this as a minerals sands deposit with rare earth products is a reasonable approach. It is not the only company promoting this style, so the economic success will be dependent upon the usual competitive cost considerations. Finding the right buyers will be one of the tasks, though the CEO, Ben Emery, quotes his experience in the marketing of monazite as one of the advantages the Company has. The excitement over the potential size of the deposit is not necessarily relevant to economics though. Many industrial minerals deposits have very long mine lives.

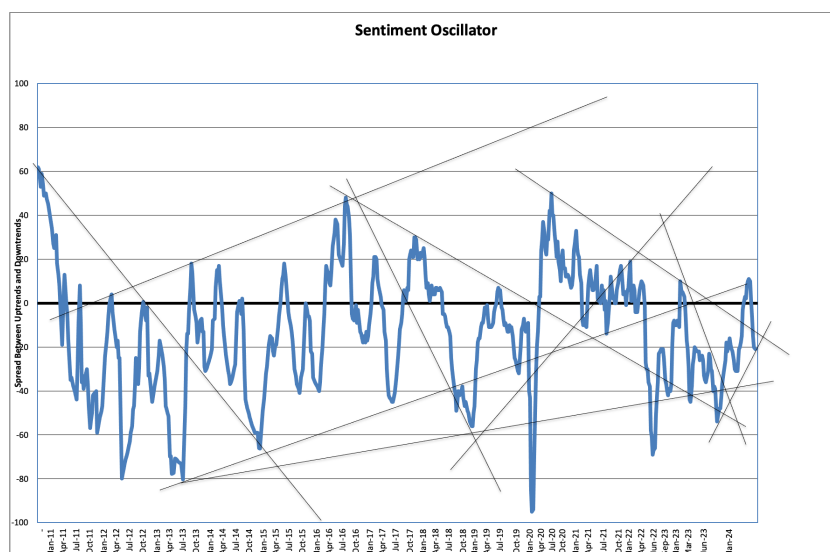
The simplicity of the suggested process flow sheet to achieve a saleable concentrate is useful as it leaves the complex metallurgy to a special refinery that knows how to deal with radioactive material. Potential earnings from the ilmenite, rutile and zircon were not discussed, but they need to be factored in to any studies.

So far the market has taken a shine to the recent news flow and presentations. We will watch the progress with interest.

**Uranium stocks are down but not out**

Note that the wind has come out of the sails of uranium stocks with the underlying price of uranium falling about 15% from its high in February. That is what happens when momentum dries up. Keep an eye on them for buying opportunities though, as the longer term outlook for the commodity looks good. The retracement to US\$85/lb is within the boundaries of normal market movements.

We have deleted Zenith from our chart coverage.



**Sentiment Oscillator:** Sentiment softened further. There were 30% (29%) of stocks in uptrend and 51% (49%) in downtrend at the close of the week. The chart is resting on a support line.

## Detailed Chart Comments

*NB. Only the bold comments have been updated. Comments in grey type are from previous weeks and will be less relevant. Please note that this list is a cross section of the market. It IS NOT a list of recommendations.*

Indices	Code	Trend	Comment	
All Ordinaries	XAO	Green	near highs	
Metals and Mining	XMM	Red	falling	
Energy	XEJ	Red	still under long term downtrend line	
Information Technology	XIJ	Green	off its highs	
Stocks	Code	Trend	Comment (updated comments in bold)	Main Interest
5EA Advanced Materials	5EA	Red	back to lows	boron
Advance Metals (was Pacific American)	AVM	Red	back to lows	coal, gold exploration
Agua Resources	AGR	Green	new high	phosphate, gold
Alkane Resources	ALK	Orange	testing downtrend	gold
Alicanto Minerals	AQI	Red	new low	base metals, silver, gold
Alligator Energy	AGE	Red	down	uranium
Almonty Industries	All	Green	fallen to support line	tungsten
Alpha HPA	A4N	Orange	testing longer term uptrend	HPA
Altech Chemical	ATC	Red	back in downtrend	HPA, anodes
Alto Metals	AME	Red	down	gold
American Rare Earths	ARR	Orange	consolidating	rare earths
Anax Metals	ANX	Green	heavy slump	copper
Anteotech	ADO	Orange	sideways at lows	silicon anodes, biotech
Arafura Resources	ARU	Green	pullback	rare earths
Ardea Resources	ARL	Red	down	nickel
Arizona Lithium	AZL	Red	strong rally	lithium
Astral Resources	AAR	Green	new uptrend	gold
Averina	AEV	Red	down heavily	phosphate
Aurora Energy Metals	1AE	Red	down	uranium
Aurelia Metals	AMI	Green	rising	copper + base metals
Australian Gold and Copper	AGC	Green	heavy correction on placement	base metals, silver, gold
Australian Rare Earths	AR3	Red	new low	rare earths
Australian Strategic Materials	ASM	Red	new low	rare earths
BHP	BHP	Red	down	diversified, iron ore
Barton Gold	BGD	Red	falling	gold exploration
Beach Energy	BPT	Orange	breached uptrend	oil and gas
Bellevue Gold	BGL	Orange	breached uptrend	gold
Besra Gold	BEZ	Red	suspended	gold
Black Cat Syndicate	BC8	Green	stronger	gold
Boab Metals	BML	Red	down	silver/lead
Brazil Critical Minerals	BCM	Red	down on placement	rare earths















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Brazilian Rare Earths	BRE		new high	rare earths
Brightstar Resources	BTR		uptrend	gold
Calidus Resources	CAI		back to downtrend	gold
Caravel Minerals	CVV		strong rise	copper
Carnaby Resources	CNB		collapse on Scoping Study, testing support	copper
Castile Resources	CST		trying to hold support line	gold/copper/cobalt
Catalyst Metals	CYL		new uptrend	gold
Cazaly Resources	CAZ		forming a base	rare earths
Celsius Resources	CLA		stronger	copper
Cobalt Blue	COB		new low	cobalt
Cyprium Metals	CYM		breached downtrend, surged higher	copper
Emerald Resources	EMR		rising, new high	gold
Empire Energy	EEG		improving	gas
EQ Resources	EQR		breaching downtrend	tungsten
Evolution Energy	EV1		collapse to a new low	graphite
Evolution Mining	EVN		rising	gold
First Graphene	FGR		down	graphene
Fortescue Metals	FMG		down	iron ore
Genesis Minerals	GMD		rising	gold
Globe Metals and Mining	GBE		steeply higher	niobium
Gold 50	G50		back into	gold exploration + gallium
Great Boulder Resources	GBR		sideways at lows	gold exploration
Group 6 Metals	G6M		small rally	tungsten
Hamelin Gold	HMG		sideways through downtrend	gold exploration
Hastings Technology Metals	HAS		collapse to new low	rare earths
Heavy Minerals	HVY		new low	garnet
Hillgrove Resources	HGO		lower	copper
Iluka Resources	ILU		improving	mineral sands
ioneer (was Global Geoscience)	INR		breached uptrend	lithium
Ionic Rare Earths	IXR		down	rare earths
Jervois Mining	JVR		strong rally	nickel/cobalt
Jindalee Lithium	JLL		new low	lithium
Jupiter Mines	JSM		down	manganese
Kaiser Reef	KAU		improving	gold
Krakatoa Resources	KTA		back to lows	rare earths
Larvotto Resources	LRV		rising	gold, antimony
Lindian Resources	LIN		new low	rare earths + bauxite
Li-S Energy	LIS		new low	Lithium sulphur battery technology
LCL Resources	LCL		new low	gold/nickel exploration
Lotus Resources	LOT		rising	uranium
Lucapa Diamond	LOM		new low	diamonds
Lunnon Metals	LM8		down	nickel
Lynas Corp.	LYC		rallied to meet resistance	rare earths
Marmota	MEU		rising	gold/uranium exploration

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Mayur Resources	MRL		breached uptrend	renewables, cement
Meeka Gold	MEK		at lows	gold
MetalsX	MLX		rising	tin, nickel
Meteoric Resources	MEI		down	rare earths
Metro Mining	MMI		new high	bauxite
Midas Minerals	MM1		rallying	lithium
Mitre Mining	MMC		steep rise	silver
Nagambie Resources	NAG		another new low	gold, antimony
Neometals	NMT		new low	lithium
Newfield Resources	NWF		down again	diamonds
Nexgen Energy	NXG		breached uptrend	uranium
Northern Star Res.	NST		down	gold
Nova Minerals	NVA		down	gold exploration
Novo Resources	NVO		down	gold exploration
Pacific Gold	PGO		new low	gold exploration
Paladin Energy	PDN		down heavily on takeover bid	uranium
Pantoro	PNR		rising again	gold
Patriot Battery Metals	PMT		collapse to a new low	lithium
Peninsula Energy	PEN		gently lower	uranium
Perseus Mining	PRU		new high	gold
Provaris Energy	PV1		down	hydrogen
QMines	QML		new low	copper
Queensland Pacific Metals	QPM		new low	nickel/cobalt/HPA
RareX	REE		new low	phosphate, rare earths
Regis Resources	RRL		testing uptrend	gold
Regergen	RLT		down	gas, helium
Richmond Vanadium	RVT		heavy fall	vanadium
RIO	RIO		heavy slump	diversified, iron ore
RTG Mining	RTG		breached uptrend	copper
Rumble Resources	RTR		new low	zinc exploration
S2 Resources	S2R		downtrend accelerating	gold exploration
Sandfire Resources	SFR		pullback	copper
Santos	STO		weaker	oil/gas
Sarytogan Graphite	SGA		down	graphite
Siren Gold	SNG		rising	gold exploration
South Harz Potash	SHP		new low	potash
Southern Cross Gold	SXG		heavy slump breaching uptrend	gold exploration
Southern Palladium	SPD		rising again	PGMs
Stanmore Coal	SMR		testing downtrend	coal
Stellar Resources	SRZ		uptrend	tin
Summit Resources	SUM		heavy correction	niobium, rare earths
Suvo Strategic Minerals	SUV		spiked higher	kaolin
Talga Resources	TLG		slump	graphite
Tamboran Resources	TBN		rising again	gas

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Theta Gold Mines	TGM		rising again	gold
Thor Energy	THR		down	uranium
Torque Metals	TOR		back to lows	gold exploration + lithium
Vanadium Resources	VR8		new uptrend	vanadium
Venture Minerals	VMS		back to recent high	tin, tungsten
Vintage Energy	VEN		new low	gas
Voltaic Strategic Resources	VSR		at lows	REO + lithium
Vertex Minerals	VTX		breached downtrend	gold
Walkabout Resources	WKT		sideways	graphite
Warriedar Resources	WA8		breached downtrend	gold exploration
West Cobar	WC1		new low	rare earth + lithium
Westgold Resources	WGX		rising	gold
West Wits Mining	WWI		correcting lower	gold
Whitehaven Coal	WHC		testing uptrend	coal
Totals	30%	40	Uptrend	
	51%	69	Downtrend	
		135	Total	

### Guides to Chart Interpretations

- Charts usually go pass from one trend (up or down) into the other via a period of indecision and uncertainty during which the trend can either recover or change. This period is signified by the orange colour. The orange represent both the greatest risk and greatest reward possibilities.
- Once a chart is in confirmed up or downtrends it is not uncommon for 10-20% of that trend to have already transpired.
- There are trends within trends. The focus of this chart review is the immediate trend that affects the sentiment i.e. it can be a downtrend within a long-term uptrend.
- Not every chart warrants a new comment every week. The new comments are in bold type. Grey type comments may be dated.
- Individual charts provide a single view. It is valuable to look at charts of other companies in similar commodities, and the overall sentiment is also very valuable. Not many stocks can swim against the tide.
- We periodically add or delete charts, some times for obscure reasons. If a chart consistent gives poor signals or is very erratic, we may delete it. Sometimes we add a chart because we want to see what all the fuss is about. We do have a preference for charting stocks that we cover in our research as well.
- Errors and omissions may occur from time to time, especially in fast moving markets.

Amber Lights in Tables: Just a reminder if when the amber light is used in the table – it is when the charts are ambiguous or when there is a change of trend taking place. If a chart is breaching a downtrend it can either be a positive sign or a trap. Only once it has done more work can it be confirmed as a new uptrend. Maybe it is a new uptrend (or conversely a new downtrend); the risk takers can decide to jump on board early (or sell). They will maximise their profits (or minimise their losses if indeed it is the start of the new uptrend (downtrend). More risk-averse investors should wait a little longer, being prepared to give up some of the gains in return for greater certainty.

### Weightings of Sectors Represented in the Company Charts

Sector	No. of Companies	Weighting
Gold	27	20.0%
Gold Exploration	15	11.1%
Rare Earths	13	9.6%
Copper	10	7.4%
Uranium	7	5.2%
Lithium	6	4.4%
Oil/Gas	6	4.4%
Nickel	5	3.7%



Graphite/graphene	5	3.7%	
Iron Ore/Manganese	4	3.0%	
Potash/Phosphate	4	3.0%	
Coal	3	2.2%	
Tungsten	3	2.2%	
Tin	3	2.2%	
Silver	3	30.0%	
Diamonds	2	1.5%	
Niobium	2	1.5%	
Vanadium	2	20.0%	
Zinc/Lead	2	1.5%	
Mineral Sands	1	0.7%	
Bauxite	1	0.7%	
Cobalt	1	0.7%	
Other	10		
Total	135		

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