

Lifton on China's global rare earth market expansion.

June 9, 2015 – In a special **InvestorIntel** interview, Publisher Tracy Weslosky speaks with Jack Lifton, Founding Principal of Technology Metals Research, LLC and Sr. Editor for **InvestorIntel** on an update on what is 'really' happening in the Chinese rare earth market today and how "they are coming here, whether we like it or not – and we have to accommodate that." Further to this, Jack discusses Rare Element Resources' recent news about their proprietary separation technology, the Tantalus' deal with Shenghe and the German market – with a focus on the roll-out of InvestorIntel.de.

Tracy Weslosky: I'd like to start by discussing the breaking news that just came out from Rare Element Resources.

Jack Lifton: I'm very impressed by Rare Element Resources' announcement. I really had very little advanced knowledge and certainly I don't know any more details of the process than were revealed in the press release. However, I do know all of the people involved. I can tell you that they are far and away the most professional group of chemical engineers, mining engineers that I know of in the space. This is a perfect example of how to do something. They are not talking about conquering the world with their great process. They are talking about solving their problem and I think – I really think they have. I believe we're really at a turning point in America.

Tracy Weslosky: Additionally this month you wrote an excellent piece about how the Tantalus news and how their deal with Shenghe was a real industry and global game changer. Can you tell us what you mean and give us a little bit more of some background on that please Jack? Thank you.

Jack Lifton: What I mean is that Tantalus reached two goals that the entire industry should have been targeting. One is that they got an actual major vertically integrated rare earth company, Shenghe Resources of China, to commit into a contractual relationship taking 30% of their output from their Madagascar mine and investing up to 30% of their capital needs for the development of that project. Second, they got ThyssenKrupp Metallurgical, one of the world's great trading, metal and commodity trading houses to do the same, issue a contract, a real contract, not a memorandum of understanding, to take 30% of their output for sale exclusively into the German market.

Now we've been talking about the German market on InvestorIntel and I have to point out to you ThyssenKrupp is a member of the Rohstoff Alliance. Therefore instead of second hand when they go to a meeting of the Rohstoff Alliance they sit across from companies like Siemens, Bosch, let's say BASF and they say to them, we have material for you. These large corporations, which do not like to deal with midcaps and microcap, say okay, we're in the same club, let's have it checked. That is a hell of an advantage for Tantalus or anybody else who would get such a deal. Now you notice that ThyssenKrupp has also signed a deal with Rainbow in Africa indicating they have a very high confidence level that Rainbow will go into production because it cost ThyssenKrupp money to do these deals. They don't do them as a waste of time because...to access the rest of the interview, [click here](#) and to review, [Jack Lifton's background, bio and clients](#) – [click here](#)

Randy Scott on the Market and Wyoming State support for Rare Element Resources

March 23, 2015 – Randy Scott, President, CEO and Director of Rare Element Resources Ltd. (NYSE MKT: REE | TSX: RES) in an interview with Tracy Weslosky, Publisher for InvestorIntel speaks about their +177% stock movement and their recent series of news releases, including but not limited to the Wyoming Legislature unanimously passing a support resolution for the Bear Lodge Project. This Resolution recognizes the significance of re-establishing a strong domestic rare earth production base in the U.S.

Tracy Weslosky: You had really large news about the Wyoming government standing behind you. I'd love for you to tell us what that really means.

Randy Scott: Sure. As you know, the state of Wyoming is a great place to do business if you're a natural resource company. We have worked really hard to court our relationships both at a community level as well as a statewide level. As we progress the project we've made continuous forays to the government to let them know what we're doing. I think it's finally paying off for us now at this point in time. We've just announced that we have a resolution that was passed by both the House and the Senate of the state in favor of development of the project, specifically it asks the forest service to keep moving the project along on a reasonable schedule for permitting. That resolution was also signed by the governor of the state of Wyoming. The governor also has a program underway right now in the state of Wyoming where he is focusing on diversifying the economy of Wyoming as well as adding value to their natural resources. We fit that bill very

well. We have gotten additional endorsement from what's called the Wyoming Business Council, which is the executive branch agency that helps to do the economic development in the state of Wyoming. They have given us an endorsement or at least a recognition of how important the project is and are willing to continue to work with us toward development of the project and potentially the financing of the project.

Tracy Weslosky: For our InvestorIntel audience, remember this is the company whose stock moved 177%. This is one of the top 5 international global players so hang in there with me for just one minute. What I really want to understand is how does this impact you're planning for getting to the next level? I really want our audience to understand clearly how big this news is.

Randy Scott: I think it will play out over time. The process will await moving forward on the permitting side as well as a very viable project, all of which we have continued to do. The viable project part of it is the preliminary feasibility study that we just announced about 3 or 4 months ago. Having put all of these pieces together, now we begin to look like we've got a real project moving forward in a great state and meeting a lot of the state's criteria. We will await the date when we announce that we're moving forward with construction on the project and around that time we will begin to discuss with them alternative forms of financing for the project.

Tracy Weslosky: Of course, you've had a substantial year this last year with your prefeasibility study results out, your permitting. Can you give us a bit of an overview?

Randy Scott: Sure. I think the work that we did in 2014 culminated in the preliminary feasibility study. The preliminary feasibility confirmed the economic and technical merits of the project...to access the rest of the interview, [click here](#)

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The Chinese rare earth tax and the separation technology revolution

December 3, 2014 – In a special **InvestorIntel** interview,  the Editor-in-Chief and Publisher Tracy Weslosky speaks with Jack Lifton, Founding Principal of Technology Metals Research, LLC talk about the new Chinese heavy rare earth tax rumor, the latest rare earth separation technology processes and the impact on the Chinese-Australian free trade agreement on the resource market.

Tracy Weslosky: I'm going to start first with that rumor that we had – in a story that we placed on our site where our Asian correspondent talks about a new heavy rare earth potential tax from the Chinese. We haven't had anything like this since 2011, of course the markets went crazy. Talk to me about this. *Do you think this is real?*

Jack Lifton: Yes, I do. It's the way that China has resolved the issue of how to conserve and protect its very limited heavy rare earth resources, which are so important. This is not a surprise to me. We did it to ourselves. We made it a big fuss about, well, there's this and that and the Chinese have just reviewed their history of western capitalism. They said, oh – all we need to do is put a big export tax on, that's okay. So, they did it. Look, they've been looking for a way to do this for four years. They will now do it.

Tracy Weslosky: Okay. If they're going to do what they did in 2011 everybody should get ready for a very busy Christmas day because I believe they put that news out in 2011 on Christmas. Jumping next to other news, we have a lot of big news in the market. Of course, Ucore put out their, you know, revolutionary, what is it, molecular recognition technologies. Now I'm just . . .

Jack Lifton: Right.

Tracy Weslosky: I'm just an investor. I don't know what an MRT is. I need you to talk to me about that.

Jack Lifton: Well, let's say that molecular recognition technology it is basically a way of separating metals from each other by utilizing chemicals, organic chemicals, that selectively bind to one or the another and then they can be separated and they can be then relieved of their burden of the specific metals. Now what I'm saying is there's no way to explain this in a few moments and to people who don't have the particular background. Just let me say this, all separation technologies are the same. They're trying to separate things from each other that are closely related chemically. In the case of the rare earths, they're the most closely related long string of elements in the periodic table. Very difficult to separate from each other. It can be done. It's very expensive. The thrust of MRT, continuous ion exchange, accelerated solvent extraction, all of these technologies that are now underway is to lower the cost. The technology is to accomplish the same thing, separating the rare earths. It's the cost that's always been the issue, the enormous cost. I believe that we will see now in the next year to year and a half scale up of one or more of these technologies, rocketing down the cost and completely changing the landscape for junior rare earth companies.

To access the complete interview, [click here](#)

Randy Scott on rare earth patent-pending technology for Rare Element Resources

✘ November 20, 2014 – In a special **InvestorIntel** interview, Tracy Weslosky, Editor-in-Chief and Publisher for InvestorIntel interviews Randy Scott, President, CEO and Director of Rare Element Resources Ltd. (NYSE MKT: REE | TSX: RES) about their recent series of news releases, including but not limited to the patent-pending technology and their recent trenching program with assays results.

Tracy Weslosky: Now you've had a couple of major milestones here in the last month. I think what I'd like to start with is you recent filed an application for a provisional U.S. patent on the technology for the selective precipitation and the process to – technology to extract cerium and thorium. Did I get that correct?

Randy Scott: Yes, that's correct. That's actually one of two patents that we filed over the last month or so now.

Tracy Weslosky: Why would a company need to file a patent on the processing technology?

Randy Scott: The processing, particularly the separation side of things, is very competitive. We've been spending a lot of time and a lot of money trying to look at adding value to our concentrates, which we think we've done nicely with the pure concentrate we're producing, but because of that we wanted to look at going up the value chain and further separating the products. We've had test work underway now for a couple of

three months to try to evaluate how our concentrates would perform if we develop technology to further separate them.

Tracy Weslosky: Of course this goes hand in hand with your assay results that you also just put out. Maybe you can explain what these results were.

Randy Scott: From a separation side, we've been able to develop technology that is able to remove cerium and thorium in one selective precipitation step. Then we followed that with the ability to do solvent extraction, but only one or two stages of solvent extraction, to look at further purifying the material and actually separating the rare earths into light rare earths.

Tracy Weslosky: And of course you're building— you have plans for a large-scale demonstration plant. Is this correct?

Randy Scott: We've moved forward with that as well. You know, as a result of the preliminary feasibility study and the multiple pilot plants that we've done on the project we felt that it was a good time to look at moving up into even a larger scale production, almost commercial production facility. What we've done is we've gone out this summer and taken a 1,000 ton sample from a near surface exposure of our high-grade material. This is where the preliminary feasibility study has the initial mining starting. We wanted to be able to confirm these high-grade zones. We were able to do that by trenching approximately 225 feet and then sampling that as well. We were very pleased by the average grade of 10.1% for that 1,000 tons that came back for us.

To hear the rest of the interview, [click here](#)

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Jack Lifton debunks the Lynas and Molycorp rare earth leader myth

I note that the Australian press is reporting today that  Lynas Corp. ('Lynas') will move its administrative headquarters to Kuala Lumpur, Malaysia, from Sydney and close down its other two administrative centers in Australia to consolidate operations in Malaysia. The company's mine, the Mt Weld deposit, of course cannot be moved, but it is not expected to be called upon to produce any new material until the end of 2015. It has accumulated an above ground inventory sufficient for at least one year of full production by the LAMP operation in Kuantan, Penang Province, Malaysia. I believe that the Mt Weld ore concentrate is now shipped to Malaysia for all downstream processing beginning with roasting.

I think, as a cost savings, this administrative consolidation is a very good idea. Malaysian infrastructure overheads and office costs are far lower than those anywhere in Australia. In addition shipping costs from Malaysia to existing Lynas' customers in Japan and elsewhere in Asia are lower cost, which is anyway one of the reasons that the LAMP was built in Malaysia. I would also say it was a good move for Lynas' public relations in Malaysia except for two things:

1. Given this new target location for Lynas HQ it must be noted that the those Malaysians who vehemently oppose Lynas operations in Kuantan, Penang Province, at the LAMP are always going to be much more likely to stage their protests in Kuala Lumpur than in Kuantan, because

Kuala Lumpur is Malaysia's capital and is a far more pleasant venue for protests than what the Australian news media unfairly, in my opinion, call the "peat swamps" of Kuantan, and

2. Because the new CEO of Lynas is a woman making 1.2 million dollars a year.

I was leaving Kuala Lumpur late last year after attending a meeting of the Rare Earth Task Force sponsored by the Malaysian Academy of Science, and when I stepped up to the check-in counter for KLM, the Dutch owned international airline, I was shown a notice that stated that the senior pilot, the captain, of the airliner I was scheduled to fly that evening from KL to AMS was a woman. I asked the check-in person, a Dutch woman, why this notice was posted, since I had never in my life seen any such notice, and she told me that some Malaysians object to a woman having such a position of authority over them. This was an aspect, I was told, of the Moslem attitude towards women "working in men's jobs" in general. She pointed out that the airline would offer anyone who objected a seat on another flight captained by a man.

I respect anyone's right to live their life the way they want to providing that they give me the exact same opportunity to live my life as I want to. As I boarded the KLM airliner I saluted the tall woman at the entry port wearing the uniform of a senior captain for KLM.

Malaysia is a shining jewel of multi-cultural democracy with a strong adherence to the rule of law and a regard for the rights of personal property in a sea of much less developed nations Malaysia is a country where the GDP is growing at 6% a year. Malaysia is a beautiful country with warm charming friendly people. Malaysia is also a country that although officially secular is majority Moslem. To the best of my knowledge it is the only Moslem country in the world that has a large operational rare earth separation facility, and one of only two countries, the other being the United States, where

domestic monazite was processed in the past, but is no longer processed due to the co-production of thorium being considered detrimental to the environment. As I told the Lynas operational people in Kuantan two years ago when the Malaysian Academy of Science asked me to participate in a survey of the LAMP the Lynas problem is public relations and is exacerbated by a bit of tone deafness. The Mt Weld deposit is principally monazite. The low thorium levels and the safe disposal of what thorium is produced is what needed to be emphasized to the Malaysian public from day one.

Good luck to Lynas in becoming a Malaysian company in all but name.

Next topic: A recent Reuter's analytical article, "Rare earths industry teeters as Australia's Lynas heads to full ramp-up" posted on InvestorIntel on July 3, 2014, struck me, in some particulars, as misleading for investors of all sizes, and in other particulars as just plain wrong.

I was struck by two quotations, in particular, in the article:

1. ..."The pressure is on Lynas and Molycorp to demonstrate that rare earths is a viable business," said Dudley Kingsnorth, a rare earths expert at Curtin University in WesternAustralia, whose forecasts are widely used in the industry..."
2. *And* – A sub-headline of the Reuters' article that reads "[Lynas CEO] Says project profitable even at current depressed prices"

This "projection" of profitability is only mentioned again in the body of the article as follows: "...But more than two years later it [Lynas] has yet to hit stage 1 capacity of 11,000 tonnes a year, racked by opposition to the project on environmental grounds and by technical problems. Once it reaches that rate, Lynas will be cash flow positive, CEO Amanda Lacaze, who took the role in June, said on Wednesday..."

Let's first look at Mr Kingsnorth's statement.

I would say that:

In fact the pressure is on both Lynas and Molycorp, which are two different companies with two different deposits and two different business models, to demonstrate that either their own particular or, in fact, any business model that projects a competitive edge in the production and further downstream processing of the light rare earths against the existing Chinese producers in the Bayanobo region of Inner Mongolia can, in fact, be profitable under current conditions of price, existing supply and current and future demand.

Note that I am not saying that the Chinese projects have to be profitable but that, to survive, any non-Chinese light rare earth based project MUST be profitable while selling its own products at or below the delivered cost of Chinese products in whatever market they are being offered for sale. In short, prices are set by the producers of the majority of the products, who are today the Chinese. We assume that we know Chinese costs but in fact we only know their selling prices. We therefore MUST target their selling prices.

As I said here on InvestorIntel earlier this year ([click here](#)) I believe that both Lynas and Molycorp are too big and in the case of Molycorp, too congested by non-core, irrelevant, inefficient, or non-performing "assets" for either company to achieve competitive advantage over the existing Chinese producers unless security of supply is taken into consideration and heavily capitalized by long term customers. Now as to the statement attributed to Ms. Lacaze, the new CEO, of Lynas, it does not follow, logically, from the statement printed in the article that a positive cash flow equals profitability in the sense of ongoing profitability, or more importantly that such positive cash flow would be or could be sufficient to cover existing debts, working capital, or retained earnings in the foreseeable future picture of rare

earth prices and demand.

The attempted (so far) revival of the rare earth industry outside of China got its impetus in 2007 when Chevron divested itself of the moribund Molycorp that it had acquired in 2004 when it bought Unocal.

Molycorp's new owners were financial managers with one exception, Traxys, which is a large resources trading company. I believe that they, the new owners of Molycorp, chose to promote the story that military demand for the rare earths was critical, large, and growing. They may even have believed it. It turns out that this story is not true. The US Military, which by itself, accounts for at least one-half of the world's military budget and is the most technologically advanced military in history has published figures showing that it uses about 150 tons a year of neodymium iron boron rare earth permanent magnets all of which are modified by dysprosium. By contrast, just the US OEM automotive industry uses 7,500 tons per year of that type of rare earth permanent magnet.

The fact is that today the world supply of the light rare earths that are the only products of the mining operations of both Molycorp and Lynas is in surplus. The Chinese company, Baotou, has said publicly that by itself it could supply the entire global demand for light rare earths indefinitely. Of course it would ONLY continue to be able to do so if it remains the lowest cost producer and if the Chinese government allows export volumes to be determined by market forces.

If China adheres to the recent WTO decision then Baotou's cost structure at the moment, as reflected in its pricing, will allow it to continue to dominate the global market. Note that In the last reporting year even though prices for the rare earths fell dramatically from their previous year's levels Baotou still made a small profit.

In fact though it has become obvious that the future geography

of the global rare earth supply chain will depend on deposits that can produce mid-range (SEGs) and heavy rare earths (HREEs).

[SEG is shorthand for Samarium, Europium and Gadolinium – the mid-range rare earths all of which have product uses: magnets, phosphors, and medicine.]

I am going to predict that those non-Chinese deposits being developed to produce the most SEGs and HREEs, as a percentage of their total production, have the best chance of also becoming profitable producers of LREEs.

Almost all of the HREE developments can or would produce some LREEs. The critical nature of the HREEs, even in the Chinese domestic markets, makes it likely that SEG/HREE producers will also be able to sell their LREEs to their customers using the time-honored Chinese developed sales method of “if you want dysprosium you must also take neodymium. If you want a better deal or an assured supply then you must take lanthanum as well.”

Molycorp’s original business model took no account of HREEs; this flaw has dogged the company all along. Acquiring (or as seems more and more likely being acquired by) Neo materials gave Molycorp some Chinese HREE processing capability but no HREE new material sourcing capability whatsoever. For whatever reason this flaw has not, even now, been fixed although it could have been easily fixed many times. It is probably now too late, financially, for such a fix to rally the market.

Lynas is in a similar predicament. The company has, however, among its Mt Weld properties significant HREE bearing deposits. Even the Mt Weld material contains 5% of SEG/HREEs. At 11,000 tons per annum the output of the LAMP would include 550 tons per year of SEG/HREEs. Neither Molycorp nor Lynas has any non-Chinese capacity for downstream processing of SEG/HREEs. But only Lynas would immediately have any to

process in any case.

Therefore I predict that end-users looking for non-Chinese materials will focus on the total output of the right sized producers now in late development. I think that North American domestic demand for ALL rare earths will be filled by the operations of one of or all of Rare Element Resources, Texas Rare Earths, and Ucore. A successor-in-interest to today's Molycorp may well produce some light rare earths from its dedicated mining operation if the separation facility at Mountain Pass can be stripped of its global overheads and accumulated debt. The facility there would be an ideal location for tolling without those global overheads. It would of course have to be upgraded to be able to process HREEs.

I think the LAMP, shorn of debt and global overheads, would also be ideal as a central LREE tolling operation, but it would, as would Molycorp, by the way, have to add a hydrometallurgical engineering group to adjust the plant's operations for different feed stock compositions. Ideally a Malaysian group might take over the LAMP or partner with existing management and build a SEG/HREE downstream processing facility on the property. In fact a total rare earth supply chain could be constructed on the basis of the LAMP to serve all of non-Chinese (Austral) Asia with hydrometallurgy, separation, metal and alloy making, and magnet and specialty alloy and chemical production. Australian HREE juniors such as Northern Minerals might and should look towards a Malaysian central processing facility I will go out on a limb and predict that one or the other of the above scenarios will come to pass. Perhaps even both.

I don't want to leave out Europe, so let me say that it is possible that Solvay might turn La Rochelle into a central processing operation anchored upon the production from Tasman in Sweden and from AMR in Turkey. It is more likely today than in the recent past that a third party will set up a central European processing (tolling) operation using not only Tasman

and AMR feed stocks but also some from Russia or Central Asia. The common problem for all toll refiners is “normalizing the feedstocks.” This is not a trivial problem, but it is not insurmountable. It does, of course add cost. Lastly, my Canadian friends (and relatives) might wake from their slumber and promote the creation of a central Canadian tolling facility for the rare earths. This would completely change the dynamics of costing most of the Canadian located rare earth junior mining ventures.

Did I mention that both Africa and South America can produce the lowest cost LREE ore concentrates, and, in at least two instances already do so as a consequence of existing very profitable operations?

There’s a whole lot going on in the non-Chinese rare earth sector that has nothing to do with the mining operations at Mountain Pass or Mt Weld.

I think that the non-Chinese world is on the cusp of putting into place the right ideas to process the right amounts of rare earths from right-sized and right-proportioned rare earth deposits. I won’t be too surprised if Chinese investors make the first credible overtures to achieve this goal. I will be surprised if non-Chinese governments make such investments easy.

Please, *please stop thinking* that either Molycorp or Lynas have the “right” model and that the entire rare earth industry outside of China will rise or fall with their survival or lack of it. In fact both companies are stuck in a rut. The rare earth business model has not been static.

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agreements with any public companies. For further questions or inquiries, please send to info@investorintel.com.

For instance, Jack Lifton is currently a non-executive Director for Texas Rare Earth Resources Corp. (OTCQX: TRER) and AMR, a private Turkish mining venture. He is a paid business operations/marketing consultant to Rare Element Resources (TSX: RES | NYSE MKT: REE), Ucore Rare Metals (TSXV: UCU | OTCQX: UURAF), Tasman Rare Metals (TSXV: TSM | NYSE MKT: TAS), and NovX21 (TSXV: NOV). He is also the founding co-principal of Technology Metals Research, LLC. His consulting is done through Jack Lifton, LLC, a consultancy he began in 1999 upon his retirement as the CEO of an OEM automotive supply company specializing in process chemistry and metals trading.

Jack Lifton, LLC is a member of the Minor Metals Trade Association (www.mmta.co.uk) and Jack is an advisor to the Malaysian Academy of Science in Kuala Lumpur, and he is a member of that Academy's Rare Earth Task Force.