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# Newsun (NSU)

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INVESTMENT REVIEW

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MASSIF CAPITAL, LLC | New York, NY

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**Investment Thesis:** Debt free mining firm with significant exposure to zinc and the cash necessary to develop a recently acquired world class copper-gold deposit.

It is not often that you find a mining company with a producing mine, a debt-free balance sheet, and positive cash flow. Even more infrequent, a miner that has an existing world class asset in a supply constrained commodity and a world class development property in a European nation. If all of this sounds appealing, then Nevsun Resources (TSX: NSU & NYSE: NSU) will be of some interest.

NSU is a Canadian headquartered copper-gold-zinc miner that currently operates the Bisha Mine in Eritrea, and has acquired the assets of Reservoir Minerals in June of this year. Based on a conservative analysis of the remaining life of the Bisha mine and the potential of the principal asset acquired from Reservoir minerals we believe that NSU is a long-term hold with a value north of \$8.5 a share. NSU currently trades at \$3.21 on the NYSE, suggesting a potential gain of 165%. The three key factors to understanding the value of this investment are: management's history of operational excellence<sup>i</sup>, the current value of Bisha Mine, and the rich portfolio of prospective resources, most importantly the Timok project in Serbia.

**Introduction:** At the current time, NSU's only operating mine is the polymetallic copper-zinc-gold deposit in Eritrea, Africa. The mine was developed under budget, ahead of schedule and without debt. The mine, as currently developed, is expected to produce copper and zinc in significant quantities for a further eight years, along with by-product gold and silver.<sup>ii</sup> The Bisha mine, despite its comparably small footprint relative to other world class copper deposits, benefits from one of the lowest C1 cash costs per payable pound of copper sold<sup>iii</sup> in the industry. During the first half of 2016, NSU achieved a C1 cash cost of \$1.04 per pound, this compares to an average cash cost of \$1.28 per pound in Chile (the largest copper producing country in the world) during the first half of 2016, and average cost of \$1.14 per pound in 3Q2016 by FCX (the largest publically traded copper miner in the world).<sup>iv</sup>

In addition to Bisha, NSU owns exploration and development rights to several prospective resources around the mine and acquired all the assets of Reservoir Minerals in June of this year. The principal asset acquired from Reservoir was the upper and lower zones of the Timok Project. The Timok project is a world-class copper-gold deposit, located in the historic mining district of Bor, Serbia. The mine geology is sufficiently similar to that of Bisha to allow management to employ the same phased development process used with great success in the development of Bisha.

From a purely quantitative perspective, NSU is statistically cheap at the moment. The firm trades at 8x our estimate for next twelve months' earnings, vs. an industry median of 18.87x.<sup>v</sup> The price to TBV is 1.02 vs. an industry median of 2.03x. The dividend payout ratio was unsustainably high in 2015, largely as a result of the price of copper, and appears to be similarly too high in 2016 but this year revenue has been unduly squeezed by a 3<sup>rd</sup> quarter which was focused on transitioning from copper mining at Bisha to zinc mining. Going forward, even conservative Zinc prices (30% below currently levels) reduce the payout ratio to less than 0.5, which will allow NSU management to maintain the 5% dividend yield, which is greater than the copper mining industry median of 2.06%.

**The Past – A Demonstration of Management Capabilities:** The best mining investments start with the management team. The reason is that mining projects are complex, long-lived assets with substantial upfront costs. A mines management team not only needs to have the ability to raise the funding necessary to develop an ore deposit but more importantly needs a clear vision of the type of deposit they are seeking. Although this sounds obvious, it is in fact far from it, not only does the deposit type impact

the mine layout (the logistics of monetization) but the type of deposit effects the economics of the project from start to finish. The wrong deposit type in the right location and the quality may not matter.

In this respect, NSU management has proven adept at not only searching for the right type of deposit but also executing an efficient development of the deposit. NSU management has utilized a phased development approach in which each successive phase of the mines life is funded from cash flow produced from the previous stage, a necessity for maintaining a debt free balance sheet. The phased approach to mine development has also allowed NSU management to significantly de-risk future phases before moving forward with development.

At this time, the Bisha mine has undergone three stages of development, the first stage focused on gold production and lasted from February 2011 to June 2013, this early stage of production allowed for a fast payback of pre-production capital expenditures and funding of the copper floatation plant utilized during the second copper focused phase of the mine's life. Copper floatation plant development was completed ahead of schedule and under budget by \$19 million. The third phase of the mine's life is focused on production of both zinc and copper, and required expansion of the copper floatation plant to allow for the production of zinc concentrates. The zinc expansion was completed in the second quarter of 2016 on schedule and under budget by \$4 million.

The importance of the experience with an iterative mine development process will become apparent during our discussion of the Timok project below; the key takeaway though is that management has identified a deposit type (Volcanic Massive Sulfide Deposits with a gold-rich cap) that they understand and have experience monetizing on schedule and under budget.

The ability of management to stick to a schedule and deliver each phase of the Bisha mine on schedule and under budget is noteworthy because of how rare it is. Not only have capital cost overruns been a persistent feature of mining projects since 1965, but the average cost overruns since 1965 have been between 20% and 60%.<sup>vi</sup> A recent EY study surveying 108 mining projects found that 62% were over budget and that 50% reported delays or were behind schedule, even after acceleration initiatives were instituted.<sup>vii</sup> In Eritrea, a country of limited domestic capabilities, and no large-scale mining before the Bisha mine, NSU management has delivered on or ahead of schedule and under budget twice for shareholders.

Since work on Bisha started in earnest in 2008, NSU management have been deliberate and dependable stewards of capital. The management team has grown book value at a CAGR of 126% over the last five years, produced an average return on invested capital of 26% and maintained a free cash flow yield of 12%. The company started paying dividend early in the mines life cycle and has paid it consistently. Furthermore, management stock piled cash throughout the good times of the most recent commodity cycle boom for deployment during a more opportune time in the commodity cycle downtrend.

**The Present – Bisha Shifts to Zinc Production:** The Bisha Mine, as previously noted, is a Volcanic Massive Sulfide deposit, meaning that it has layered metal zonation. In the case of Bisha, the mine deposit had a gold heavy caprock layer, followed by a zone of high-grade copper and then a primary zone with of high-grade zinc. NSU has worked its way through both the gold heavy caprock layer and copper zone and as of the third quarter of 2016 started mining the primary zinc layer of the Bisha mine. The primary zone has a copper grade of 1.10%, a zinc grade of 5.57% and gold (0.68 g/t) and silver (44 g/t).

At this time, due to a combination of the ramp up of the zinc flotation circuit to commercial production levels and metallurgical challenges processing the highly variable ore being mined in the primary layer NSU has limited available information on the final economics of zinc production and struggled to produce commercially saleable copper concentrate. During the third quarter, management focused on limited zinc sales and sales of bulk concentrates (ore concentrates with 30% to 40% zinc and copper of between 5% and 10%). Management is currently working to refine the floatation process to produce zinc and copper concentrates on a consistent basis.

Despite the challenge, management has indicated that they will meet their goal of producing 70 to 100 million lbs of zinc in the second half of the year. Our valuation of Bisha is based on a DCF of the next eight years, or the expected life of the mine with no expansion, and assumes the following:

Life of mine payable metals of 470 million lbs copper, 1.7 billion lbs zinc, 240,000 oz gold and 8.2 million oz silver are produced over the period running from 2017 to 2025.

Commodity price assumptions:

	ZINC	COPPER	GOLD	SILVER
<b>CURRENT SPOT</b>	1.24 USD/lb	2.60 USD/lb	1,126 USD/oz	15.94 USD/oz
<b>VALUATION PRICE</b>	0.86 USD/lb	1.95 USD/lb	788.2 USD/oz	11.15 USD/oz
<b>DIFFERENCE</b>	-30%	-30%	-30%	-30%

- Discount rate of 10%.
- Maintenance of company cost structure.
- Assumed \$21 million in yearly CapEx at Bisha. We believe this to be a conservative estimate. NSU management budgeted \$35 million for 2016 CapEx at Bisha, it included \$15 million to complete the zinc plant, \$11 million in capitalized exploration, \$1 million in ongoing metallurgical work to optimize production and \$8 million in sustaining capex costs. Our ongoing assumption for \$21 million thus assumes that sustaining capex costs at Bisha are 25% more than budgeted in 2016 and that exploration expenses continue for the life of the mine without producing any positive results.
- Assume that Bisha and surrounding area is not developed any further. This valuation excludes Timok.
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Given these assumptions, we believe that NSU has a per-share value of \$3.53 or 8.3% more than the firms closing price of \$3.26 on the 12/14/2016.

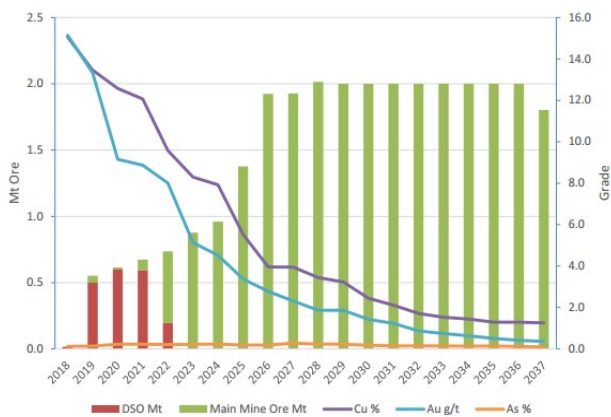
**DCF of Bisha Analysis**

					Projected Data									
	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
EBIT	397,413	56,858	277,974	79,118	67,445	201,751	203,717	202,092	203,238	203,499	202,189	202,407	202,407	0
Less: Taxes @ 35%	(139,095)	(19,900)	(97,291)	(27,691)	(23,606)	(70,613)	(71,301)	(70,732)	(71,133)	(71,225)	(70,766)	(70,842)	(70,842)	0
Plus: Depreciation and amortization	29,035	13,385	40,125	45,120	38,463	39,306	39,306	39,306	39,306	39,306	39,306	39,306	39,306	0
Less: Capital Expenditures	(75,201)	(117,741)	(55,118)	(85,439)	(40,000)	(21,000)	(21,000)	(21,000)	(21,000)	(21,000)	(21,000)	(21,000)	(21,000)	0
<b>Unlevered FCF</b>	<b>212,152</b>	<b>(67,398)</b>	<b>165,690</b>	<b>11,108</b>	<b>42,302</b>	<b>149,444</b>	<b>150,722</b>	<b>149,666</b>	<b>150,411</b>	<b>150,580</b>	<b>149,729</b>	<b>149,871</b>	<b>149,871</b>	<b>0</b>
Less: Interest Income/(Expenses)	3,332	2,582	1,068	1,674	810	688	966	1,214	1,462	1,711	1,960	2,208	2,457	2,545
<b>Levered FCF</b>	<b>215,484</b>	<b>(64,816)</b>	<b>166,758</b>	<b>12,782</b>	<b>43,112</b>	<b>150,132</b>	<b>151,688</b>	<b>150,880</b>	<b>151,872</b>	<b>152,292</b>	<b>151,689</b>	<b>152,078</b>	<b>152,327</b>	<b>2,545</b>
Discount Factor					0	1	2	3	4	5	6	7	8	9
<b>Present Value of Levered FCF</b>					<b>42,930</b>	<b>135,906</b>	<b>124,832</b>	<b>112,879</b>	<b>103,292</b>	<b>94,161</b>	<b>85,262</b>	<b>77,710</b>	<b>70,762</b>	<b>1,075</b>

<b>Total Value of Future Cash Flows</b>	<b>848,810</b>
Less: Net Debt	213,544
Shares Outstanding	300,810
<b>Per Share Value of Bisha</b>	<b>\$3.53</b>
Current Share Price	\$3.26
Margin of Safety	8.33%

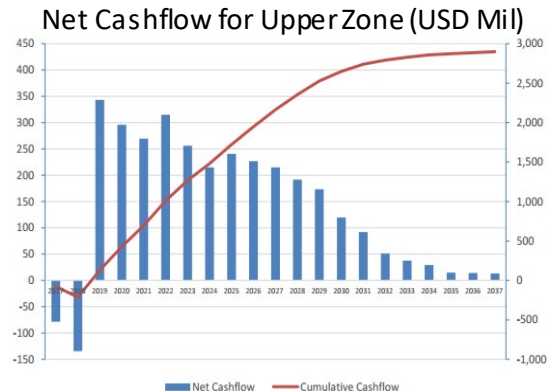
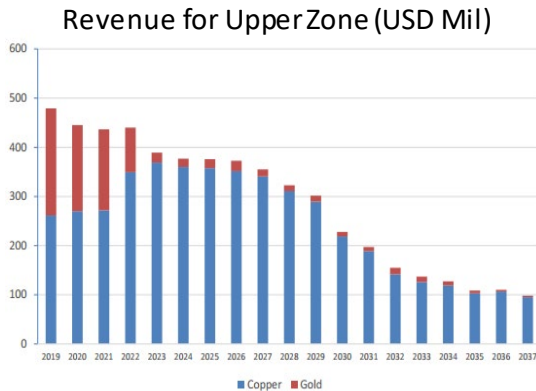
**The Future - Diversification to Serbia:** The future of NSU is to be found in both the further development of mineral deposits around the existing Bisha mine and in the development of the firm’s newly acquired Timok project in Serbia. The Timok project is a world class deposit, in a supportive mining jurisdiction with a high-grade gold mineral cap (similar to Bisha) that allows for an aggressive development timeline that brings value forward into the early years of the mine’s operation. The deposit is ideal for development by a mid-tier miner as the deposit can be viewed as two deposits, an upper zone deposit, 100% owned by NSU and of an exceptionally high-grade ore, and a lower zone deposit which is co-owned with Freeport-McMoRan at an eventual split of 46% and 54%.<sup>viii</sup>

**Production Schedule For Upper Zone**



In part, what makes the Timok project so attractive to a miner like NSU (and shareholders) is the speed at which positive cash flow can be achieved (see charts below).<sup>ix</sup> Based on a review of the [Preliminary Economic Assessment \(PEA\)](#)<sup>x</sup> of the Upper Zone, published earlier this year, production from the mine could conservatively start as soon as mid-2019. The PEA outlines two development scenarios for the upper zone, in both cases NSU can take advantage of the geology of the upper zone resource, comprised of very high-grade mineralization (13% copper and 10.6 g/t of gold)<sup>xi</sup> which can be shipped directly to smelters after crushing and grinding, this is referred to as Direct Ship Ore (DSO).

The value of the DSO phase of the Timok project is it allows NSU to start production with limited upfront investment (estimated at around \$213 million) and produce sufficient cash flow to fund the additional capital necessary for future production phases. In this way, NSU management can, as they did with Bisha, approach development of Timok in stages with limited debt. The PEA estimates that the DSO phase has a post-tax NPV of \$679 million with an IRR of 103%.<sup>xii</sup> Phases two and three of the mine require construction of additional infrastructure for refinement of mined material into copper concentrate but



boost the post-tax NPV of the project to \$1,631 million with an IRR of 106%. The expected payback period for initial capital costs is less than one year. The PEA, which was produced by an outside consultancy and a JORC registered “Competent Person”, suggests a project with “very strong” economic returns and a realistic three-year timeline to production.<sup>xiii</sup>

In addition to the favorable project economics, the Timok project benefits from a favorable operating environment. The Bor district of Serbia, where the mine site is located, has a long history with mining, an existing copper smelter, and a community with mining expertise. The government owned RTB Bor smelter, located roughly 5km from the potential mine site, recently completed (2014) a modernization effort that doubled the annual throughput of the smelter from 40,000 tons per annum to 80,000 tons per annum.

Assuming that the \$1,631 million NPV of the Timok project is accurate, when combined with our previous DCF valuation of Bisha, NSU can be conservatively valued at \$8.50 a share or 160% more than the current share price of NSU.

Investors should note that in addition to expansion into Serbia, NSU has started greenfield exploration of promising sites in and around the existing Bisha mine. Sufficient information to evaluate the potential value of identified sites is not yet available, but management is optimistic that there are additional resources that can be developed. Furthermore, there are ongoing studies of the ore body below the open pit limits of the existing Bisha mine via an underground extension. Finally, as noted above, the lower zone of the Timok project, is a high-value prospect of unknown quantity but the potential to be a significant global copper mine. During 2017 several studies, crystalizing early value estimates and the potential of all the projects mentioned above, will be released and may prove important catalysts for NSU price appreciation.

Commodity Outlook - Zinc (\$1.24 USD/lb or \$2,736.6 USD/t): Zinc has been the best performing commodity of the year, up more than 70%. Given the rally, prices are looking frothy. Nevertheless, there remains a structural zinc deficit due to a shortage of new mine supply and the 500ktpa of mine capacity that Glencore idled in 2015. The future of demand is unclear, but driven by China. China’s urban

population zinc consumption has reached the same level as Japanese consumers (per capita consumption of 10kg). Overall though Chinese consumption remains below developed world levels, suggesting room for growth.

At the same time, consumers in India and China are expected to demand more high-quality cars going forward, which will likely result in higher demand for rustproof galvanized steel.<sup>xiv</sup> Increased demand from the United States is also possible depending on future infrastructure spending by the government under President-Elect Donald Trump.

A supply-demand imbalance exists, but the deficit is forecasted to be in the range of 300 to 500 kilotons per in 2016 and close to a surplus by 2019. Furthermore, although a global deficit does exist, zinc stocks at exchanges remain abundant, according to Credit Suisse exchange stocks at LME and SHFE totaled 595kt at the end of October. Finally, the deficit is in some way artificial, spurred on by Glencore's closure of 500kt of mine supply in late 2015; analysts believe Glencore will move to reopen some of that supply in 2017.

Given the rise in price thus far this year it seems prudent to assume (and evaluate a zinc miner in the context of) a potential zinc sell off occurring shortly. That being said, catalysts for further zinc price appreciation do exist.

## Risks

**Timok:** At this time Timok is just a prospective property, no final investment decision has been made, and final analysis of the site has not been completed. The next significant milestone for Timok is a pre-feasibility study, which should be published in the 2<sup>nd</sup> half of 2017. At this time, ongoing drilling to further delineate the resource is being completed. Results from drilling, released on December 7<sup>th</sup>, further validated the conclusions of the PEA. Nevertheless, there is still a possibility that the project does not progress any further, and that Bisha remains the firm's only operating asset.

**Eritrean Political Risk:** Bisha is 40% owned by the Eritrean government through a state-owned miner called ENAMCO. The Eritrean government views a resurgence in mining as a key factor in driving growth in Eritrea over the near to medium term. At the current time, Bisha is the country's only active mine, but the government is keen for foreign-mining companies to move ahead with several projects. Macro uncertainties, more than concerns about the domestic business environment, have deterred the entrance of larger mining firms. The structure of mining agreements is straight forward and relatively simple in comparison to other countries. In Eritrea, the state to receive an initial 10% stake free and retains the right to purchase a further 30%. Overall, despite the insular nature of the state, and single political party rule, the country is not as risky as many other more established mining jurisdictions' as the government need is so great and domestic capabilities so very limited.

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<sup>1</sup> Massif Capital would like to highlight for readers that we have previously published reports on miners FCX, CNXC, and HNRG, and in all reports we attempted to judge management's operational capabilities and capital allocation skill. We believe that both factors are essential for a sound investment in mining but exceedingly difficult to evaluate. Operationally, we think our judgment



has been good, but our record of evaluating capital allocation skill is less clear. FCX management has, in our opinion, demonstrated poor judgement and acted as poor stewards of capital in the last year, making decisions for the short term and not the long term. CNXC management is difficult to judge, but we did not support the recent decision to take a 5% asset drop down from the parent in the 3<sup>rd</sup> quarter of this year. The decision benefited CONSOL Energy more than CNXC limited partners and CNXC as an ongoing business. HNRG management has not given us any reason to question our judgment at the moment. If we were asked to tally up our track record, we would give ourselves a 3-0 record on evaluating operational capabilities but a 1-1-1 record evaluating capital allocation skill (that’s a win, a loss, and a tie).

<sup>ii</sup> In total, the company expects the Bisha mine to produce 470 million lbs of copper, 1.7 billion lbs of zinc, 240,000 oz of gold and 8.2 million oz of silver.

<sup>iii</sup> “C1 cash cost per payable pound sold is a non-GAAP measure and represents the cash cost incurred at each processing stage, from mining through to recoverable metal delivered to customers, less by-product credits. Royalties are excluded from the calculation of C1 cash cost per payable pound sold. The costs included in this definition comprise mine site operating and general and administrative costs, freight, treatment and refining charges, less by-product credits.” See page 18 of [June 30<sup>th</sup> 2016 MD&A](#)

<sup>iv</sup> See: <https://www.cochilco.cl/Paginas/Presentaciones/Presentaciones.aspx> and <http://investors.fcx.com/investor-center/presentations/event-details/2016/Cowen-and-Company-Energy--Natural-Resources-Conference/default.aspx>

<sup>v</sup> We have evaluated NSU relative to 407 publically traded copper miners globally.

<sup>vi</sup> Why Building a Mine On Budget is Rare, Christopher Haubrich 16OCT2014

<sup>vii</sup> See: [http://www.ey.com/Publication/vwLUAssets/EY-opportunities-to-enhance-capital-productivity/\\$FILE/EY-opportunities-to-enhance-capital-productivity.pdf](http://www.ey.com/Publication/vwLUAssets/EY-opportunities-to-enhance-capital-productivity/$FILE/EY-opportunities-to-enhance-capital-productivity.pdf)

<sup>viii</sup> At this time the extent and potential of the lower-zone deposit is not fully known. A four drill program is underway that should provide the data necessary to define the high grade areas and further expand mineralization. The goal of this work will be determination and defining of the size, shape and grade of the inferred resource. For further program details see:

<http://www.nevsun.com/projects/timok-project/Timok-LZ.pdf>

<sup>ix</sup> The Preliminary Economic Study (see end-note below for definition of Preliminary Economic Study) is based on an assumed production start of mid-2019. See Page 8: <http://www.nevsun.com/projects/timok-project/docs/U6782-Cukaru-Peki-PEA-Report.pdf>

<sup>x</sup> As with many natural resources businesses understanding the investment is easiest with a degree of technical knowledge. Mining projects have five general study stages prior to the final investment decision. As a project moves from one study to the next it progress from an exploration target (in essence back of the envelope estimates) to a “bankable” project to an engineering stage. The flow chart below is an example of the typical study stages for a mining project such as Timok:



**Conceptual Studies:** Establish the likely presence of a resource

**Preliminary Economic Assessment:** Definition of the presence of sufficient inferred resources that warrant further work. Preliminary capital and operating costs can be established at an assumed ±30%.

**Pre-Feasibility:** Evaluation of various development scenarios in order to rank and determine the best scenario for more detailed study.

**Feasibility Study:** Study to confirm and maximize value of preferred development options identified in Pre-Feasibility study. Development costs projected to ±15%.

**Detailed Engineering:** Detailed plans and work schedules for final investment decision and capital expenditures. Development costs projected to ±10%.

<sup>xi</sup> For comparison, Freeport McMoRan’s famed Grasberg Mine is currently focused on monetizing two zones of the deposit with copper grades of 0.89% and 1.03% and gold grades of 0.74 g/t and 0.78 g/t. The average greenfield copper project has a copper grade of 0.5%. See: <http://investors.fcx.com/investor-center/presentations/event-details/2016/Cowen-and-Company-Energy--Natural-Resources-Conference/default.aspx>

<sup>xii</sup> The PEA economic model assumes the following: An extra 30% indirect cost on engineering, procurement and construction management and a subsequent 25% contingency amount to account for the preliminary nature of cost estimates. Capital and operating costs are derived from the SNL Raw Materials and Thomson Reuters GFMS database. Model also assumes \$3/lb copper, a gold price of \$1,200/oz and an 8% discount rate. Although commodity prices are high, and the discount rate is low, the caution on costs is significant.

<sup>xiii</sup> JORC stands for the Joint Ore Reserve Committee. Various stock market controversies starting in the 1960s prompted the Australian and North American stock exchanges to adopt procedures for companies to report their mineral resources, JORC is the leading standard and is used as a model for reporting codes in the US, Europe and Canada (although there is a drive toward regulatory convergence various jurisdictions have different geography specific nuances). A “Competent Person” is defined as a

minerals industry professional who is a Member or Fellow of the Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscience.

<sup>xiv</sup> Modern cars require about 17 pounds of zinc to protect the car from rust and a further 20 pounds of zinc for use in die cast parts. See: <http://www.wsj.com/articles/zinc-rally-driven-by-demand-for-better-cars-in-china-and-india-1481698741>