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Chart comments **NOT** updated on Friday's close

Analyst : Warwick

South Australia: AGE's Samphire Uranium Project, Rock Phosphate and Kanmantoo Copper

Markets were in a buoyant mood again last week with US inflation figures coming in below expectations. Share markets and the gold price closed higher as the bullish trend continues.

I have been travelling in South Australia for the past week and haven't had an opportunity to update the charts, so there is no change in the Sentiment Oscillator.

The Samphire Uranium Project

The primary purpose of the trip was to catch up with retired geologist Russ Bluck, who takes the credit for the discovery of the Samphire uranium deposit near Whyalla.

The whole uranium sector came unstuck following the Fukushima nuclear power plant accident in March 2011, courtesy of a tsunami. UraniumSA, which owned Samphire at the time, went through tough times after Fukushima and the project eventually wound up in Alligator Energy (AGE) under the stewardship of Greg Hall.

Samphire and its uranium bearing geology now extends for a strike length of approximately 70km, making it one of the largest accumulations of uranium mineralisation in the country. That doesn't mean the orebodies are continuous - because the ISL-amenable roll front deposits are still localised in their formation and deposition - but it does point to the possibility of long term uranium production once operating conditions have been established and optimised.

The project comprises roll front uranium deposits, generally at vertical depths of about 55-80m in sands that have thicknesses of 5-30m. There are usually 3-4 horizons ranging from 0.5m to 2m in thickness, but up to 5m, that are prospective for uranium. The stated resource is currently 12.4 Mt containing 17.5 Mlbs of U₃O₈. The deposits have been fed from extensive underlying granites. These granites are interesting geologically but no-one is suggesting that they will host economic orebodies.

Field trials coming up in August

Alligator Energy is preparing for its first trial field arrays as the next step in determining operating conditions and economics of Samphire. The \$6m programme is scheduled for approval in August, which would allow for the development of three arrays before the end of 2024. These are expected to provide valuable information on which to design commercial scale production.

Some people over-simplify the ISL uranium production process. There is much more involved than just creating negative pressure in the aquifers and sucking out the uranium bearing fluids from a central hole. Localised geology and chemistry can change markedly from one array to the next, and indeed, within each array. Constant attention to detail is required at all times. Nevertheless a program of three test arrays will be very important in

identifying localised operating parameters upon which to advance.

At this point AGE is estimating direct operating costs of US\$16/lb and AISC of \$33.31/lb. The larger figure is reflective of the ongoing array and well development costs that are a feature of ISL operations. The capex is recurring over the life of the operations rather than being all up front. These costs could enable good earnings for the Company at recent uranium prices.

Alligator is operating in a sector that is well sought after by investors at the moment and its share price reflects that enthusiasm. Hopefully the world wakes up to the fact that nuclear power is the best way to efficiently address the climate change concerns and the revival of the sector continues for many more years. If so, Alligator is well positioned to profit from Samphire.

Speaking from Experience

My own experience with ISL mines came with the development of the Lance Uranium Mine in Wyoming, USA. That was a successful commercial development but more because of the sales contracts fetching US\$50-60/lb when the spot price fell back to around US\$20/lb. There was a better margin in buying spot and selling into the contracts than producing the uranium itself. As it turned out, notwithstanding the very extensive teamwork undertaken before mining commenced, recovery rates failed to achieve the design figures. This was due to geological complexities and deficiencies in the use of alkaline leaching rather than acid leaching - which would have been impossible to permit at the time. The mine is now preparing to restart using acid leaching or as the current management describes it, "low pH" recovery methods.

Rock Phosphate in South Australia

Whilst in South Australia I took a drive up past the Clare wine growing region to visit the small, private Tarcowie rock phosphate mine. It was part of my continuing learning curve concerning near surface rock phosphate orebodies that require minimum processing in order to produce readily saleable fertiliser. These circumvent the need to lift grades of P₂O₅ to more than 30%, with associated large capex budgets and complicated process circuits.

Rather than entering the competitive international market the rock phosphate mines can earn good profits from selling to regional farming customers that are happy with grades of 7-10% P₂O₅. There may even be associated additives that occur naturally in the geology to further benefit the farmers.

I'm coming from the angle that Aguia Resources (AGR) has extensive low cost rock phosphate deposits in the middle of

an extensive farming region in the south of Brazil. BFS studies have already shown that long-life, profitable mines are possible. Being oxidised rock phosphate the capital expenditure is relatively modest.

The difference between the Brazilian and the South Australian orebodies is that AGR's deposits are found in carbonatites with igneous origins whereas the South Australian deposits are more sedimentary in nature with the phosphate dropping out of solution to form near surface deposits in receptive rocks. Both types involve easy near surface mining, though the carbonatite types can extend at depth into the fresh rocks.

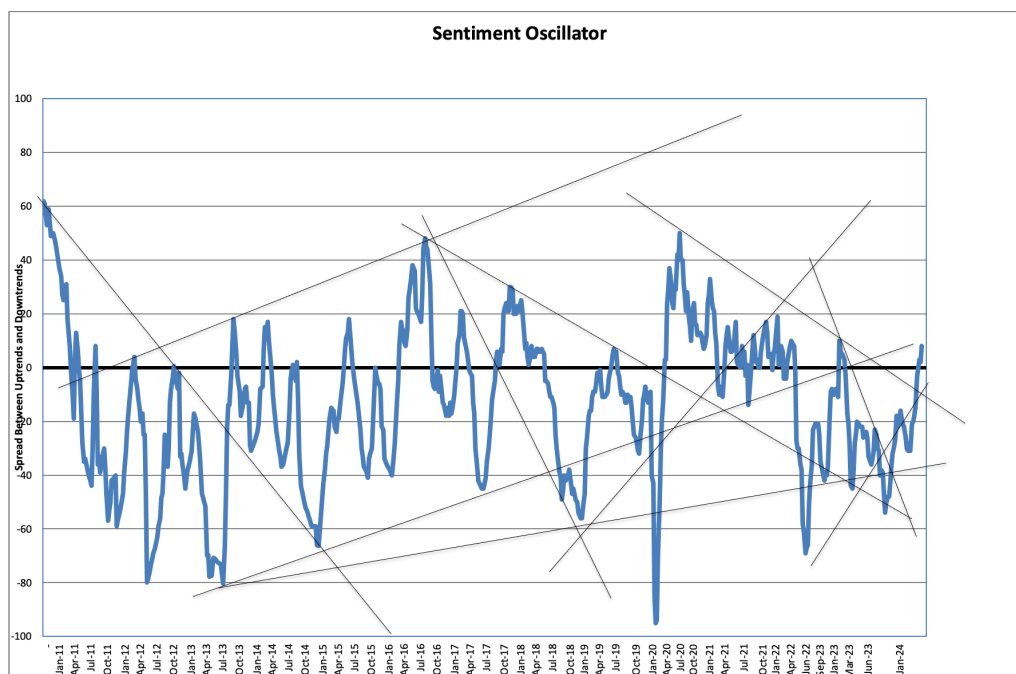
From all accounts it appears that Tarcowie can achieve very strong profit margins but it is constrained by the lack of a large customer base. The mine operates on a campaign basis. It can be turned on when it gets an order, then easily shut down until the next order comes along. In contrast, Aguia's potential customer base is very large. In the first instance Aguia is looking at supplying only 10-15%

of the addressable market that is currently estimated at 2 Mtpa.

Disclosure: The author is the chairman of Aguia and interests associated with the author have shareholdings

Hillgrove site visit

Last week I also visited the Kanmantoo copper mine in the Adelaide hills region. Owned by Hillgrove Resources (HGO), Kanmantoo has had its ups and downs over the years but it is now on the rebound with the development of underground copper orebodies beneath the open pit. The copper price is providing a renewed level of optimism at the mine at just the right time. I'll do something more extensive on the company next week.



Sentiment Oscillator: There were 37% (37%) of stocks in uptrend and 29% (35%) in downtrend at the close of the week. The drop in the stocks in downtrend may have been influenced by the deletion of some companies in a one-off adjustment.

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	back near highs
Metals and Mining	XMM	hitting resistance line in LT downtrend
Energy	XEJ	still under long term downtrend line
Information Technology	XIJ	back near highs

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Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
5EA Advanced Materials	5EA	back to lows	boron
Advance Metals (was Pacific American)	AVM	collapse on placement	coal, gold exploration
Aguia Resources	AGR	new uptrend	phosphate, gold
Alkane Resources	ALK	testing downtrend	gold
Alicanto Minerals	AQI	fallen back to lows	base metals, silver, gold
Alligator Energy	AGE	recovering	uranium
Almonty Industries	All	testing uptrend	tungsten
Alpha HPA	A4N	upside breakout from wedge	HPA
Altech Chemical	ATC	breaching downtrend	HPA, anodes
Alto Metals	AME	volatility while new uptrend is forming	gold
American Rare Earths	ARR	consolidating	rare earths
Anax Metals	ANX	spiked higher	copper
Anteotech	ADO	collapse on another placement	silicon anodes, biotech
Arafura Resources	ARU	pullback	rare earths
Ardea Resources	ARL	spiked higher	nickel
Arizona Lithium	AZL	strong rally	lithium
Astral Resources	AAR	spike out of downtrend	gold
Averina	AEV	down heavily	phosphate
Aurora Energy Metals	1AE	breached support	uranium
Aurelia Metals	AMI	rising	copper + base metals
Australian Rare Earths	AR3	breaching downtrend	rare earths
Australian Strategic Materials	ASM	strong rally but hit LT resistance line	rare earths
BHP	BHP	corrected lower	diversified, iron ore
Barton Gold	BGD	rising gently	gold exploration
Beach Energy	BPT	testing uptrend	oil and gas
Bellevue Gold	BGL	breached uptrend	gold
Besra Gold	BEZ	collapse to new low	gold
Black Cat Syndicate	BC8	rising	gold
Boab Metals	BML	down	silver/lead
Brazil Critical Minerals	BCM	sideways	rare earths
Brazilian Rare Earths	BRE	rising wedge	rare earths
Brightstar Resources	BTR	uptrend	gold
Calidus Resources	CAI	testing downtrend	gold
Caravel Minerals	CVV	strong rise	copper
Carnaby Resources	CNB	testing downtrend	copper
Castile Resources	CST	rallying	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	down again	cobalt
Cyprium Metals	CYM	breached downtrend, surged higher	copper
Emerald Resources	EMR	rising, new high	gold
Empire Energy	EEG	breached support	gas

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EQ Resources	EQR		breaching downtrend	tungsten
Evolution Energy	EV1		new low	graphite
Evolution Mining	EVN		rising	gold
First Graphene	FGR		spiked higher	graphene
Fortescue Metals	FMG		rallying	iron ore
Genesis Minerals	GMD		rising	gold
Globe Metals and Mining	GBE		uptrend	niobium
Gold 50	G50		new uptrend	gold exploration + gallium
Great Boulder Resources	GBR		sideways at lows	gold exploration
Group 6 Metals	G6M		down	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		rising gently	copper
Iluka Resources	ILU		improving	mineral sands
ioneer (was Global Geoscience)	INR		rising again	lithium
Ionic Rare Earths	IXR		down	rare earths
Jervois Mining	JVR		new low	nickel/cobalt
Jindalee Lithium	JLL		back to lows	lithium
Jupiter Mines	JSM		rising	manganese
Kaiser Reef	KAU		improving	gold
Krakatoa Resources	KTA		steep rise on niobium news	rare earths
Larvotto Resources	LRV		rising	gold, antimony
Lindian Resources	LIN		breached downtrend	rare earths + bauxite
Li-S Energy	LIS		sideways	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		testing downtrend	nickel
Lynas Corp.	LYC		rallied to meet resistance	rare earths
Marmota	MEU		rising	gold/uranium exploration
Mayur Resources	MRL		breached uptrend	renewables, cement
Meeka Gold	MEK		rallying	gold
MetalsX	MLX		rising	tin, nickel
Meteoric Resources	MEI		sideways	rare earths
Metro Mining	MMI		new high	bauxite
Midas Minerals	MM1		slump	lithium
Mitre Mining	MMC		steep rise	silver
Nagambie Resources	NAG		another new low	gold, antimony
Neometals	NMT		new low	lithium
Newfield Resources	NWF		breached downtrend	diamonds
Nexgen Energy	NXG		testing uptrend	uranium
Northern Star Res.	NST		rising	gold
Nova Minerals	NVA		down	gold exploration

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Novo Resources	NVO	down	gold exploration
Pacific Gold	PGO	breached downtrend	gold exploration
Paladin Energy	PDN	new high	uranium
Pantoro	PNR	rising again	gold
Patriot Battery Metals	PMT	testing downtrend	lithium
Peninsula Energy	PEN	sideways	uranium
Perseus Mining	PRU	at highs	gold
Provaris Energy	PV1	rising after breaching downtrend	hydrogen
QMines	QML	new low	copper
Queensland Pacific Metals	QPM	testing downtrend	nickel/cobalt/HPA
RareX	REE	new low	phosphate, rare earths
Regis Resources	RRL	rising	gold
Regergen	RLT	rising	gas, helium
Richmond Vanadium	RVT	down	vanadium
RIO	RIO	rising again	diversified, iron ore
Rumble Resources	RTR	new low	zinc exploration
S2 Resources	S2R	gentle downtrend	gold exploration
Sandfire Resources	SFR	rising again	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	spike to new high	gold exploration
Southern Palladium	SPD	rising again	PGMs
Stanmore Coal	SMR	testing downtrend	coal
Stellar Resources	SRZ	uptrend	tin
Summit Resources	SUM	spiked higher, then heavy correction	niobium, rare earths
Suvo Strategic Minerals	SUV	spiked higher	kaolin
Talga Resources	TLG	rallying	graphite
Tamboran Resources	TBN	rising again	gas
Theta Gold Mines	TGM	rising again	gold
Thor Energy	THR	down	uranium
Tietto Minerals	TIE	surge on takeover approach	gold
Torque Metals	TOR	testing downtrend	gold exploration + lithium
Vanadium Resources	VR8	new uptrend	vanadium
Venture Minerals	VMS	sideways	tin, tungsten
Vintage Energy	VEN	new low	gas
Voltaic Strategic Resources	VSR	sideways 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	breached uptrend	gold
West Wits Mining	WWI	correcting lower	gold

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Whitehaven Coal	WHC		testing uptrend	coal
Zenith Minerals	ZNC		new low	gold exploration
Totals	37%	50	Uptrend	
	29%	39	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	28	20.7%
Gold Exploration	16	11.9%
Rare Earths	13	9.6%
Copper	9	6.7%
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	2	20.0%
Diamonds	2	1.5%
Niobium	2	1.5%
Vanadium	2	20.0%
Zinc/Lead	2	1.5%

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Mineral Sands	1	0.7%	
Bauxite	1	0.7%	
Cobalt	1	0.7%	
Other	10		
Total	135		

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