



HALLGARTEN + COMPANY

Mine Visits

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San Juan: The New Copper Hotspot

Visits to Aldebaran & McEwen Copper

Key Metrics					
	Ticker	Strategy	Price (CAD\$)	12 mth Hi-Lo	Mkt Cap. (CAD\$ mns)
Aldebaran Resources	ALDE.v	LONG	0.88	\$0.53-\$1.04	\$121.79
McEwen Copper	TBD	Subscribe	n/a	n/a	n/a

San Juan

The New Copper Hotspot

- + Long known for its gold prospectivity, and more recently its gold production, the Argentine province of San Juan is now pivoting to become the hotspot for Copper exploration and development in the southern half of the Andes
- + Chile's political woes have refocused attention on alternative venues for copper mine development and San Juan is the leading contender
- + The provincial administration (and the opposition) are all vigorously pro-mining
- + A plethora of heavyweight names have positioned themselves in the province either directly or via proxies (e.g. RTZ & South32 making strategic investments)
- + Most mining players in the province are cooperative and supportive of each other, particularly as regards access issues
- ✗ All the copper projects are in the high Andes, strung along the border with Chile, and this presents great challenges in providing access and infrastructure
- ✗ There is still an aspect of "Argentine discount" to any mining undertaking, which adds an extra layer of uncertainty, particularly when the projects are largely in the capex category exceeding US\$1bn, and sometimes multiples thereof

Into the Wilds – A Mine Trip

In the first week of February 2023, a collaborative effort was made by Aldebaran Resources and McEwen Copper on a minesite trip for analysts from Toronto (and London) to their projects in the province of San Juan in Western Argentina. This province borders Chile and in the high Andes along the border a plethora of projects have sprung up. Two of these are Altar of Aldebaran Resources, which could be said to be advanced exploration, and the other being the Los Azules project of McEwen Copper (embedded with McEwen Mining – MUX.to). We have covered McEwen Mining and its predecessor firms, US Gold and Minera Andes in the past. In fact, the latter we have known since the early/mid-1990s.

There are number of other projects that share access roads with these two projects, most notably El Pachon of Glencore. The others are smaller, less advanced or static and are "operated" by the likes of Fortescue (FMG), Abra Silver (with Coipita) and the Sanchez Losada interests. In close proximity, but on the Chilean side of the border, are large producers like the Los Pelambres mine of Antofagasta.

Both of projects visited are remote and at high elevations. Road access (to be discussed anon) is shared between various operators and is somewhat challenging, but under constant improvement. The closest airports are in the cities of San Juan and Mendoza.

San Juan – Copper’s New Chile?

We have been on record for quite a while now as referring to Argentina as “the Saudi Arabia of Lithium”. Of late, we have also taken to referring to San Juan as “the new Chile”. This is somewhat ironic as the province has hitherto been viewed as a gold province with the major mines being Veladero, Casposo and Gualcamayo. However, these mid and smaller scale gold mines are now being eclipsed by the Copper potential, with projects that are mainly in the “large” category on any international scale with multi-billion **tonne** resources as currently only projects of this size can cope with the topographical and infrastructure challenges of the high Andes.

A provincial Secretary of Mines has been in place in San Juan Province since early 2004. The Mining Ministry was created at the end of 2010 and a Mine Minister is appointed to lead this Ministry. Apparently, San Juan is the only province to have elevated the role to a ministerial level.



Argentina

Despite the fact that the country’s president is Alberto Fernandez, he is widely regarded as a creature of his vice president, Cristina Kirchner. The Kirchner grouping has largely ruled the country for twenty years, excepting a small centre-right interregnum mid-last decade. The

Kirchnerite political style is not everyone's cup of tea. However, even the detractors of Cristina Kirchner find it impossible to claim that she, or her various governments, have been anti-mining. Coming as she does from the strong mining province of Santa Cruz, in Patagonia, her approach has been very softly, softly.

The impressive current mining secretary at the Federal level is Fernanda Avila, who was formerly the secretary of mining in Catamarca province. In her international appearances (a contrast to previous stay-at-home secretaries) have left a trail of goodwill and good vibes at mining events around the world, most recently in Riyadh where Argentina had the largest presence of ANY country.

The main bugbears of the mining industry have been the issues of the *reintegros de IVA* (rebates of VAT) and the on-going idiocy of the parallel exchange rates, and exemptions thereto, that create an enormously distortive effect on the flow of funds into capex and the flow of dividends and profits out of the country. At the current time, for instance, the official dollar rate is around 180 to the USD, while the unofficial rate (the Dollar Blue) is around twice that at 370 to the USD. This requires CFOs and financial controllers of foreign miners to perfect their skills as contortionists to effect transfers at the most attractive rates.

Generally though, this situation has not been enough to discourage exploration or development. It is worth noting (and the miners are *sotto voce* on this) that the "cheapness" of Argentina at the unofficial rate is a big attraction. Normal petrol/gasoline is at US\$1 per litre and salaries are basically low at the official rate for domestically employed staff. Rents are low and hotels cheap, as are many basic camp supplies (food, cleaning products etc). Methinks, they complaineth too much.....

A specific negative for those operators in the high Andes is the so-called Glacier Law. This has been around for a number of years but has not been quantified or really applied. Moreover, the register of glaciers has not been updated and global warming (or whatever) has resulted in some of the listed glaciers having disappeared/dissolved. Others have shrunk to the size of a few dining tables and become historical oddities. Miners must, however, tread gingerly around this somewhat nebulous subject.

However, one might also look to the wetlands subject where the Iguazu Agreement of protecting wetlands prompted some rather predatory legislation that nearly made it to the law books, but was headed off at the pass by canny lobbying by interested parties in the mining

industry and mining provinces. This shows that a proactive, yet subtle, approach from players acting in concert can make mining voices heard.

On the broader front, one might note the Fernandez/Kirchner Administration faces deep dissatisfaction from the public at this point due to the eternally troubled economy, falling living standards and romping inflation. There are primaries due in the middle of this year and then presidential elections in October of 2023. It is felt that the opposition stands a strong chance but, as yet, does not have a candidate. It is also not clear whether Fernandez will be trotted out by the Kirchnerites (or go it alone), but it looks highly unlikely that he will be on the Kirchnerite ticket again.

It should be remembered that aside for some minor positive initiatives from the centre-right regime of Mauricio Macri last decade, that Administration is best recalled for having all the effect of a damp firecracker. Hence its brief duration and its unfond memory in the minds of the general public and the business community.

The Legal Context

During the Golden Years of the Menem regime of economic liberalization in the 1990s the administration created a major shift away from the ossified historical legacy that had choked off most mining since the Second World War. Most importantly Carlos Menem, originating from the long forgotten and ignored Andean provinces, swung the pendulum of control of bureaucrats in the capital, Buenos Aires, towards provincial control of their own mining destinies.

Between 1993 and 1995, the Federal government implemented a new Mining Investment Law, a Mining Reorganization Law, a Mining Modernization Law, a Mining Federal Agreement, and Financing and Refund of IVA. Decree 456/97 implemented a unified text of the Mining Code with all amendments made by the aforementioned legislation. These amendments offered attractive incentives for exploration and mining to foreigners, and include both financial and tax guarantees, such as import duty exemptions, unrestricted repatriation of capital and profits and a 3 percent cap on Provincial royalties. This group of laws also created the basis for federal-provincial harmonization of the procedural regulations.

In 2001, Law 25.429 “Update of the Mining Investment Law” was passed, and in March 2004 approval was reached for a key provision of the Law allowing refund of the IVA (Value added tax) for exploration related expenses incurred by companies registered under the Mining

Investment Law.

The Mining Secretariats of the provinces are commissioned to foster mining investment, participate in cooperation between international and inter-jurisdictional departments, and to oversee environmental, labor and hygiene issues related to mining. Importantly, they respond to and govern initiatives of the National Mining Commission (which supervises the country's mining policy) and oversee the National Geological Service Board (SEGEMAR, which functions as a national Geological Survey).

Despite perennial concerns about the Argentina political direction, the metaphorical road to the Argentine *salares* opportunity has become more like a Los Angeles expressway in peak hour, of late.

Argentina has been in the Lithium game for decades, so is no newbie, but was always perceived as playing second fiddle to Chile.

Chile is merely focused on expansion of existing facilities these days. Chile's attachment to an ancient Pinochet regulatory system, that required nuclear regulators (CCHEN) to clear Lithium projects, just showed that Chile could not get out of its own way. This reinforces the view that Chile is not the mining paradise that many would have us believe. Its arcane regulations make it look like they are trying to keep new kids out of the game, and that is just resulting in Argentina making all the running.

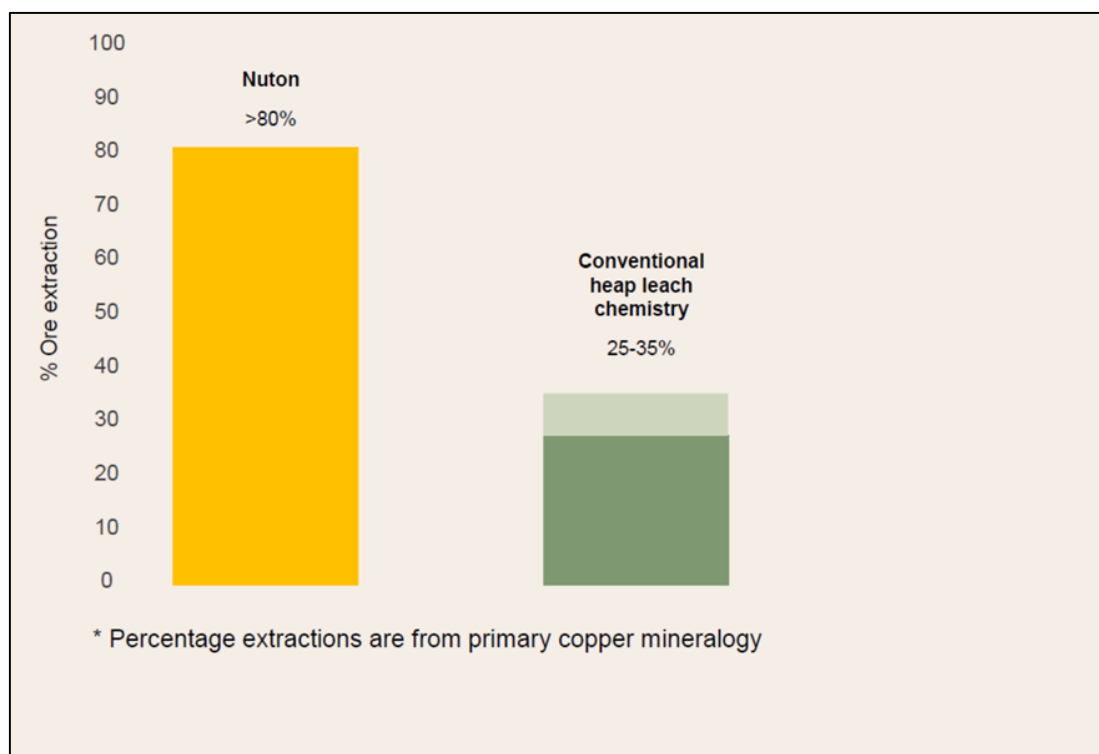
Nuton LLC

This is more than just a technology, it is actually a "venture" division of RTZ. It takes stakes in entities likely to be used in the advancement of testing of this new technology with the bigger aim of growing Rio Tinto's copper business.

We say "new" but in fact it has been in trial operations at RTZ's Bingham Canyon mine in Utah since around 2014. This "family" of proprietary copper leach-related technologies is the product of ~30 years of R&D by RTZ's teams.

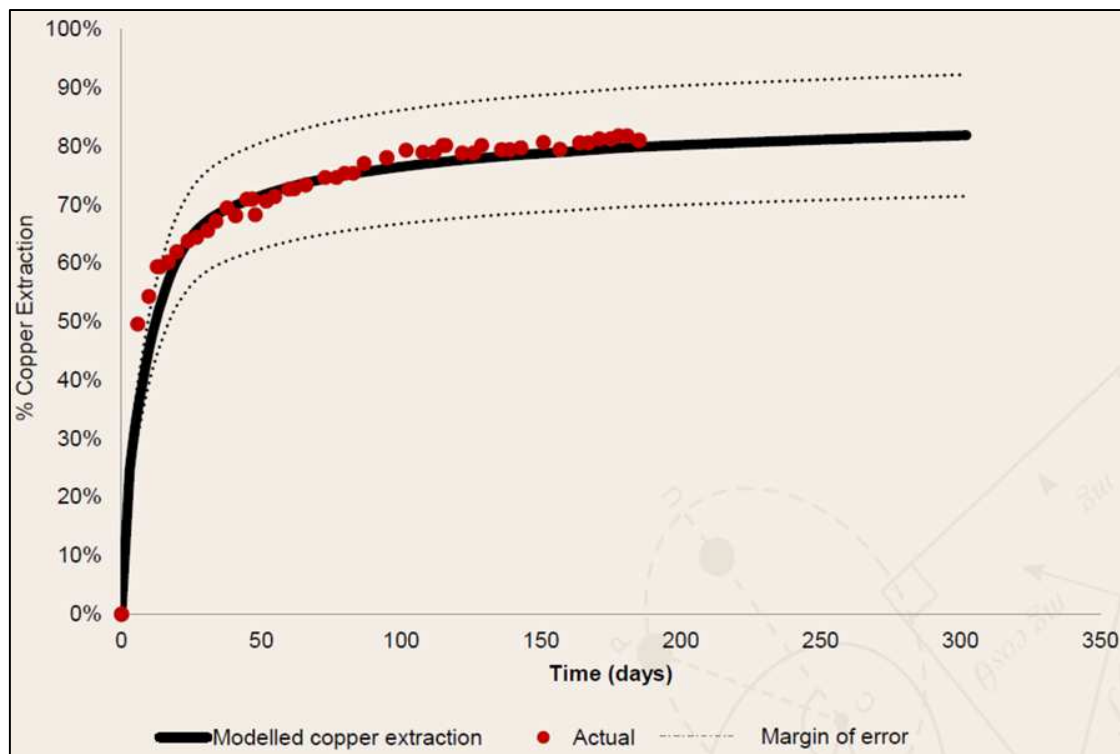
Nuton® Technologies offer the potential to economically unlock copper sulphide resources, copper bearing waste and tailings, and achieve higher copper recoveries on oxide and transitional material, allowing for a significantly increased copper production.

- As an alternative to concentration, the Nuton process could be used to leach primary ores
- The core of Nuton is an elevated temperature bioleaching process using naturally-occurring extraction catalysts as an alternative
- It is a more environmentally-friendly and cost competitive process that can achieve greater than 80% recovery from chalcopyrite, versus 25-35% for traditional leaching
- Lab testing is currently underway on ore samples from various collaborating companies' projects/mines
- No changes are required to the leaching circuit – it continues to use SX/EW to allow production of LME Grade A cathodes.



One of the key differentiators claimed for the Nuton technology is the potential to deliver superior environmental performance, including more efficient water usage, lower carbon emissions, and the ability to reclaim mine sites by reprocessing mine waste.

Rio Tinto's copper leaching technology venture has signed deals with, among other companies, Arizona Sonoran Copper Company Inc and Lion Copper and Gold, to test out its solutions.



Mine Trip Notes – What they Are & Are Not

These notes are one of our lesser-known products and are relatively few and far between. Double-bill notes are even rarer, with the last one being our writeup of the trip to Nevada in late 2011 to Quaterra Resources' Yerrington project and Entrée Gold's nearby Anne Mason project.

These are intended to focus upon the big context of the metals in question and the jurisdiction and then the facts of the trip and observations upon the project site. They are **NOT** initiations of coverage, and do not contain revenue projections, management bios or even the risks involved/envisaged in the projects visited.

Aldebaran Resources

How to make an Elephant Bigger

Key Metrics

Price (CAD)	\$0.88
12-Month Target Price (CAD)	\$1.32
Upside to Target	50%
12mth hi-low	\$0.53-\$1.04
Market Cap (CAD mn)	\$121.79
Shares Outstanding (mns)	138.4
Fully diluted	159.3

- + Aldebaran is the owner of a portfolio of assets in Argentina, the most important of which is the Altar project in San Juan, though it also holds targets elsewhere, such as Salta
- + There is a massive legacy of work done by previous operators (particularly Peregrine & Stillwater)
- + A recent vote of confidence in the company's asset and strategy have been evidenced by the strategic investment of South32 into the company
- + The core management team at Aldebaran consists of individuals that have previously achieved a massive value uplift through the sale of Antares Resources to First Quantum for US\$650mn in 2010
- + The team are masters of the "slice & dice", having created Regulus Resources as a newco from Antares and then Aldebaran as newco from Regulus
- + There is very close proximity (less than 10kms) to the massive Los Pelambres mine of Antofagasta on the Chilean side of the border
- ✗ Management's focus upon expanding the resource at depth and outwards, seemingly at the expense of not firming up a development/production vision, potentially puts it offside with those (including its current strategic investors) who may want to see it capitalize on copper's strongly sought after status
- ✗ The advantage of proximity to Chile raises nationalist issues that may thwart pursuit of the most economic solutions to logistical issues (and power supply)
- ✗ Ongoing heavy exploration expenditure means capital raises are an ongoing feature and imperative

A Plethora of Developments

The road trip began on the Monday afternoon with the analysts being picked up in Mendoza for the drive to San Juan. Essentially the landscape is dry and flat for the whole distance to the city of San Juan, capital of the eponymous province. The whole province has a population of around 750,000 with the vast bulk (a bit over 600,000) living in the capital. The province's industry has long been cultivation of fruit and some vegetables. Nuts and olives (and wine) are the rising industries with little industrial activity (beyond agricultural processing) which is why gold mining has assumed importance as a job creator over the last twenty years.

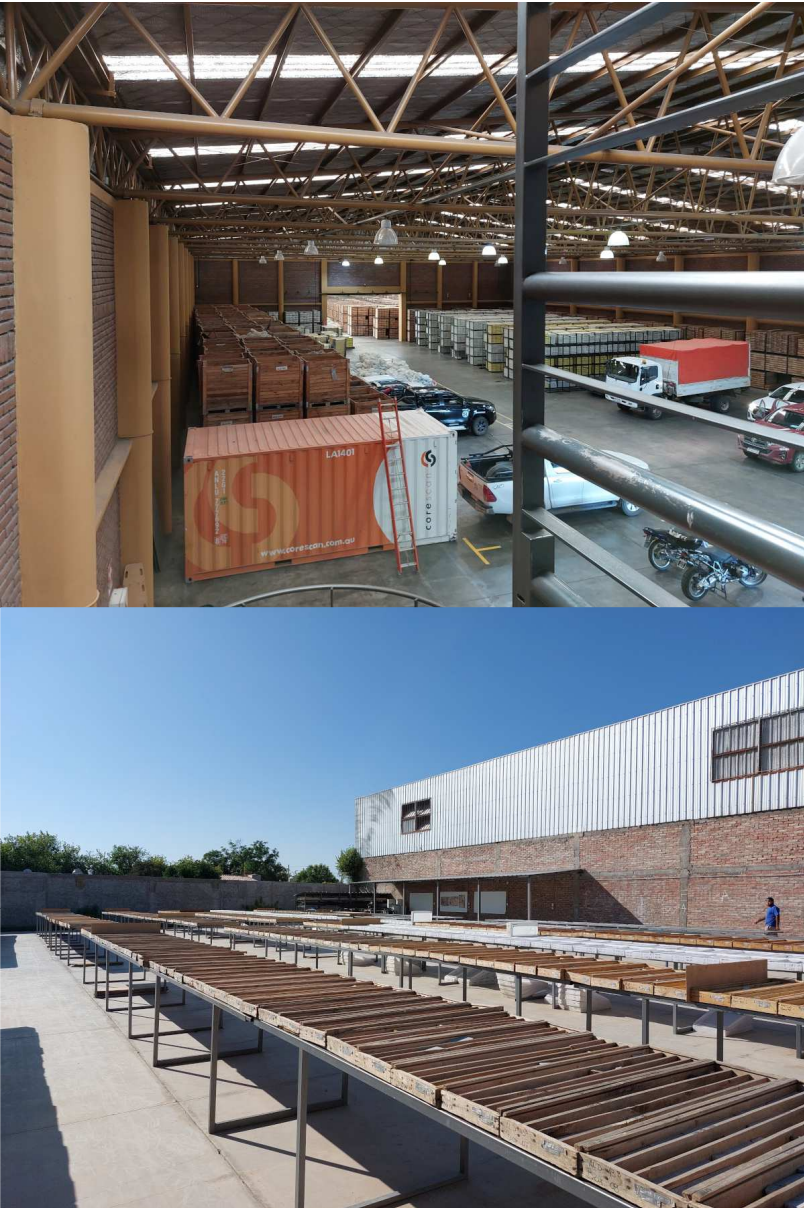
However, just as the province and its people have begun to embrace the gold mining industry the mining activity has peaked and is now in decline due to the usual LoM issues. One of the three major mines, Casposo, has already closed. The other two, Veladero (Barrick/Shandong) and Gualcamayo will not last forever. Thus copper mining is seen as potentially picking up the baton and running with it, though development of such copper mines is another order of magnitude in capex and logistics.... But also in jobs created and revenues.

The first night was spent in a hotel in San Juan then the next morning we were taken to the core facility on the outskirts of the city. This very large, modern and well-equipped facility was formerly a beer wholesaler's logistics centre.

The company has 140,000 metres of core stored on-site, of which 120,000 was undertaken by previous owners of the Altar project (Stillwater & RTZ). The first morning consisted of a briefing for several hours on the geology, history and political context.

Resource: Altar		@ (0.3% Cueq cutoff)				Contained Metal		
Category	Tonnes	Cu %	Average Grade		As (ppm)	Cu (lbs mns)	Au (oz mns)	Ag (ozs mns)
			Au g/t	Ag g/t				
Measured	622.1	0.44	0.10	1.04	184	6074	2.0	20.8
Indicated	576.1	0.42	0.08	0.96	118	5288	1.4	17.8
Total M&I	1198.2					11362	3.4	38.6
Inferred	189.2	0.42	0.06	0.8	73	1749	0.4	4.8

The legacy of all this work is a sizeable resource as shown above. The technical team, led by Dr Kevin Heather, clearly have a different read on the deposit to previous owners. It was felt that there had been poor geological interpretation of metallurgical samples by past operators.



The images on the preceding page show the impressive core storage facility. Several hours were spent examining the core before another shorter briefing session and a lunch. The expedition then set off for the Altar camp.

Access

The Altar site is remote and has no local infrastructure apart from the gravel road to the property.

The Altar Project is currently accessed via two routes in Argentina. The primary access route is shared with the El Pachón project (owned by Glencore) and leads southwestward from the town of Barreal before swinging northwards toward El Pachón, then continuing an additional 25 km to the Altar Camp. In total there is approximately 170 km of gravel road from Barreal to Altar that is suitable for exploration support.



The road in question has been upgraded (and maintained up to a certain point by Glencore)

who act as guardians of the road. Aldebaran's contribution to maintenance is the provision of a bailey bridge (which it rents from the Argentine military) and provides for general usage. One gets the impression that Glencore are rather tyrannical in their proprietorship on the road, particularly considering that much of it is neither on their freehold nor mining concession. Eventually, an alternative "ownership/custodianship might need to be worked out.

The second access is northward from Altar toward the Los Azules Project and along the Rio Calingasta. We shall discuss this anon.

Altar & QDM

It could be said that that the project area consist of three projects but management would probably contend it consists of more. The project(s) area is located in San Juan Province, Argentina, approximately 10 km from the Argentine-Chile border and 180 km west of the city of San Juan. In addition to copper and gold, the deposit contains silver and minor molybdenum.

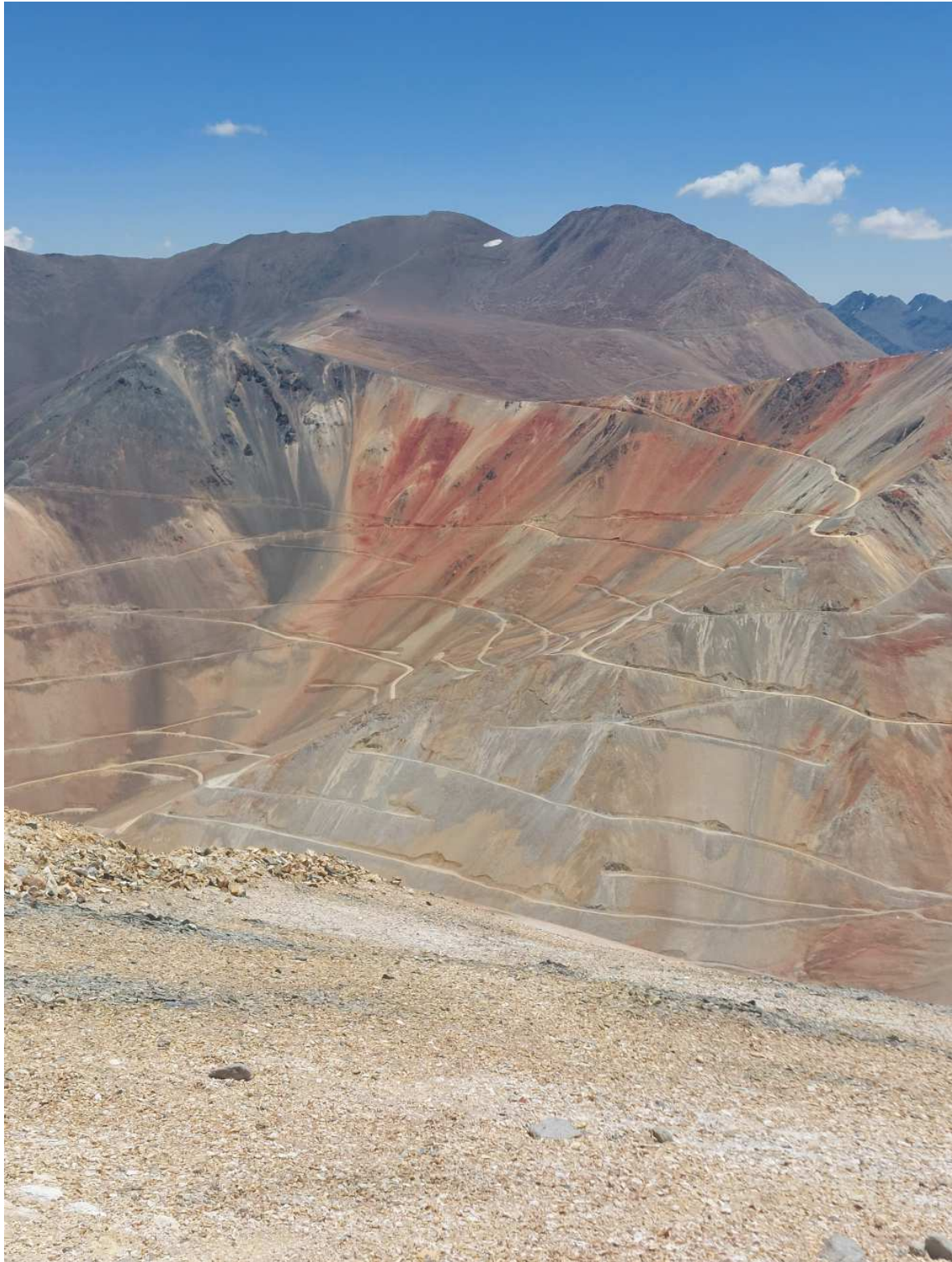


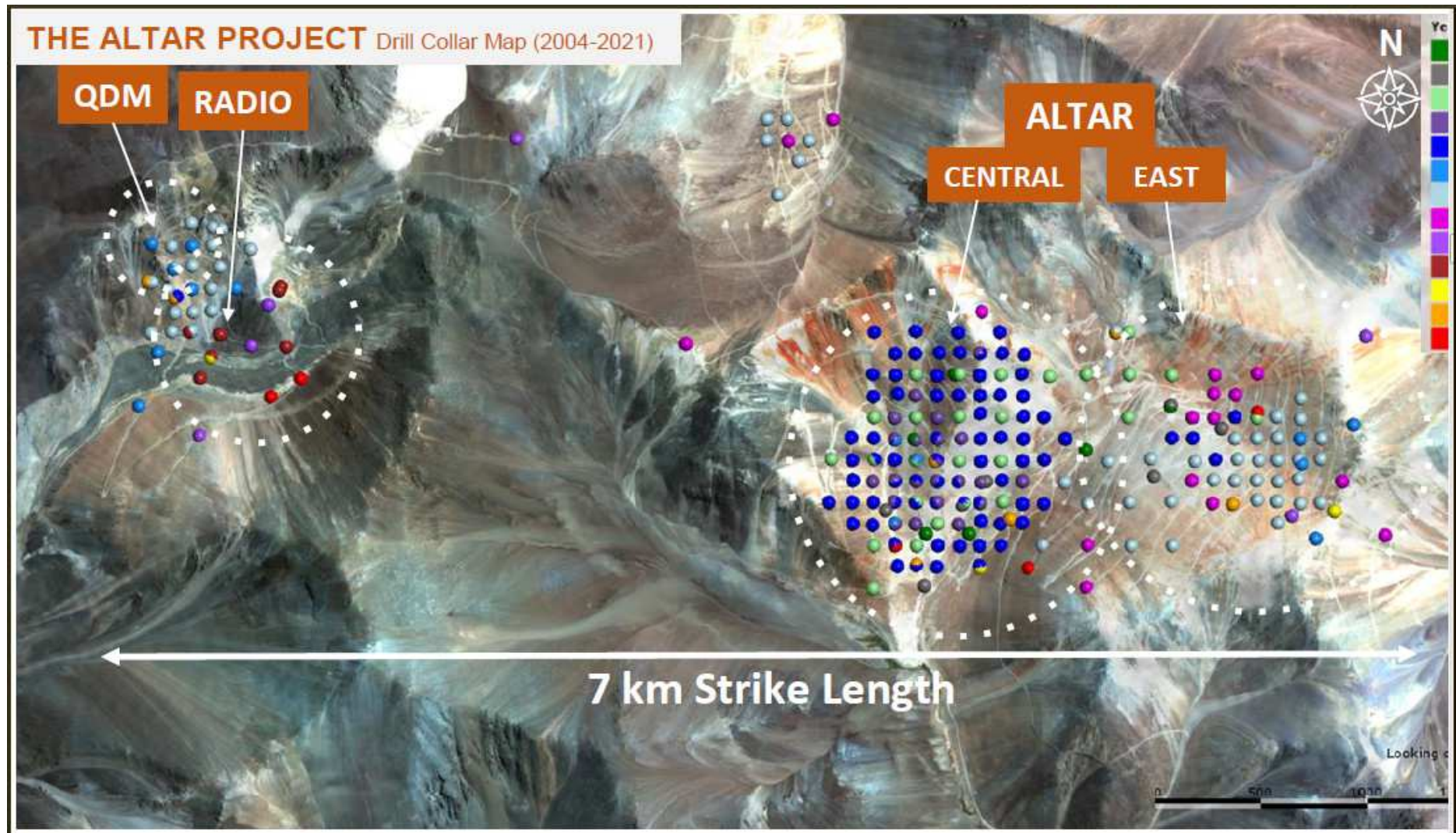
The Altar Project is a cluster of copper-gold porphyry centres occupying/underlying a steep basin. The steepness is evident from the photo on the following page.

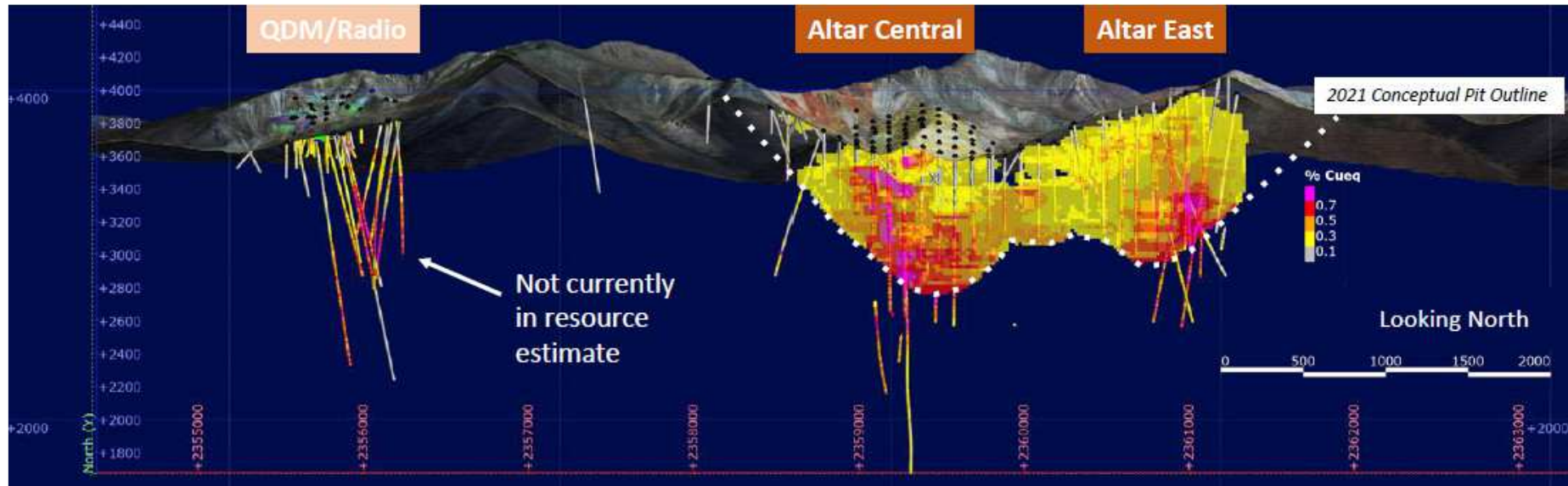
The Quebrada de la Mina (QDM) area, located roughly 3 km west of the Altar porphyry cluster, hosts the QDM gold and silver deposit and the Radio porphyry deposit (where insufficient drilling has not enabled a mineral resource to be calculated as yet). Neither is there any work being undertaken at this target.

Both the QDM/Radar and Altar areas are supported by a common exploration camp.

Tuesday, February 28, 2023







A cross-section of the whole project area, though in reality we can't help thinking that QDM/Radar is a totally different project.

Resource: QDM								
Category	Tonnes	Average Grade				Contained Metal		
		Au g/t	Ag g/t	Cu %	As (ppm)	Au (oz mns)	Ag (ozs mns)	Cu (lbs mns)
Measured	15.8mn	0.81	3.59	0.06	168	0.41	1.83	21
Indicated	4.2mn	0.68	3.74	0.06	164	0.09	0.5	5
Total M&I	20mn					0.5	2.33	26
Inferred	1.2mn	0.58	5.34	0.03	153	0.02	0.21	1.0

Corporate Machinations

Past work on the project was undertaken by RTZ, then Peregrine, then Stillwater (before its merger with Sibanye). CRA/Rio Tinto undertook seven holes for a total of 2,841m in 1995-2004. Peregrine, (an entity of Eric Friedland), subsequently optioned the property from Rio Tinto in 2005. Peregrine expanded the property and completed 56,761 m of drilling in 146 drill holes from 2005-2011 to define an initial mineral resource estimate at Altar Central and Altar East.

RTZ had a 1% NSR on the project which it vended to Orion and this has now ended up within Osisko Gold Royalties.

Peregrine was acquired by Stillwater for US\$487mn in 2011. At the time the project had a measured and indicated resources of 7.4 billion pounds of copper and 1.5 million ounces of gold.

Sibanye acquired Stillwater in 2017 and the Altar Project was deemed to be non-core to Sibanye-Stillwater. Regulus (another vehicle of the Black/Heather grouping) picked it up for US\$15mn in cash (plus a 19.9% stake to Sibanye) on an earn-in basis and then demerged it as Aldebaran in mid-2018. Aldebaran had to spend \$30mn on exploration to reach a 60% stake and to reach 80%, it must spend a further \$25mn over an additional three years.

The shareholder structure is now: insiders with 5.33%, Route One (an SF-based fund manager) with 23.15%, Sibanye watered down to 17.61%, South32 (a recent entrant) with 9.9% and a public float of ~44%. Stillwater have no board seat and South32 can achieve one if they get to a 12.5% stake.

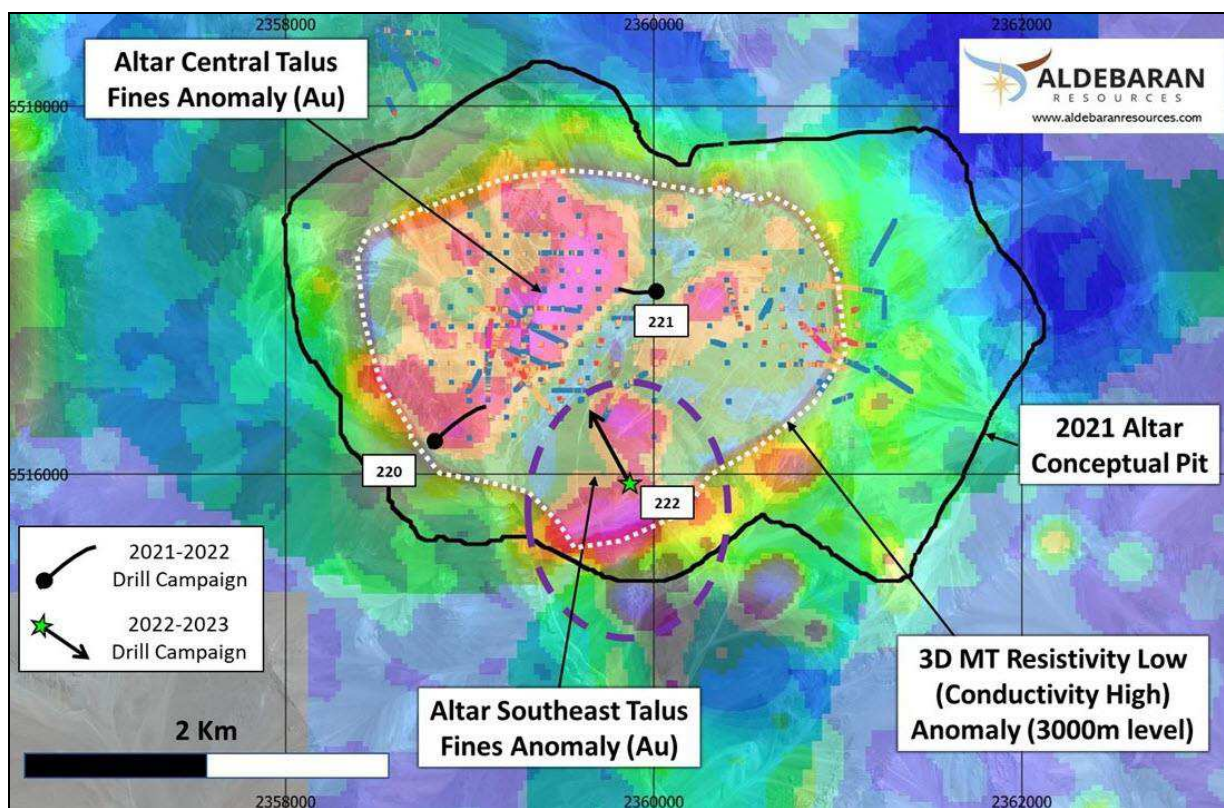
Current Drilling

Up until now the drill season has been largely January to April, however, with improvements to access the season has experienced a significant expansion to (potentially) October to June.

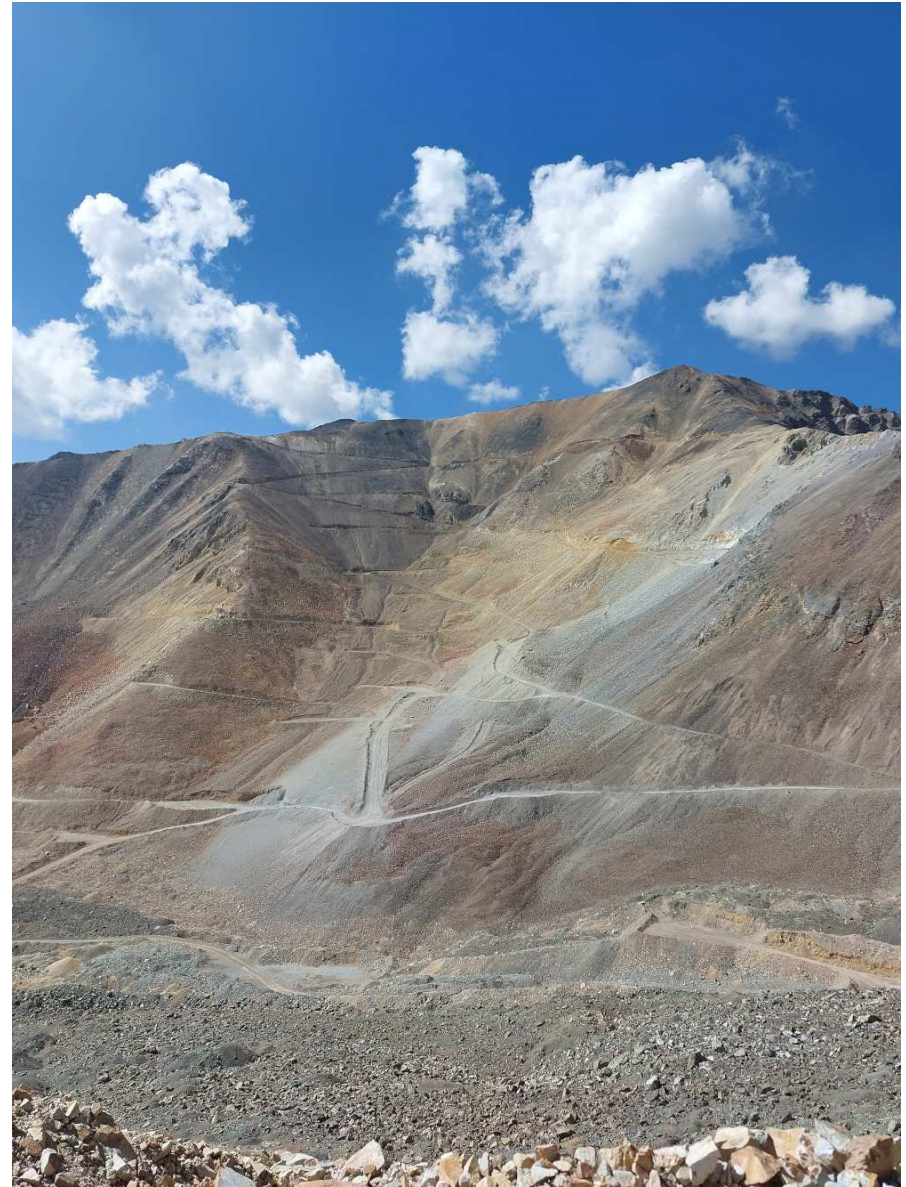
The company has three rigs operating currently, with the possibility of adding a fourth rig. Drilling costs are currently around US\$400 per metre so rather expensive. Moreover, there is quite a degree of dissatisfaction with the pace of work. For us the solution would appear to be acquiring one's own rig(s) but this option seems to have been discarded. This is in sharp contrast to the direction that McEwen Copper is following (see anon).

This rig issue is a big problem as the company wishes to fill the “gap” with 20,000m of holes (averaging around 1,500m per hole) so around 12-14 holes but if the rigs are not performing to the desired level then weather considerations might cramp the 2022-23 drill season’s results.

Below can be seen the conceptual pit shell for the Altar “mine” overlaid on the Resistivity Low/Conductivity High Anomaly. As can be noted there are no holes in the fringe between the anomaly and the pitshell. Also the lack of holes in the dotted circle market “Talus Fines Anomaly” is remarkable.



In contrast to the project we visited next, Aldebaran essentially inherited a massive amount of drill data and past work. The extra amount of work required to fill the “gap” is not onerous. The company though, has not advanced much on the geotechnical drilling front, which would be a sign to the market that it is serious about creating a project with the maximum amount of data on mineability. At this stage issues like where overburden or tailings storage facilities might go remain undecided or matters of debate. The former is particularly important as the strip ratio is projected at 2.5:1. More evidence of mineralisation at the pit margins and in the “gap” might bring this ratio down.



Investment Thesis

It seemed evident to us that there was some “creative tension” at Aldebaran on the issue of how much more to drill to prove and expand the thesis of multiple porphyry intrusives. Currently, the pitshell is massive and thus expensive. Likewise the resource is large, and likely to get larger, just within the existing pitshell (or tweaks thereof). This raises the eternal question of whether to keep expanding the resource *ad infinitum* or to incorporate the current and near future drilling into a revised resource and move forward with a PEA.

The larger the resource gets (outside the current pitshell) the wider and deeper the pit must go. In light of the challenging location and topography, is it better to stay within the realms of the doable? The alternative of spending finite resources on ever deeper holes would seem to us to be an academic exercise and “over-egging the pudding”.

The current drill program will probably undershoot the goals set for it due to the problems with rig availability and slowness of the program. That implies, in turn, that the mystery will remain (for another season at least) as to whether the “gap” between Altar East and Altar Central can be filled with a resource of the calibre of the existing two identified mineralized zones. This delay in maximizing the resource within the pitshell might make any prospective PEA less comprehensive than it might be in an ideal world.

Why should Aldebaran’s price go up if the project is not even at the PEA stage? The Copper price upside alone could provide an impetus. A revaluation of Los Azules, prompted by its listing, could bring collateral benefits for Altar in the investment community’s eyes. Takeover activity in the region, or also towards Aldebaran, could prompt a revaluation. We would not see the management team wanting to sell out at less than US\$300mn, which is three times the current market valuation, though we suspect they want much, much, more considering what Peregrine was taken out for many moons ago, on a much lower resource basis.

We regard Aldebaran Resources as a **LONG** at this juncture, with a twelve-month target price of \$1.32.



McEwen Copper

Advancing to a Near-term IPO

Key Metrics (MUX)	
Price (CAD)	\$6.25
12mth hi-low	\$2.81-\$9.78
Market Cap (CAD mn)	\$296.25
Shares Outstanding (mns)	47.4
Fully diluted	50.9

- + McEwen Copper, at Los Azules, holds one of the ten largest copper projects in the world
- + The company has a management team that can “walk & chew gum at the same time” advancing development infrastructure while undertaking a heavy program of exploration and geotechnical work
- + There is no doubt that the team see themselves as mine-builders rather than blushing maidens waiting for a suitors
- + Impressive ratio of female employees, 25% female of which 75% are technical, while males are the reverse
- + Copper has staged a rebound in recent months after having spent most of 2022 in the doldrums due to the Russo-Ukraine War and Chinese Zero Covid damaging global trade
- ✗ The location is challenging from an access point of view which will add substantially to capex when building begins
- ✗ The plan to IPO the copper division of McEwen Mining, rather than demerging it, does not give long-suffering shareholders of MUX their eventual reward
- ✗ The environment for funding massive projects has been strong of late but is, as ever, subject to the whims of the marketplace

On to Los Azules

Our metrics box at the start of this section would be skimpy, or indeed empty, if it was to focus solely on McEwen Copper for all we have to go on currently is the number of shares on issue and the last price at which a financing was executed. Instead we elected to put the details of McEwen Mining, but as will be noted at the end of this section of our trip report, buying MUX does not get you even one share (at least directly) of McEwen Copper.

There are two access routes to the Los Azules property. One might be called the low-level Southern route, which is essentially the same as that to Altar until a fork in the road. The other is northern route, which is almost exclusively the domain of McEwen Copper. While this northern route does access a few small projects that are essentially dormant at worst, or sporadic in their efforts, at best. This northern route definitely would classify as high-level as it crosses two 4300 metre ridges.

As the expedition was headed from Altar's camp to Los Azules camp it followed the southern route. All of this section is out of the purview of El Pachon and was extremely rough, particularly on the section outside Aldebaran's control.

The Los Azules Camp(s)

The expedition arrived mid-morning at the main camp of McEwen Copper. There are, in fact, three camps. The main one is for the McEwen team. Several hundred metres to the north is the camp for drillers and then there is a small third camp for roadbuilding on the northern access road. The latter we did not visit until the journey out on the last day. There are around 200 people on site at the Los Azules camps.

The most noticeable thing (compared to Aldebaran) upon arrival was the presence of female personnel. Mike Meding, the head of McEwen Copper, made us an introductory speech and pointed out that 25% of the camp team are female and that, indeed, 75% of them are technical/qualified, the obverse being the case with the male staff. We were immediately launched onto the core boxes that had been laid out in the sun for our perusal. It was pointed out that most of the current drilling effort is geotechnical (with the consultants being Stantec). What was obvious from the core (even to our untrained eye) was the friability of the rock, which ultimately has strong implications from the competency of the rock on the pit slopes.

It was revealed that the current pit shells have a 32.5% slope, which is the angle of repose for sand. With one of the geos able to break the core by hand we could see why the pit designers chose the angle they did, particularly as the high sides of the pit (in several directions) are small mountain ridges. An intense round of geotechnical work is underway to possibly change opinions and it was mentioned that a "third opinion" was currently being sought.

Team Leaders

We met all the team at site (plus two executives from Toronto). The team is led by Mike Meding and by Dave Tyler, with Fabio Oriolani, in charge of construction (formerly 16 years with Barrick Gold).

Mike Meding and Dave Tyler are somewhat of a Yin & Yang combo. Mike is definitely a force of nature with the big picture and the minutiae within his grasp. If you wanted to build a pyramid (or a major

mine) he would seemingly be your man. He is German but with many decades of living in Latin America and his two most notable undertakings having been at Veladero and Pascua Lama. He is therefore steeped in the issues one encounters in Chile and Argentina. He is also McEwen Mining's representative on the board of the San Jose Mine in Patagonia, that is majority owned by Hochtief (HOC.L).

Dave Tyler is the senior project manager and a quiet performer. A graduate of the Colorado School of Mines, he was previously Study Director for Newmont Mining, VP Technical Services for Coeur Mining, Technical Manager for Lydian in Armenia and the Vice President Project Development for Twin Metals, leading a \$1.1mn Copper-Nickel development project near an environmentally-sensitive national wilderness area.

Environment

While viewing the core the group was overlooked by a flock of goats and mules. Normally these would not have relevance but in the case of both projects this is an important factor. Long time grazing by these animals, driven by Chilean herders over the mountains has resulted in significant degradation of the local environment. It was clear from our drive through the wide floored valleys that scarcely any vegetation ever managed to get above a few feet in height and there were no trees or bushes. Goats in particular are notable for their rapacious eating habits.

While these individuals have long paid a peppercorn fee to be allowed to do this, the mood is changing. In the current year the Argentine/provincial authorities have banned their entry, but the herders have persisted nevertheless. Mike Meding noted that areas of the valley floor that had been fenced off had seen strong regrowth of vegetation. The feeling is that a strong recovery of flora (by prohibition/elimination of these invasive species) would result in the reappearance of guanaco herds (we saw none of the animal) which would then result in resurgence of predators such as puma and condors.

Perversely, only the active presence of a



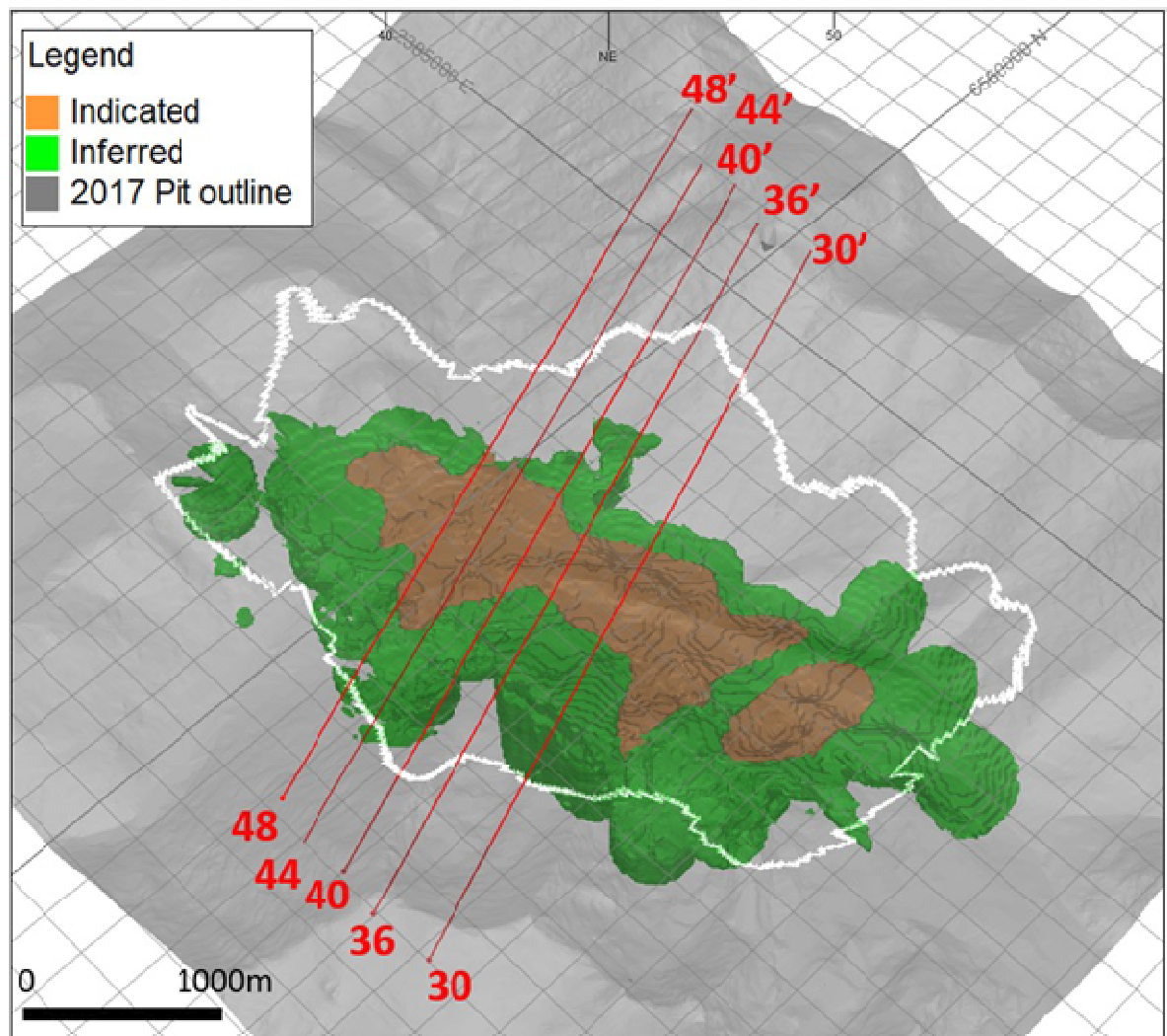
mine would preclude these predatory herds of alien species from continuing their predations. The Chileans are not happy, but hey-ho.

To the Site

The proposed mine site is a couple of kilometres to the north of the camp. The valley floor and slopes had numerous rigs at work.

The valley is like a shallow bowl the bottom of which is somewhat marshy. The company has obtained permits to drill the marshy section of the pitshell. The deep of this area is only one and a half metres and contains mainly bog-material with little open water.

The proposed pitshell is shown below.



The mine site is remarkably different from that of Altar. Here the valley is wide, with mountains on either side being neither as steep, nor as high (from the valley floor) as at the previously visited site at Altar.

The site management's thinking and orientation is production, production, production, which of course is our favorite mantra. Everything is viewed and undertaken for the long-term, whereas more exploration-only oriented projects rarely see things beyond the next drilling season.



Unlike Aldebaran, McEwen has resolved to purchase its own rigs to get around shortages and backed-up schedules. The company has Foraco, HG, Boart and Conosur as contractors. The current tally is nine rigs in operation and they are scaling up to 12, four of them are company-owned and are being used for “supplier development” and to ensure good productivity.

This strategy cannot be faulted by us as it has long been a *“calvario”* (as the Argentines would say) to ensure access to and keep a good stock of rigs. Current drilling is directed towards upgrading Inferred Resources to Indicated and defining a “Payback Pit”.



A Decline & Winterising?

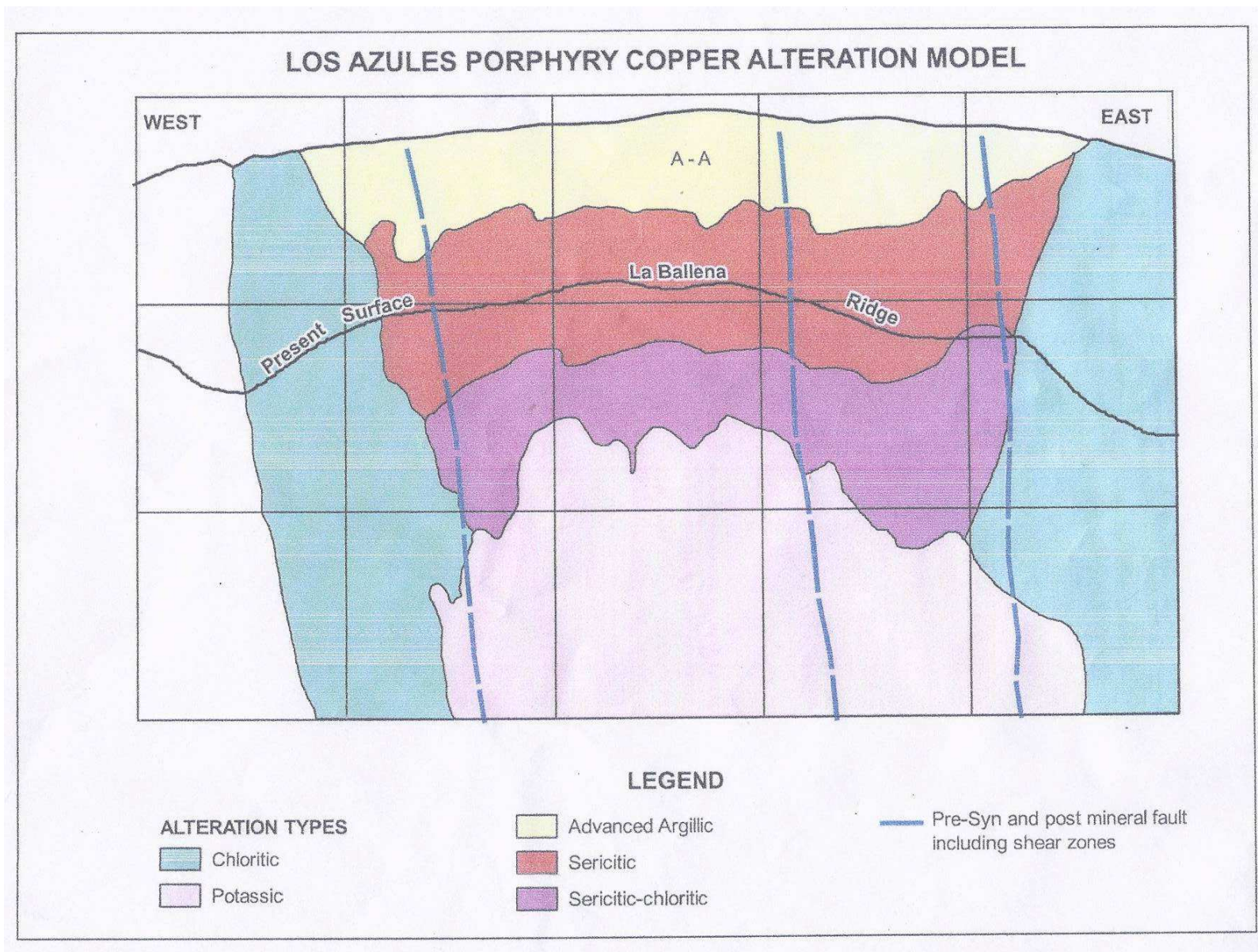
The company has a plan to sink an exploration drive into the deposit. This would come from the northern edge of the proposed pit and head south before veering westerly. It is initially envisaged to be around one kilometre long and going to a depth of 115 metres. Ideally this would start construction before the winter months as it theoretically could continue progressing through the winter period.

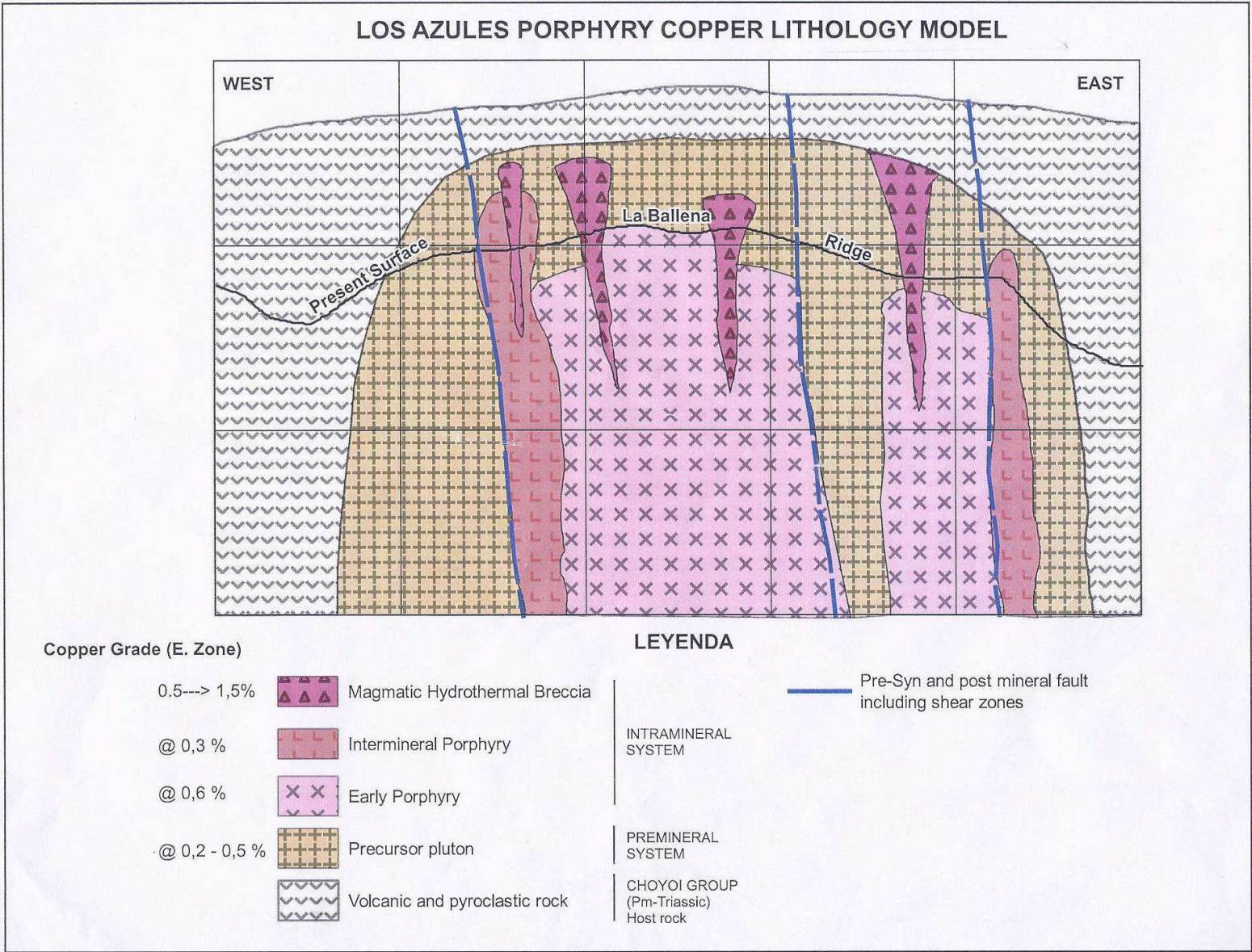
The company has an intention to create a winter camp. This requires a different level of logistics from that hitherto. It is dependent upon the improvements to the northern access road (discussed anon). That route is needed for bringing in large elements (in 40 ft containers, or suchlike) while the southern route (being lower level) has the greater potential to be kept open for personnel traffic (even though the larger items could not transit that route).

Geology

While in close(ish) proximity to Altar, the geology at Los Azules can be said to be similar, and yet different. As already noted the friability of the rock in geotechnical cores was very noticeable, but then again the pit wall slopes at Los Azules are neither as challenged by the topography not as steep, at least in the currently envisioned pitshells. *La Ballena*, incidentally is Spanish for “The Whale”.

The next two pages contain cartoons of the model of the deposit. Like Altar, the deeply buried porphyries have been brought up to the surface by massive erosion on the scale of vertical kilometres.





The Resource

Below can be seen the Los Azules resource calculated at a 0.20% cut-off.

Resource: Los Azules							
Category	Tonnes	Copper		Gold		Silver	
		lbs	%	ozs	g/t	ozs	g/t
Indicated	962mn	10.2bn	0.48%	1.7mn	0.06g/t	55.7mn	1.8g/t
Inferred	2,666mn	19.3bn	0.33%	3.8mn	0.04g/t	135.4mn	1.6g/t

A PEA was prepared by Hatch Engineering in 2017 and already has become somewhat historic. However, its outcomes included average production of 415 million pounds of copper for the first 10 years, at an average C1 cash cost of US\$1.28/lb, and an overall 36-year mine life.

The following an initial capital cost was US\$2.63bn.

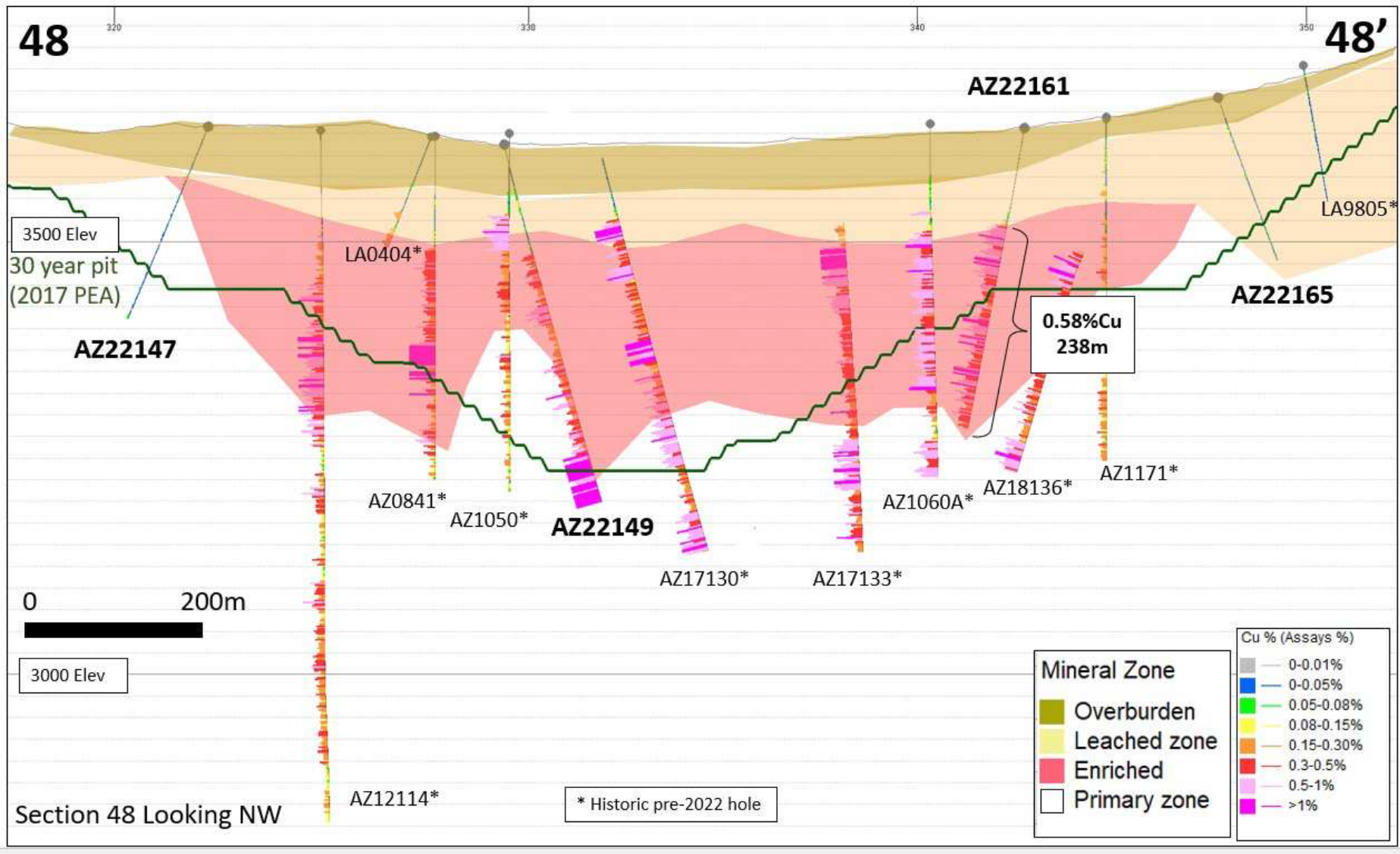
The economic were driven by price assumptions of \$3/lb copper, \$1,300/oz gold and \$17/oz silver. These are clearly now prices left behind by the uplift in all these metals since.

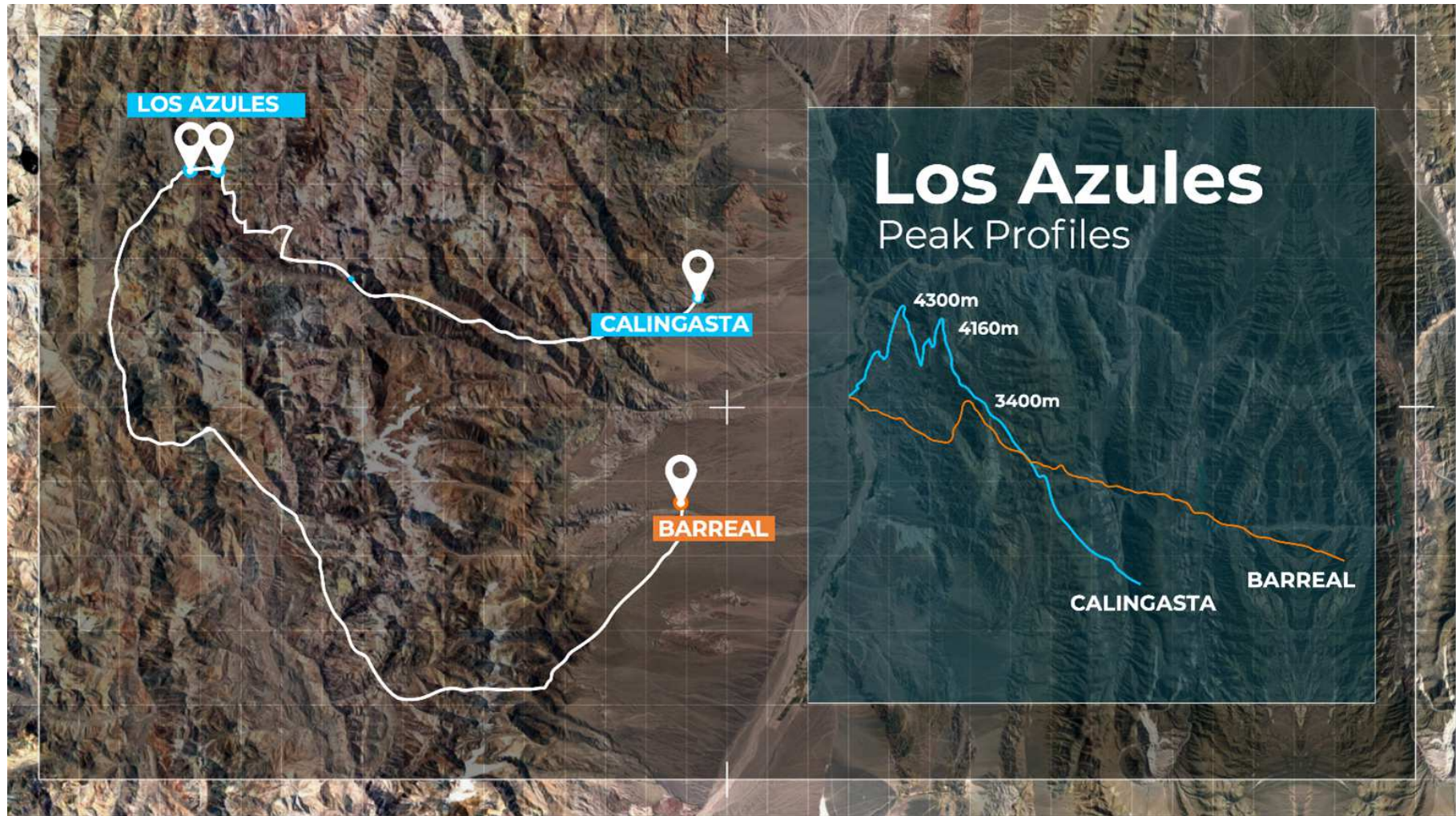
The Pit Shell

On the following page can be seen a cross-section of the 30-yr pitshell. The drill intercepts clearly show the potential for mineralisation and thus production at depth.

Beyond the already mentioned issue of friability/competency, there is overburden and a large amount of it. We seem to recall an amount of 80 million tonnes being mentioned.

The PEA mooted a LOM waste stripping of 1.5 billion tonnes, which represented a 1.05:1 projected stripping ratio. Whether this includes the overburden was unclear.





The Northern Access

The northern access route to the Los Azules camp is the “short” route to Calingasta. The first 15-20 kms out of the camp are truly a heartstopper as the hairpin bend road climbs over first one 4,300m ridge and then over another of nearly the same height, around 5kms further on. This was all undertaken pre-dawn. Some suspected that it was so as to not frighten the analysts of frailer constitution.

The road has experienced major upgrading in recent times, entirely at the expense of McEwen Copper. The goal here is to make the road accessible for articulated lorries carrying containers of up to 40 ft with initially camp and exploration equipment but eventually kit for the processing plant and minebuild/operation.

The Core Facility

The core facility of McEwen Copper is located on the northern fringes of Calingasta and is a substantial complex converted from a former cider factory. We spent a couple of hours here viewing the storage facilities, core boxes going back nearly 20 years and observing the spectroscopy machines/process and the core splitting facility.

The site is very substantial and has been fit for purpose, up until now, but is headed for a major overhaul. The first phase of this was announced to the markets on the day we were visiting. This involves a spend of around ~\$1.3mn and involves significant expansion of the core sheds, reinforcing of the existing sheds (for anti-seismic purposes) and the construction of a new site manager’s residence.

In a presentation we were shown the full plans for the site (only around one third of which is currently used/built-on. It will eventually contain new offices, a vehicles’ repair shop, a dining hall and accommodation block, as well as further expanded core storage and handling (beyond what was announced that day). The complex currently employs a few handfuls of people, but eventually may create several scores of jobs in construction and on-going operations.

Community Relations – Calingasta

The final stop on the mine trip was at the community relations office. This town of around 8,000 people is the closest centre of population to the Los Azules project (even though at over 70-kms to the east. The office facility is new and very impressive. It is led by Natalia Suarez, head of community relations, and two other staff. On the scale of things the budget is good at around US\$140,000 per annum.

Over the last year the funding was directed towards:

- ✓ A seed buying program for local small scale agriculturalists

- ✓ Educational aids for the local schools
- ✓ Lighting equipment for the town to install better and more efficient street lighting
- ✓ Supplies and maintenance of the medical clinic on the underserved western side of the town
- ✓ Salary supplement to keep a medical professional in place at said clinic

Going forward the amounts spent should rise with a longer term plan to fund bursaries for geologists and technical training at the province's university and other technical training colleges.

Return

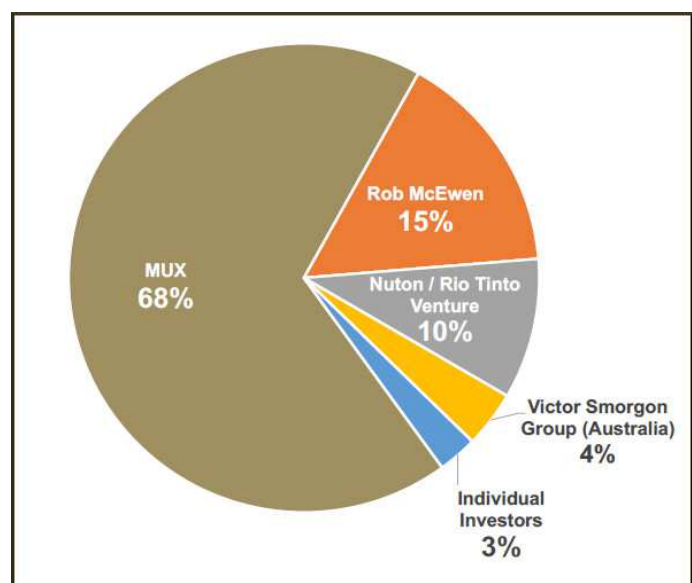


The group had a farewell lunch at Barreal and then everyone was driven back to San Juan for the night and then on to Mendoza the next morning for flights back to points north and east.

IPO or.....

Despite not (yet) being listed, McEwen Copper already has an existence quite distinct from McEwen Mining. This is due to the entrance of various large minority (strategic) investors into the McEwen Copper shareholder list in recent years.

The most recent of these being RTZ, which entered the register in August of 2022, when Nuton invested \$25mn (acquiring 2.5 million common shares at \$10.00 per common share) for post-closing ownership of 9.73%.



The shareholder distribution is shown at the right. The Melbourne-based Smorgon Group is one of the wealthiest families in Australia. All in all though, the register is still massively dominated by the eponymous Rob McEwen.

In such a transaction as is being envisioned for morphing McEwen Copper into a separately listed entity we **ALWAYS** favour demergers, which we have found to be profitable and a reward for existing shareholders (of MUX) rather just some carpetbaggers dredged up by an investment bank doing the deal. In this case, it was clear, in no uncertain terms, that there would not be a demerger and instead MUX would remain with a substantial holding and existing MUX shareholders would need to make their own efforts to get positioned in what is arguably the better part of the MUX asset base.

This revelation caused some muttering in the ranks of analysts, who perceived that the new listing would end up underperforming its potential, as it would have MUX remaining as either majority controller or a substantial minority. This in itself would produce a discount.

The logic behind keeping the copper division beholden to the gold parent is apparently that MUX, left to its own devices, would be either unprofitable or marginal. We cannot quibble with that thought (and cast your minds back to our comments on US Gold many moons ago).

Investment Thesis

Despite the likely “captive” nature of the new listed entity, it still appears mighty attractive to us with a dynamic team, a clear strategy, a powerful partner in the form of RTZ and a case of being in the right metal at the right time in the right place.

As not a listed stock in its own right, we can neither put a **LONG** call on McEwen Copper, nor can we posit a price target.

If the IPO was to be a demerger then MUX would be a **LONG** just to get access to the distribution. But seemingly that is not to be. However, depending on price of the issuance, we regard the McEwen Copper entity as very attractive indeed and thus an addition to our Model Mining Portfolio, if the price is right.



Stop-Press: In an announcement after this note was finished, it was announced that Stellantis, the fourth biggest car maker in the world, was acquiring 14.2% of McEwen Copper. FCA Argentina S.A., a subsidiary of Stellantis N.V., has invested ARS\$30bn to acquire shares of McEwen Copper in a two-part transaction that closed on February 24th, 2023 consisting of:

1. Private placement of 2,850,000 common shares, and
2. Purchase of 1,250,000 common shares indirectly owned by McEwen Mining in a secondary sale.

On the same day, it was announced that Nuton had agreed to invest US\$30mn to acquire further shares of McEwen Copper in a two-part transaction expected to close no later than March 10th, 2023 consisting of:

1. Private placement of 350,000 McEwen Copper common shares, and
2. Purchase of 1,250,000 common shares owned by McEwen Mining in a secondary sale.

Proceeds of the subscription and purchase are expected to be approximately US\$6.5mn to McEwen Copper and US\$23.5mn McEwen Mining, respectively.

These deals put a pro-forma valuation of over \$550mn on McEwen Copper (MUX stands at \$296mn).

Appendix I: Our Copper View

The Red Metal Regains Some of its Glow

- + Copper has staged a rebound in recent months after having spent most of 2022 in the doldrums due to the Russo-Ukraine War and Chinese Zero Covid damaging global trade
- + The pipeline of large copper projects is decidedly bare, which augurs well for those in the development stage
- ✗ Capex has soared, with inflation and newer prospective developments in more challenging locations necessitating greater infrastructure costs
- ✗ The environment for funding projects has been strong of late but is, as ever, subject to the whims of the marketplace

Our Take on Copper

The Russian invasion of the Ukraine in early 2022 and the global outbreak of inflation (with the cure being higher interest rates) has put paid to the dreams of those that hoped that a new paradigm of Copper at \$5 per lb or higher might be established.

The lengthy period of underinvestment in copper exploration and capacity has laid the ground for a supply crunch. Below \$3 there was little incentive to build new mines and below \$2.50 (pre-November 2016) there was no incentive to explore either as despair was the only sentiment around.

On top of this the Chilean government has engaged in very public acts of self-harm which have spooked investors as to the potential of establishing substantial new capacity in the country, not that there are any new Chuquicamata's waiting on the wings... or even mini-Chuquis. The effect has been to drive interest across the border into Argentina, where San Juan province has become the "new Chile".

This phenomenon is also driving the frenzy of interest in Botswana.

As the chart on the following page shows, after mid-2018, the price doodled about, but mainly lower. It plunged to a five-year low on the outbreak of the pandemic. In 2020 copper then "turned on a dime" going from a low of \$2.50 to over \$3.50, showing that the metal has the potential to move far and fast. It then powered on to nearly \$5 per lb before the rug was pulled out from under it. Unfortunately, the price was sustained above \$4 for only a year.



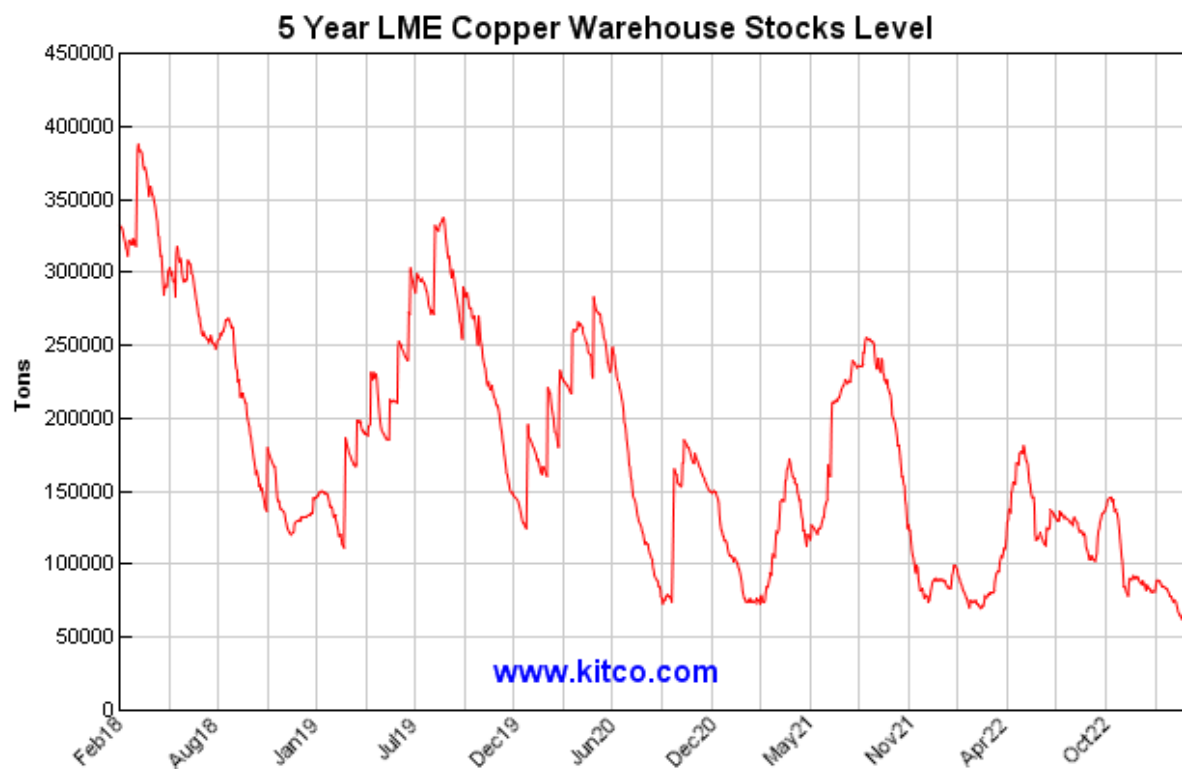
The outbreak of war could be blamed for the retreat in 2022 or China's ludicrous Zero-Covid phase but, as usual, we always look for the hidden hand of China, using onshore stocks to bludgeon the price lower, to suit some bizarre goal that cheap copper now (with its attendant lower investment in new development) might somehow be in China's longer-term interest. Sigh....

The following chart shows the LME warehouse stocks. This shows an interesting seesaw action in recent times. It is clearly evident that the trend is down and yet someone keeps moving in stocks to make it look like a stock build and then it gets slapped down again.

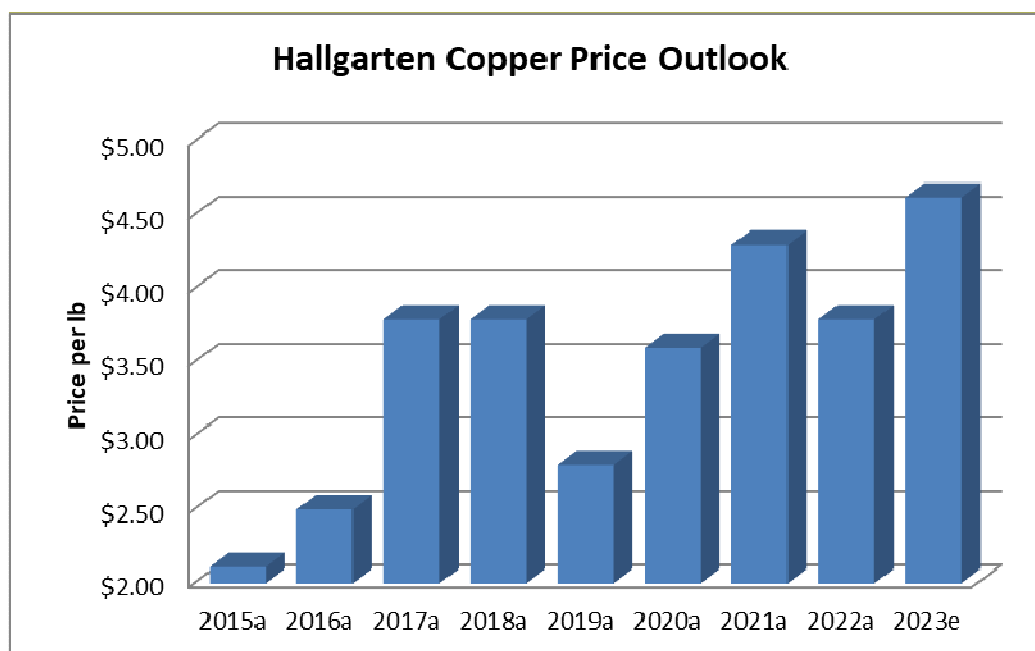
We have long mooted resistance at US\$4 per lb, not so much from the general marketplace, but from the Chinese. They do not want to be at the mercy of "Western" miners again in this metal.

Unlike metals like Zinc/Lead and Nickel, there was some copper development during the downtime (e.g. Las Bambas, Constancia etc) but this was nowhere near sufficient to replace mines that have exited or reduced production and deal with even conservative forecasts of growth in consumption.

If the Copper price had held up for longer it would have greenlit those few projects sitting on the launch pad without precipitating a production surge because there is not that much capacity to "turn on" and the unbuilt potential is small and a long way from actualization. It did however prompt the appearance of (and funding thereof) various explorers, such as Cobre.



As the chart that follows shows, we are bullish on the copper price outlook into 2023, despite recent weakness.



In any case, the Copper price lingering between the current levels and \$5 is a sound scenario and we view any price over \$3.50 as a good place to be for copper miners and it ensures that mines with fair grades and CapEx numbers “within the ball park” will be seen as doable and desirable. This then will have knock-on benefits for those junior explorers trying to fill the pipeline with new projects and resources.

Conclusion

One does not need to be a subscriber to apocalyptic views of shortages caused by the EV revolution to be nevertheless bullish on copper. The metal has not been as underinvested in recent times as say, Zinc, but the long period of quiescence in mining markets meant exploration was minimal and development to mining status was largely in the hands of the Chinese, (e.g. MMG at Las Bambas). While it is not said out loud in public “Peak Copper” in Chile is a real threat and now it is further complicated by confused signals out of the new government in Santiago.

The price trend for Copper frequently defies the long-term good/bad outlook. Bad, in that there is not a strong pipeline of very large projects to make up for mine retirements/exhaustion of reserves. Good, in that this dryish pipeline augurs well in the long term for prices.

Then one should not underestimate China’s desire not to be a price-taker in Copper (rather a price-maker). They have shown themselves, we believe, to be proactive in resetting the price. This seems to be achieved by using onshore stocks to push prices of various metals around. On this score the Chinese firepower is considerable and should not be underrated.

It would appear that they took advantage of the onset of the Russo-Ukrainian war to set the copper price lower. Longer term we regard this as a Sisyphean exercise, but in the short term it always seems to work for them.

Important disclosures

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