

Disclosure of our conflicts of interest: On October 11, 2010 we met Texas Rare Earth Resources, soon after it obtained its "Round Top" property October 5th, and immediately invested \$478,125 in 937,500 shares and warrants all paid and exercised by November 12th representing 3.97% new shares as of October 11th. Separately, on February 3, 2011 TRER engaged our affiliate, John Tumazos Very Independent Opinions, LLC, to advise it in mergers, acquisitions, joint ventures or introduce capital raisings or other advisory assignments as may arise. On February 1 and 15, 2011 and June 10, 2011 TRER disclosed warrant financings, where it met investors contributing \$16.5 of the \$19.6 million raised at our November 9, 2010 mining conference in New York. It paid us 1%, or \$165,000, plus 149,000 warrants at \$2.50. One of our employees bought about TRER shares, and we may buy more.

*Various disclosures permitted us to publish a research report fulfilling compliance requirements, including TRER's June 10th disclosure of the warrant financing upon which we had advanced knowledge and participation, the SEC's declaration that the TRER S1 was effective on June 27th, the TRER separate SEC 8K filing describing our engagement that "there are no discussions or agreements with interested parties and JTVIO has not been apprised of any non-public material information regarding the Company" on July 14th, and the state of New Jersey Bureau of Securities declared our new investment advisor "John Tumazos Advisory and Compensated Research, LLC" (CRD #157606) effective June 29th. **It is possible that our future advisory efforts will force us to black out or suspend followup research on Texas Rare Earth Resources, and we do not expect to be able to regularly update this research report.***

**TEXAS RARE EARTH RESOURCES (TRER \$1.80, price objective over \$50)
FAVORABLE COMMENTS FROM NOVEMBER 3RD VISIT TO ROUND TOP
AND MANY, MANY REGIONAL EXPLORATION OPPORTUNITIES**

Aug	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E
EPS	-\$0.21	-\$0.26	-\$0.21	-0.27	-\$0.37	\$11.73	\$11.80	\$12.05	\$12.20

- Three other large, potentially mineralized structures with similar host rocks exist very nearby Round Top. While TRER works diligently to define tonnes, grade and recovery rates at Round Top upon which we base our financial projections, investors should keep these further opportunities in mind.
- The mountain Sierra Blanca contains a volcanic rhyolite structure 1.5 times as large as Round Top. The mountain Little Blanca is about the same size as Round Top. The recently discovered magnetic signature in the plain at the foot of these hills appears even stronger than Round Top. These represent about 7.5 billion metric tonnes of "target structures."
- The aeromagnetic signature in the plain at the foot of the mountains may be a "subcropping mountain," where its volcano never broke the surface. It may be a faulted "sister half" of Round Top. Or it may suggest that the four mountains Sierra Blanca, Little Blanca, Round Top and Little Round Top interconnect at depth into a single large upwards of 10 billion tonne system.

- Separately, limestone sedimentary bedrocks beneath these volcanic rhyolites could host “epithermal” or “hot springs” rare earth deposits separate from the rhyolites. Analogously, Nevada limestones often host the richest Nevada gold grades where porous limestones “trap” inbound mineral particles that also precipitate out of solutions as acid fluids experience PH changes in basic calcareous limestones. Dan Gorski theorizes hot springs REE behave like gold particles in such siliceous solutions.
- Separately, we want to emphasize Texas as a pro-minerals and pro-business jurisdiction, where TRER obtained its property directly from the Texas Land Office.
- A wonderful coincidence is that TRER leased a small office space in Sierra Blanca town from a local business woman and realtor, Laura Lynch, also the founding lead vocalist from 1989 to 1995 of the “Dixie Chicks” all female country band with 30+ mm album sales to date. Ms. Lynch manages TRER affairs locally, including land purchases, and we cannot imagine any better community relations situation than having a country western “rock star” as the company’s local representative in Hudspeth County, Texas.
- The surrounding area within a 30 mile radius has evidence of porphyry copper, polymetallic, gold and silver deposits. Amax Inc. intercepted low grade molybdenum decades ago in the plain at the foot of Round Top and Sierra Blanca mountains. FCX and Quaterra Resources have the “Cave Peak” moly deposit to the northwest, which Union Carbide had defined two generations ago. We believe Hudspeth County and the West Texas corridor towards El Paso offer similar opportunities as Arizona, New Mexico, Chihuahua, Sonora and other northern provinces of Mexico. TRER may undertake a regional reconnaissance of nonferrous metals opportunities.

Figure 1: 10 Major, 11 Minor Products and 3 Uncertain Ones

Ho	Er	Tm	Yb	Lu	Y	Dy	Be	Ga	Ta		Ha	Sc	Pm
La	Ce	Pr	Nd	Sm	Gd	Tb	Eu	U	Nb	Sn			

FINANCIAL MODEL INSIGHTS

- We will update our prior August 2011 financial models at a later date after TRER publishes tons, grade and estimated recoveries in its first mineral resource statement. Herein we note a few tidbits.
- In our prior first report we failed to incorporate the well-developed Texas royalty system benefiting educational institutions dating back nearly a century for oil and gas royalties. **Texas may levy an 8% statutory royalty on uranium and 6.25% on the REE and other minerals, or upwards of \$100 mm at a 50,000 tons per day mining rate.** TRER may ask for a lesser rate if it sells “concentrates,” or intermediate products.
- Anthony Garcia, who joined TRER as Senior V.P. of Project Development after nearly a generation at Newmont Mining, estimates mining costs at \$2.00 to \$2.50 per ton, slightly higher than our estimate of \$2.00 per ton, because

the rocks may require extra effort to handle as they are very fractured and broken. Each \$0.50 per ton would be \$9.25 mm pretax annually at 50,000 tons per day.

- A permanent crusher will be installed part way up the mountain top, and ores will arrive to the mill concentrator via gravity powered conveyor. That is, the haul trucks will peel of the top of the mountain, stay atop, and not cycle down to the bottom to shorten hauls other than for maintenance.
- Electricity will be generated as a byproduct of the gravity conveyor.
- Pending metallurgical studies will determine which minerals report to which intermediate concentrates. We estimate a minimum of three processing streams will separate a minimum of three concentrate products, including (1) 15 REE, (2) gallium and tin from “cassiterite” minerals, (3) uranium and beryllium and (4) we are not sure where the tantalum and niobium will report.
- Pending metallurgical studies will estimate two recovery rates for each mineral, including the first recovery to concentrate and the final finished product recovery after further processing.
- TRER is simulating mill tonnages of 50,000 to 90,000 metric tonnes per day. There was no response to our estimation that half of the gallium, ytterbium and erbium produced at 50,000 mtpd may be stockpiled and not sold.
- Our estimate of a \$150 per tonne underground mining cost is not a “slam dunk,” owing to safety practices to prevent airborne beryllium respiratory illness. This has to be studied more.
- TRER will consider all processing alternatives, including sales of intermediate concentrates or operation of an autoclave to separate specific minerals.
- TRER will consider asset allocations as financing techniques, including a “contract miner” to fund trucks, shovels and other mining equipment versus a trader or other entity/partner for access to final processing.

Figure 2: Reverse Circulation Rotary Rig Working on Round Top November 3, 2011; (Because rock so fractured, TRER uses rotary rig as it does not expect competent diamond core recoveries if it spent extra dollars on diamond drill holes).



Figure 3: Rhyolite host rock



Figure 4: Fluorite mineral seen in deep blue



Figure 5: Round Top



Figure 6: Sierra Blanca, which is the largest of the four hills, notable with “six creases.” Sierra Blanca’s rhyolite is 1.5 times as large as Little Blanca = Round Top. Little Round Top is about $\frac{1}{5}^{\text{th}}$ as big as Round Top.



Figure 7: Little Blanca, which is about the same 1.6 billion tonne volume as Round Top in rhyolites above the sedimentary rocks



Figure 8: Round Top



BROADER EXPLORATION CONTEXT OF FIVE POSSIBLY INTERCONNECTED STRUCTURES OF 7 TO 10 BILLION TONNES

Texas Rare Earth Resources has multiple broad-based exploration opportunities, of which the 1.6 billion metric tonne Round Top volumes in the rhyolite volcanic rocks atop the sediments are the current priority.

Additional volumes include Round Top beneath the sediments, Round Top deep feeder zones, the larger perhaps 2.4 billion tonne Sierra Blanca, the similar sized 1.6 billion tonne Little Blanca, the smallest Little Round Top perhaps 0.3 billion tonnes, the subcropping structure in the plains identified with the aeromag survey that is the strongest magnetic anomaly of all and the likely interconnection of the four mountains and the magnetic structure in the plain.

These four mountains may be “Laccoliths,” or “mushroom cap”-like deposits atop an intrusive. “Triple Hill” is a fifth structure to be evaluated at a later date.

The rhyolite rocks are not dense, having perhaps the least specific gravity we have ever observed. The stones appear “like cork.” However, they contain 2% to 5% magnetite, or 1% to 2% iron, which clearly lights up an aeromagnetic or ground magnetic survey.

These various structures appear to be at least 7.5 billion tonnes and, while they may not all be identically mineralized, offer potential for higher grade subzones. We do not think the future will see shortages of heavy rare earth elements found at Round Top.

EPITHERMAL OR HOT SPRINGS REPLACEMENT DEPOSITS

The sedimentary rocks beneath the volcanic rhyolite mountains offer mineral potential in several ways. First, “intrusives” and “feeders,” the sources of the mountains, are likely to appear in each case in the sediments beneath each volcanic mountain.

Second, there may be epithermal or hot springs replacement deposits, where rare earth elements settled into limestones, analogous or similar to deep and rich Nevada gold deposits in limestones. Such limestones are a sort of ideal, almost a magic, host rock where the porous limestones physically trap mineral particles like a filter. Further, the acid hot springs fluids experience a sudden PH shift in the calcareous or basic limestones, causing minerals to precipitate out of solution.

There are strong reasons to believe that very high grade zones may appear in the limestones. In a sense, the 1.6 billion tonne Round Top deposit may be a sort of “smoke” leading to better things.

NONFERROUS OCCURRENCES IN THE VICINITY

Almost three decades ago Cabot and Cyprus Minerals identified high grade beryllium on Sierra Blanca in a zone on a steep side. They never drilled it owing to the steep topography, but it may be richer than the zone deep within Round Top that currently is the world’s richest known beryllium occurrence.

Amax Inc. intercepted molybdenum in the plain at the foot of these hills.

Porphyry copper occurrences are evident in certain mountains on the south side of Interstate 10.

Lead-zinc-gold-silver veins have been found. Separate, gold and silver occurrences are known.

Thus, we consider the broad region of Hudspeth County, Texas along the border in southwest Texas to be a rich and fertile exploration region for virtually all nonferrous metals. Nickel and PGM's have not been observed, but most other economic minerals have been identified.

INFRASTRUCTURE INCLUDES RAILROAD SPUR ONTO SIERRA BLANCA MOUNTAIN

A small gravel quarry occupies two sections at the edge of Sierra Blanca mountain, and is served by a rail spur. Interstate 10 lies four miles to the south. The small town of Sierra Blanca is several miles away with a population perhaps under 1,000. We met residents of "Skunk Canyon" and of ranches up to 50 miles away.

HIGHLIGHTS OF OUR AUGUST 15TH INITIAL REPORT

- We estimate that after 2016 Texas Rare Earth Resources will increase 2010 world output of Holmium by 113%, Erbium 457%, Thulium 100%, Ytterbium 800%, Lutetium 124%, Yttrium 34%, Dysprosium 32%, Gallium 910%, Tantalum 75% and Beryllium Ore 156% to be the world's #1 supplier.
- We estimate it stockpiles about half of each or 500 mt/yr of Gallium, 400 mt/yr of Ytterbium and 200 mt/yr of Erbium and mines just 100 mtpd of underground beryl-uranium ores to avoid glutting markets in 2016.
- **We estimate "net" revenues at \$1.64 billion, excluding almost half of the Yb, Ga and Er estimated to be stockpiled. After adding another 10% of sales cost contingency and a 35% tax rate., we estimate the prospective \$0.57 billion net profit suggests a \$5 to \$10 billion market value.**
- We estimate "gross" annual revenues at \$2.12 billion large pretax margin even after discounting current price quotes roughly 80%, but we "net" revenues down to \$1.64 billion assuming stockpiles for half the Ga, Yb and Er.
- Our 2016 earnings estimate is \$11.73 per share from 49 mm shares. If the company "delivers," assuming our 79% discounts to current quoted product prices and a 10% of sales cost contingency, a \$100+ price target is possible.
- It is "very early days" in the science of product development for these various scarce elements. During the first five to ten years that TRER operates, a "chicken and egg" sort of problem will exist in which new uses cannot be developed until some of the materials are readily available for experimentation, testing and product development. We estimated no discount to sell tin or uranium, a small discount for niobium and an 80% to 97% price discount for 17 of the 21 potential sales products.
- We estimate a price target of "> \$50." If TRER manages to carve out and sell a separate future revenue stream to avoid a parent company equity offering to

- avoid equity dilution capped at 49 mm shares and if our models discounting current prices nearly 80% prove accurate, over **\$100 per share is possible.**
- In our simulations (Tables 8-10) cash balances grow to \$1.8 billion in 2019, interest bearing debts are repaid in early 2018 and TRER avoids any further equity offerings in pre-selling all of its tin and half its uranium (1 ½ of 21 products).
- We estimate TRER will increase 2010 world outputs of Lanthanum 0.3%, Cerium 0.8%, Praseodymium 0.8%, Neodymium 1.2%, Samarium 3.6%, Europium 0.3%, Gadolinium 4.3%, Terbium 19.9%, Niobium 3.6%, Tin 0.5%, Uranium 1.1% from open pit mining, and Uranium 0.044% from underground mining and Beryllium ore 156% from the “Rattlesnake Adit” as underground mining to complete a commercial suite of 15 rare earth elements (REE) and six other elements sold.
- **We estimate at a 50,000 mtpd open pit and 100 mtpd underground rate TRER would generate about \$423 million in annual sales from the six elements other than REE, or enough to cover the majority of its costs without the REE !!!**
- We estimate that TRER finances the Round Top mine via (a) a \$200 million advanced sale of future tin revenues at a 16.3% compound return to the buyer, (b) a \$300 million advanced sale of half of the uranium revenues at a 12% compound return to the buyer, (c) \$35 mm from existing warrant exercises and (d) the balance of \$300 million in bank or government guaranteed debt.
- The multi-billion-tonne magnitude of the Round Top and surrounding deposits and the support of Texas Governor Rick Perry’s staff raise the possibility the U.S.A. builds a national REE recovery plant very near to Round Top near El Paso. We would not rule out product research or financial support from the State of Texas, University of Texas at Austin, the US DOE, the US Dept. of Defense or other national laboratories. TRER is a patriotic company whose six directors include retired General Gregory Martin, former military intelligence analysts Dan Gorski and Anthony Marchese, a lifelong uranium professional and two metallurgists.
- Commercial uses of the ten heavy REE, gallium and tantalum are limited as the total global output of these 12 elements was < 3,000 tonnes plus 8,750 tonnes of yttrium in 2010. While economist John Maynard Keynes wrote, “Demand Generates Supply,” in this case we expect the opposite where science will invent uses as TRER delivers about 4,000 tonnes of these rare elements plus 2,960 tonnes of yttrium and other suppliers also emerge.
- Our future selling price estimates of refined Tin at \$12 per lb, Niobium at \$17 per lb, Uranium at \$60 per lb, Gallium at \$84 per lb and Beryllium contained in Beryl Ore at \$50 per lb have some basis for accuracy. It is noteworthy that these five products alone should cover most of the estimated costs.
- However, our future price estimates for the 17 REE, Gallium and Tantalum are subject to much uncertainty (Tables 6 and 7) as these markets are in their infancy, and we estimated TRER realizes 20% of recent prices or suffers an 80% market price decline and we further allow for the possibility that about half of the Yb, Ga and Er products will be stockpiled awaiting future market

growth and development. We applied a strict financial analysis owing to the early stage, speculative nature of this company and its markets.

- It is very plausible that TRER incrementally expands mining and milling rates after a decade or two as end markets grow and develop. The 160.3 years of estimated open pit and 2,055 years of estimated underground resources could support much larger production rates, and offer “takeover appeal” as large natural resources companies adore and covet “long live” projects.
- We expect the company to finance the project in 2013 after definitively establishing ore tonnages, ore grades, recovery rates, a process flow chart and capital costs in 2012. Current \$19 mm in cash balances should fund TRER to year-end 2012, and early exercise of 14 mm \$2.50 warrants could add another \$35 mm well ahead of June 2016 expiry.
- The nature of the roughly 21 expected future sales products may permit TRER to “slice and dice” future revenue streams. **Our favorite financing idea would be to choose among subsidiary IPOs of the Texas Gallium Co., Texas Beryl Co., Texas Niobium Co., Texas Uranium Co. or Texas Tin Co.** Sales to nuclear utilities, trading companies or industrial partners also are alternatives. Even after applying a roughly 15% discount factor to our already discounted estimated future selling prices to capitalize each revenue stream at five times, we value the Ga streams at \$1.0 billion, the BeO stream at \$175 mm, the Nb streams at \$570 mm, the U at \$600 mm and the Tin at \$200 mm.



Figure 9: Circa Spring 1988 photo of Texas Rare Earth Resources’ “Round Top” deposit, where the drill roads used for portions of 82,000 feet of drilling had no grass and the bright green vegetation highlights the barren bulldozer drill cuts. Round Top’s 1.6+ billion metric tonnes is one of five local structures containing heavy rare earth minerals, light rare earth minerals, uranium, beryllium, niobium, tantalum and gallium, whose total sizes may aggregate over 3 and up to 5 billion metric tonnes. In its November 9th speaking and March 30th “Core Shack” appearances at our conferences it generated

interest among CEO's of other mining companies in particular. Texas Rare Earth is mid-way through re-assaying of the 1984-1988 82,000 foot drilling preserved from Cyprus Minerals and Cabot Corp. and plans its own 12,000 foot first program in coming months.

Table 1: Global Rare Earth Production Volume (tonnes/yr)

	Estimated Global 2010 Production	US DOE New Prodn by 2015	US DOE 2015E	Round Top 100 mtpd u/g+ 50,000 mtpd, May 16 grades
Lanthanum La (light)	33,887	16,184	50,071	97.7
Cerium Ce (light)	49,935	29,349	79,284	393.3
Praseodymium Pr (light)	6,292	2,792	9,084	51.7
Neodymium Nd (light)	21,307	9,350	30,657	259.4
Samarium Sm (medium)	2,666	1,052	3,718	94.9
Europium Eu (medium)	592	161	753	1.9
Gadolinium Gd (medium)	2,257	537	2,794	96.7
Terbium Tb (heavy)	252	127	379	50.2
Dysprosium Dy (heavy)	1,377	167	1,544	440.8
Yttrium Y (heavy)	8,750	907	9,657	2,959.9
TOTAL US DOE 10 REE	127,315	60,657	187,972	4,446.4
Holmium Ho (heavy)	100	(0- 250 t range)		113.0
Erbium Er (heavy)	100	(0- 250 t range)		457.5
Thulium Tm (heavy)	100	(0- 250 t range)		100.4
Ytterbium Yb (heavy)	100	(0- 250 t range)		800.7
Lutetium Lu (heavy)	100	(0- 250 t range)		124.1
Scandium Sc (heavy)	25	(0- 250 t range)	Awaiting Later Analyses	
Promethium Pm (heavy)	25	(0- 250 t range)	Awaiting Later Analyses	
Total 7 REE with no US DOE est.	550	(0- 250 t range)		1,595.7
Other Metals in Round Top, and sources of market size estimates				
Gallium Ga US DOE	119			1,082.6
Niobium Nb Iamgold	85,000			3,054.8
Tantalum Ta GeoscienceAust.(750)	622			470.4
Uranium U www.world-nuclear.org	63,285			723.4
Beryllium Be www.kidela.com/be	200			312.1
Tin Sn WBMS	360,000			1,936.2
Zirconium Zr Roskill (Zircon)	1,330,000			-
Hafnium Hf JTACR, LLC estimate	100			-
Thorium Th JTACR, LLC estimate	10			-

Interpretations:

TRER would increase world output of Ga 9x, Yb and Be ores 1.5x, Er 4.6x, Ho, Tm, and Lu over 100%, Ta 75, Y 34 and Dy 32%.

This interpretation assumes a 50,000 mtpd open pit mine with zero strip ratio and various recoveries of each element and use of Cyprus Minerals circa 1987 tunnel (a.k.a. "Rattlesnake Adit) to u/g mine 100 mtpd high Ur and Be zones

Sources: JTACR estimates; Various web sites; US DOE Dec 2010,p72 Table 7-2 Current and Projected Future REE Supply

Table 2: Estimated Round Top Output to World Supplies by Mineral (tonnes/yr)

	Estimated Global 2010 Production	US DOE 2015E	Round Top 100 mtpd u/g+ 50,000 mtpd, May 16 grades	TRER % 2010 World Output	Round Top Recovery May 16 grades ppm	Recovery #1 to Concen- -trate	Recovery #2 to final Product
Lanthanum La (light)	33,887	50,071	97.7	0.3%	19.1	85%	33%
Cerium Ce (light)	49,935	79,284	393.3	0.8%	76.9	85%	33%
Praseodymium Pr (light)	6,292	9,084	51.7	0.8%	10.1	85%	33%
Neodymium Nd (light)	21,307	30,657	259.4	1.2%	27.9	85%	60%
Samarium Sm (medium)	2,666	3,718	94.9	3.6%	10.2	85%	60%
Europium Eu (medium)	592	753	1.9	0.3%	0.2	85%	60%
Gadolinium Gd (medium)	2,257	2,794	96.7	4.3%	10.4	85%	60%
Terbium Tb (heavy)	252	379	50.2	19.9%	3.6	85%	90%
Dysprosium Dy (heavy)	1,377	1,544	440.8	32.0%	31.6	85%	90%
Yttrium Y (heavy)	8,750	9,657	2,959.9	33.8%	212.2	85%	90%
TOTAL US DOE 10 REE	127,315	187,972	4,446.4				
Holmium Ho (heavy)	100	(0- 250 t range)	113.0	113.0%	8.1	85%	90%
Erbium Er (heavy)	100	(0- 250 t range)	457.5	457.5%	32.8	85%	90%
Thulium Tm (heavy)	100	(0- 250 t range)	100.4	100.4%	7.2	85%	90%
Ytterbium Yb (heavy)	100	(0- 250 t range)	800.7	800.7%	57.4	85%	90%
Lutetium Lu (heavy)	100	(0- 250 t range)	124.1	124.1%	8.9	85%	90%
Scandium Sc (heavy)	25	(0 Awaiting Later Analyses			No Data	85%	90%
Promethium Pm (heavy)	25	(0 Awaiting Later Analyses			No Data	85%	90%
Total 7 REE with no US DOE est.	550	(0- 250 t range)	1,595.7				
Other Metals in Round Top, and sources of market size estimates							
Gallium Ga US DOE	119		1,082.6	909.7%	73.3	90%	90%
Niobium Nb lamgold	85,000		3,054.8	3.6%	372.3	50%	90%
Tantalum Ta GeoscienceAust.(750)	622		470.4	75.6%	64.5	50%	80%
Uranium U www.world-nuclear.org	63,285		723.4	1.1%	44.6	90%	95%
Beryllium Be www.kidela.com/be	200		312.1	156.0%		90%	95%
Tin Sn WBMS	360,000		1,936.2	0.5%	131.1	90%	90%
Zirconium Zr Roskill (Zircon)	1,330,000		-	0.0%	1047.4	0%	0%
Hafnium Hf JTACR, LLC estimate	100		-	0.0%	85.5	0%	0%
Thorium Th JTACR, LLC estimate	10		-	0.0%	1500	75%	0%

Interpretations:

TRER would increase world output of Ga 9x, Yb and Be ores 1.5x, Er 4.6x, Ho, Tm, and Lu over 100%, Ta 75, Y 34 and Dy 32%.

This interpretation assumes a 50,000 mtpd open pit mine with zero strip ratio and various recoveries of each element and use of Cyprus Minerals circa 1987 tunnel (a.k.a. "Rattlesnake Adit) to u/g mine 100 mtpd high Ur and Be zones

Sources: JTACR estimates; Various web sites; US DOE Dec 2010,p72 Table 7-2 Current and Projected Future REE Supply

Table 3: "Contact Zone" 100 mtpd underground mine via "Rattlesnake Adit"

	Estimated Global 2010 Production tonnes	Rattlesnake Adit 100 mtpd, U = 2 lbs/t; Be= 1.5% Cyprus Min. March 1988 grades tonnes	TRER % 2010 World Output	Estimated Contact Zone grades ppm	Recovery #1 to Concentrate	Recovery #2 to final Product
Uranium U www.world-nuclear.org	63,285	28.1	0.044%	900	90%	95%
Beryllium Be www.kidela.com/be	200	312.1	156.0%	15,013	60%	95%

Sources: Cyprus Minerals March 1988 definitive feasibility study report; TRER and JTACR, LLC estimates

- Thus, our **preferred financing tact would be to sell one or two of these five non-REE future revenue streams for \$¼ billion to \$1.0 billion to fund the project**, borrow to fund the balance of \$750 mm estimated cap ex needs and

issue no more equity. Management indicated in its July 14, 2011 SEC form 8K filing that it is “reviewing options for monetizing” uranium and beryllium. We believe the 1988 Cyprus Minerals beryllium feasibility study meets modern standards, particularly recovery rates, to support such a financing.

- After increasing primary shares 50% and diluted shares just over 100% in the past year, management’s goal is to minimize future equity dilution. We expect no financings in the next year as technical analyses progress.
- We do not expect TRER to pursue a mining “operator” partner. After all, Round Top is a unique deposit with no “lookalike” known, and TRER will pioneer its process development. We expect CEO Marc LeVier to hire life long colleagues to staff the project, such as the August 9th appointment of ex-Bechtel and ex-Newmont Mining executive Anthony Garcia.
- In 1990 the Texas Bureau of Economic Geology estimated that Round Top contained 1.6 billion metric tonnes, based on the rhyolite volcanics atop the southwestern Great Plains sedimentary rocks. The 1990 estimate excluded the portion of Round Top below sediments or its “feeders,” the nearby hills Little Round Top, Sierra Blanca and Little Blanca and any “subcropping” rhyolite domes that did not break the surface. Further, the TRER May 25th close-spaced aeromagnetic survey identified northwest trending dykes beneath the plains or valley floors *suggesting the four mountains interconnect at their bases and in the basins below..*

SHORT-TERM RISKS FROM SALES OF FOUNDERS’ SHARES WITH RESTRICTION LIFTED JUNE 28TH

On the evening of June 27th the SEC declared the TRER SEC form S1 filing “effective,” which released the “restriction” on a large portion of the company’s common stock. There are < 20 mm shares issued at < \$1 that became unrestricted with the S1 effective. The full final SEC S1 registration filing was made on July 25th.

TRER rallied from under \$0.80 in the week prior to its October 5, 2010 agreement to obtain the Round Top deposit from the Texas Bureau of Economic Geology. It rallied from \$1.56 on November 8th to \$2.39 on November 9th after its November 9th presentation at our investor conference, its first public appearance as a rare earth company, and did not trade below \$2.20 until the August 2011 general stock market turmoil. It rallied from \$4.15 per share on May 3rd, when it named Marc LeVier its President and CEO, to peak at \$10 on May 11th, the only day it traded above \$9.

Thus, TRER has not traded above \$4 since the June 27th registration statement. We estimate that 1.0 mm shares of founders’ stock could be sold, but that many investors simply have “paused” until the possible outflows have passed. Further, the general world stock market turmoil has caused investors to flee high risk emerging companies, product markets or new technologies, such as rare earth elements, as U.S. treasury securities have near record low yields despite the S&P rating downgrade. A listing on a U.S. or Toronto Stock Exchange are possible, but better stock price performance would facilitate such.

CORPORATE GOAL OF ELIMINATING OR MINIMIZING SHARE DILUTION

TRER issued commons shares and warrants to raise \$19.6 mm in cash balances during the 2011 first-half, raising primary shares to 34.5 mm and diluted shares to 48 mm. Further, future exercises warrants could raise more.

A “mismatch” existed between five year \$2.50 warrants expiring as late as June 2016, the need to finance the company in 2013 and mine construction costs likely in 2013 to 2015. After all, there is a chance the mine could be generating a positive cash flow as soon as 2016. We believe that the appointment of ex-Newmont Mining executives is a stage in the “institutionalization” of TRER, where it will perform important resource definition, metallurgical recovery and initial mine engineering tasks in coming months prior to issuing any more stock or warrants.

IMPACTS OF SALES OF FUTURE TIN, URANIUM, BERYLLIUM OR NIOBIUM REVENUE STREAM

We have modeled a 2013 sale of the “tin stream” from Round Top for \$200 million, which would yield a 16.3% compound return to the buyer at 50,000 mtpd ore throughput, 1,936.2 tonnes of annual tin output and \$12 tin. The compound return to the buyer would improve by 2.2% if mill throughput were to rise to 70,000 mtpd after 5 years and the tin price escalated 1% in nominal terms each year after the sixth year.

We believe tin is an attractive mineral to consider for TRER as an asset sale candidate in the form of a “revenue stream” sale. Tin is the largest tonnage market, at roughly 360,000 metric tonnes annually according to the World Bureau of Metals Statistics, among the 21 products we estimate TRER may be able to sell. Its price is well disseminated due to its status as a daily LME traded nonferrous metal, where LME tin trading began in 1877.

Table 4: Illustration of Round Top Tin Revenue Stream Values

Estimated Annual Stream	Up Front Payment 1-2013	Discount Rate
\$51.22 mm from 2016	\$250 mm	13.9%
\$51.22 mm from 2016	\$200 mm	16.3%
\$51.22 mm from 2016	\$150 mm	19.85%

At \$12 per lb LME tin forever, 50,000 mtpd mill output and 1,936.2 tonnes tin output. If mill throughput rises to 70,000 mtpd in 2021 and tin prices rise 1% nominally after 2021, the IRR would increase about 2.2% in each scenario.

Source: JTACR, LLC estimates

Figure 10: LME Tin Prices 5 Years since 2006

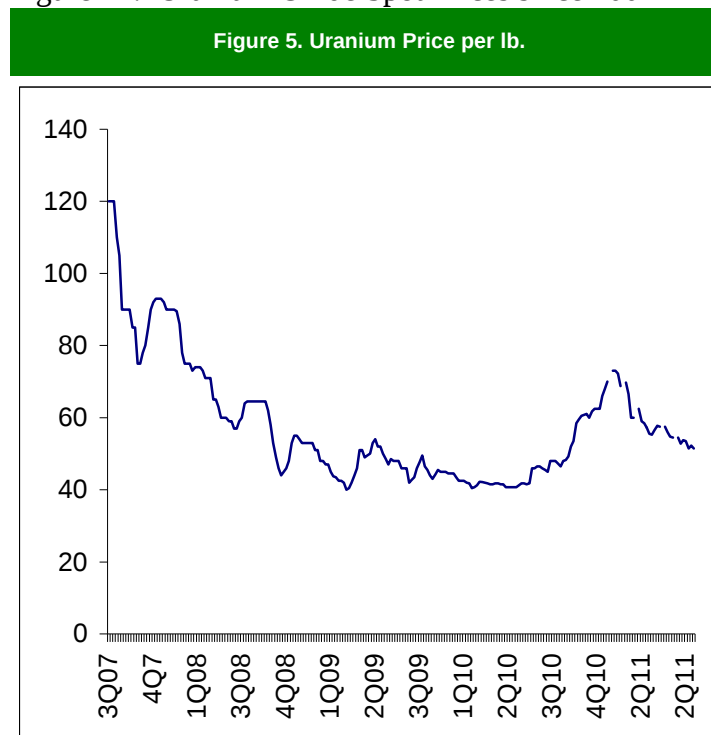


Sources: LME; www.metalprices.com/pubcharts/public/Tin_Price_Charts.asp

Thus, Tin is a highly “mature” commodity with a 134 year price history. Uranium has < 60 year price history, and niobium, beryllium, tantalum and gallium have evolved and grown in the past 30 to 40 years. The various 17 REE are very recent developments, and much uncertainty surrounds their historical, current and future selling prices as China controls, often squeezing, their prices upwards.

TRER will have a small impact on world tin markets, supplying 1/200th of annual world demand. Tin is only 2% to 3% of estimated TRER future revenues as well, meaning a tin advanced sale represents a small dilution like selling about 1 mm common shares.

Figure 11: Uranium Oxide Spot Prices since 2007



Source: www.kitcometals.com from www.uxc.com

Candidates to buy such a future tin stream sale could include an IPO, financial buyers, royalty companies, physical traders like Glencore, or tinplate steelmakers like ArcelorMittal or U.S. Steel.

We believe uranium is the second best product to sell, were TRER to make an advanced sale to monetize future revenues, as it has the second longest history of use and uranium spot prices are widely disseminated. We estimate the sale of the future uranium output that we estimate at 723 tonnes equates to 1.1% of world uranium supply worth about \$100 mm annually at \$60, which is a relatively conservative uranium price long-term estimate. We estimate that the sale of half of the uranium output, if sold, would generate about \$300 mm assuming about a 12% compound return to the buyer, or 14% if mill and underground throughput rose 40% after 5 years. There may be utilities concerned that uranium prices could double or triple who might seize on such an opportunity.

Niobium and beryllium oxide also are advanced revenue stream sale alternatives. The 1988 Cyprus Minerals historic definitive feasibility study documents beryl ores to a buyer for beryllium, while the other minerals in Round Top may not be financed easily prior to completion of a definitive feasibility study no earlier than late 2012.

Table 5: Texas Rare Earth Res. Earnings Model (\$ Mil.)

Revenues excluding 500 t Ga, 400 Yb, 200 Er stockpiled	1,639.8
Costs of Open Pit Mining @ \$2 per tonne	36.5
Costs of Underground Mining at \$150 per tonne	5.5
Costs of Milling 50,500 mtpd @ \$10 per tonne	184.3
Third Party Niobium Concentrate melting in EAFs \$300/t	4.6
Uranium and Beryllium Acid Leaching	10.0
Gallium upgrading and refining	25.0
Tantalum upgrading and refining	5.0
Third Party REE refining probably by U.S. Govt.	200.0
Depreciation	30.0
SG&A	30.0
Insurance	5.0
Property Taxes	5.0
Reclamation Reserve	3.0
Contingency expenses = 10% of discounted sales	164.0
Subtotal Gross Margin	931.9
Interest Expense @ 8%	18.8
Income Taxes @ 35%	319.6
Net Income	593.5
Shares Outstanding	49.0
Earnings per share	\$12.11

Note: Pending final ore grades, recovery rates and definitive feasibility studies.

Source: John Tumazos Advisory and Compensated Research, LLC

Table 6: Estimated Revenues by Mineral

Output by Mineral	Gross Annual Tonnes	Net Stockpiles Yb,Ga,Er	Gross Sales \$ 2016	Net Sales Net Stockpiles 2016
Uranium open pit U	723.4	723.4	95.7	95.7
Uranium underground U	28.1	28.1	3.7	3.7
Beryl Ore underground Be	312.1	312.1	34.4	34.4
Tin Sn	1,936.2	1,936.2	51.2	51.2
Niobium Nb	3,054.8	3,054.8	114.5	114.5
Gallium Ga	1,082.6	582.6	200.7	108.0
Tantalum Ta	470.4	470.4	15.6	15.6
Lanthanum La (light)	97.7	97.7	2.7	2.7
Cerium Ce (light)	393.3	393.3	11.7	11.7
Praseodymium Pr (light)	51.7	51.7	1.7	1.7
Neodymium Nd (light)	259.4	259.4	16.5	16.5
Samarium Sm (medium)	94.9	94.9	2.4	2.4
Europium Eu (medium)	1.9	1.9	1.2	1.2
Gadolinium Gd (medium)	96.7	96.7	2.3	2.3
Terbium Tb (heavy)	50.2	50.2	29.3	29.3
Dysprosium Dy (heavy)	440.8	440.8	133.4	133.4
Yttrium Y (heavy)	2,959.9	2,959.9	100.6	100.6
Holmium Ho (heavy)	113.0	113.0	174.4	174.4
Erbium Er (heavy)	457.5	257.5	59.5	33.5
Thulium Tm (heavy)	100.4	100.4	221.4	221.4
Ytterbium Yb (heavy)	800.7	400.7	721.9	361.3
Lutetium Lu (heavy)	124.1	124.1	124.3	124.3
Scandium Sc (heavy)	Awaiting Later Analyses			
Promethium Pm (heavy)	Awaiting Later Analyses			
SUBTOTAL NON-REE			\$ 515.8	\$ 423.1
SUBTOTAL HEAVY REE			\$ 1,564.7	\$ 1,178.0
SUBTOTAL LIGHT AND MEDIUM REE			\$ 38.7	\$ 38.7
<u>TOTAL SALES REVENUES</u>			\$ 2,119.2	\$ 1,639.8

Source: John Tumazos Advisory and Compensated Research, LLC estimates

FINANCIAL MODELING

We simulate a 50,000 mtpd open pit mine with a zero strip ratio and a 100 mtpd underground mine using the very same tunnel Cyprus Minerals established prior to 1988. The company may consider up to a 90,000 mtpd scale, but we simulated a moderately smaller 50,000 mtpd scale owing to our concerns as to whether some of the minerals could be sold. It is also possible that the underground scale could be larger than 100 mtpd, but even 100 tonnes per day could exceed future growth of the beryllium market.

We were very cautious in estimating costs. For example, we used a \$2 per tonne open pit mining assumption, in contrast to Seabridge Gold using \$1.50 per metric tonne for its project virtually atop a glacier in northwest British Columbia without roads or power yet

in place. Round Top lies 4 miles northwest of Interstate 10 near rail and power lines 85 miles east of El Paso, and its mining costs should be half of Seabridge Gold's.

We estimated milling at \$10 per tonne due to sheer economies of scale, and underground mining at \$150 per tonne even though it is easily accessed walk-in tunnel horizontally with no shaft or initial vertical movements. The late-1980s vintage tunnel built by Cyprus Minerals has been maintained by the Texas Bureau of Economic Geology.

We estimated a \$750 million cap ex requirement, which is on the high end of the company's \$500 to \$700 mm expectation for a one-third larger plant. Further, we estimate the company pays the federal government \$200 million in annual expenses towards a central federal REE processing plant's use, which may cost the government \$250 to \$500 mm to build. Further, we provide for \$226 million in operating expense contingency, which primarily involves either recovery rate shortfalls or extra expense to meet recovery targets.

We estimate the company funds its \$750 mm cap ex budget and ongoing corporate expenses, exploration expenses and feasibility study expenses with its own resources. These include \$19 mm in current cash balances, \$35 mm from warrant exercise expenses, \$200 million from advanced sale of future tin production, \$300 mm from advanced sale of half of future uranium production and about \$225 mm in bank debts, which could be repaid in the first year.

Cap ex needs could rise to \$1.5 to \$2 billion if TRER seeks to build its own autoclaves or other "final" metallurgy facilities to fully refine many of the products. Acid leaching would be used to separate beryllium and uranium. Electric arc furnaces are used to melt to purify niobium, and TRER may sell concentrates to a larger niobium producer.

BUSINESS RISKS INHERENT IN OUR MODELING.AND PRICE OBJECTIVE

Tables 2, 3, 6 and 7 provide extensive detail in our estimates of ore grades (based on May 16th press release, primary and secondary recovery rates, product prices and various revenue breakdowns.

Our estimates of ore grades from the May 16th TRER press release is very preliminary, as TRER had assayed about half of the 82,000 feet of historic prior drilling of Cyprus Minerals and Cabot Corp. It has not begun its 12,000 foot first drilling program, nor tested results from its May 2011 magnetic survey.

Further, TRER is just beginning initial "ore characterization studies" and has not undertaken any recovery tests. However, the REE are contained in fluoride minerals, the gallium and tin in cassiterite, the thorium in thorite, and the beryl in the "Contact Zone with high uranium, and uranium, tantalum, and niobium are also in particular minerals. Subsequent floatation and metallurgical testings are pending, and we do not expect results until after mid-2012.

Further, selling prices and market sizes of many of these elements are not known, or have been very crudely estimated on our part. We have made a literature search of the US DOE December 2010 background paper and the web sites of Lynas, www.chemicool.com and www.metals-pages.com. None of these are authoritative, and the Chinese government probably possesses the best market information that exists.

There has not been any SEC compliant calculation of proven and probably reserves, tonnages, ore grades, recovery rates, capital expenditure budget, definitive feasibility study, etc. The Round Top property is unique, and management will have to define its own metallurgical recovery process to extract its unique collection of minerals. There is no assurance the project can be financed, or financed with zero further dilution as we optimistically estimated. No one has ever made an advanced sale of a tin, uranium, beryl, niobium or gallium revenue stream as we postulate may be possible or subject of an IPO.

Table 7: Estimated Product Prices for Texas Rare Earth

Price by mineral	JTACR Estimate \$ per lb	Discount to market	Lynas Chinese Export 99%purity 27-Jun-11	Lynas Chinese Domestic 99%purity Jun-11	www. chemicool.com 29-Jun-11	www.metals-pages oxides in kg or t bulk 30-Jun-11
Uranium	\$60	0%				
Beryl Ore @ 1/3 Be metal	\$50	67%				
Tin	\$12	0%				
Niobium @ estimated moly prices	\$17	15%				
Gallium @ 20% current prices	\$84	80%				
Tantalum @ 20% recent Ta scrap	\$15	80%				
Lanthanum La (light)	\$13	80%	\$64	\$12		\$67.27
Cerium Ce (light)	\$14	80%	\$68	\$14		\$67.73
Praseodymium Pr (light)	\$15	80%	\$107	\$74		\$108.41
Neodymium Nd (light)	\$29	80%	\$150	\$110		\$144.32
Samarium Sm (medium)	\$12	80%	\$62	\$9	\$ 1,634 pure	\$58.41
Europium Eu (medium)	\$291	80%	\$1,636	\$2,034	\$ 90,800 pure	\$1,454.55
Gadolinium Gd (medium)	\$11	80%			\$ 54 bulk	\$92.05
Terbium Tb (heavy)	\$265	80%	\$1,364	\$1,613	\$ 22,882 pure	\$1,322.73
Dysprosium Dy (heavy)	\$137	80%	\$714	\$877		\$686.36
Yttrium Y (heavy)	\$15	80%			\$ 999 pure	\$77.05
Holmium Ho (heavy)	\$700	91%			\$ 7,818 pure	
Erbium Er (heavy)	\$59	80%			\$ 295 bulk	
Thulium Tm (heavy)	\$1,000	97%			\$ 31,780 pure	
Ytterbium Yb (heavy)	\$409	90%			\$ 4,086 pure	
Lutetium Lu (heavy)	\$454	90%			\$ 4,540 pure	
Scandium Sc (heavy)	\$636	90%			\$ 6,356 pure	
Promethium Pm (heavy)	\$0	100%			Unknown	

Note: We used a discount to the lowest or lowest reconfirmed price, rejecting some China home market quotes.

Sources: Lynas, www.chemicool.com; www.metals-pages.com

Owing to these many business risks, we have discounted selling prices 79%, allowed for a 10% or \$226 mm operating cost contingency, allowed for 10% or 20% of four or five key products to be “stockpiled” if they cannot initially been sold out, allowed for government support via loans or a central national REE recovery facility, and related contingencies. Our price target of \$50+ is only 2.5 times our long-term earnings estimate.

Table 8: TRER Balance Sheet (\$ Mil.)

Fiscal years end Aug	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash and equiv.	0.074	23.021	10.8	137.7	227.3	137.1	512.4	816.4	1,248.3	1,797.7
Accounts Receivable		0.050	0.1	0.1	0.1	0.1	131.2	131.2	131.2	131.2
Inventories							82.0	82.0	82.0	82.0
PPE	0.071	0.471	5.5	205.5	405.5	655.5	725.5	745.5	765.5	760.5
Total Assets	0.145	23.542	16.4	343.3	632.9	792.6	1,451.1	1,775.0	2,226.9	2,771.4
Short-term debt	0.090									
Other CL & payables	0.021	0.200	0.200	0.200	1.0	10.0	127.9	127.9	127.9	127.9
Long-term debt				-	100.0	300.0	285.0	85.0	-	-
Deferred Revenue				300.0	500.0	500.0	480.0	460.0	440.0	420.0
Other long-term liab.							3.0	6.0	9.0	12.0
Deferred Taxes							24.8	49.7	75.1	100.8
Shareholders Equity	0.034	21.044	11.8	36.7	23.3	5.1	579.8	1,157.9	1,748.2	2,345.8
Total Liabilities	0.146	21.244	12.0	336.9	624.3	815.1	1,500.5	1,886.4	2,400.2	3,006.6

Note: Gallium, Ytterbium and Erbium stockpiles carried on balance sheet at zero as not immediately salable. All costs expensed.

Source: TRER reports for history and JTACR, LLC estimates for projections

Table 9: TRER Cash Flows (\$ Mil.)

Fiscal years end Aug	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Net Income	-0.558	-6.52	-9.23021	-10.10801	-13.37703	-18.27326	574.8	578.0	590.4	597.6
Depreciation + amort.	0.004	0.01	0.01	0.01	1	1	50.0	50.0	50.0	50.0
Deferred Taxes							24.8	24.9	25.4	25.7
Other Noncash items	0.324	2.5	2	2	2	2	2	2	2	2
Equity	0.455	27.53		35						
Debt					100	200				
Deferred Revenues				300	200					
Total Sources	0.225	23.52	-7.22021	326.902	289.623	184.7267	651.5	654.9	667.8	675.4
Capital spending	0.075	0.4	5	200	200	250	100.0	50.0	50.0	25.0
Dividends										
Debt repayments	0.075	0.073					15.0	200.0	85.0	0.0
Deferred Sales							100.9	100.9	100.9	100.9
Noncash W.C.		0.1				25	60.3	0.0	0.0	0.0
Change in Cash	0.074	22.947	-12.22021	126.902	89.62297	-90.27326	375.4	304.0	431.9	549.4
Total Uses	0.224	23.52	-7.22021	326.902	289.623	184.7267	651.5	654.9	667.8	675.4

Source: TRER reports for history and JTACR, LLC estimates for projections

Table 10: Texas Rare Earth Res. Earnings Model (\$ Mil.)

Fiscal years end Aug	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenues excluding 500 t Ga, 400 Yb, 200 Er stockpiled							1639.77	1639.77	1639.77	1639.77
Costs of Open Pit Mining @ \$2 per tonne							36.5	36.5	36.5	36.5
Costs of Underground Mining at \$150 per tonne							5.5	5.5	5.5	5.5
Costs of Milling 50,500 mtpd @ \$10 per tonne							184.3	184.3	184.3	184.3
Third Party Niobium Concentrate melting in EAFs \$300/t							4.6	4.6	4.6	4.6
Uranium and Beryllium Acid Leaching							10.0	10.0	10.0	10.0
Gallium upgrading and refining							25.0	25.0	25.0	25.0
Tantalum upgrading and refining							5.0	5.0	5.0	5.0
Third Party REE refining probably by U.S. Govt.							200.0	200.0	200.0	200.0
Depreciation							30.0	30.0	30.0	30.0
Amortization of deferred revenues							20.0	20.0	20.0	20.0
SG&A	0.425	6	4	5	10	15	30.0	30.0	30.0	30.0
Exploration	0.127	0.5	5	5	2	1	5.0	5.0	5.0	5.0
Insurance							5.0	5.0	5.0	5.0
Property Taxes							5.0	5.0	5.0	5.0
Reclamation Reserve							3.0	3.0	3.0	3.0
Contingency expenses = 10% of discounted sales							164.0	164.0	164.0	164.0
Subtotal Gross Margin							906.9	906.9	906.9	906.9
Interest Expense @ 8%		-0.02	-0.2	-0.1	-1.4	-2.3	22.6	17.7	(1.4)	(12.5)
Income Taxes @ 35%							309.5	311.2	317.9	321.8
Net Income	-0.558	-6.52	-9.23021	-10.10801	-13.37703	-18.27326	574.8	578.0	590.4	597.6
Shares Outstanding	23.433	31	35	49	49	49	49	49	49	49
Earnings per share	-\$0.02	-\$0.21	-\$0.26	-\$0.21	-\$0.27	-\$0.37	\$11.73	\$11.80	\$12.05	\$12.20
Ending Gallium t inventory							500	1,000	1,500	2,000
Ending Ytterbium t							400	800	1,200	1,600
Ending Erbium t inventory							200	400	600	800

Note: Pending final ore grades, recovery rates and definitive feasibility studies.

Source: John Tumazos Advisory and Compensated Research, LLC

MULTI-YEAR FINANCIAL MODELS

We estimated that TRER spends the next year engineering its deposit, and that Marc LeVier's fine technical team and outside consultants produce a robust business plan relatively smoothly. Further, we estimated that the State of Texas, US DOE and US DOD strongly support the project, which enjoys a rapid permitting process. It lies entirely on State of Texas land, and enjoys the strongest support from the staff of Governor Rick Perry. Thus, we estimate full startup on September 1, 2015 to enjoy a full year of output in the TRER fiscal year ending August 31, 2016.

Even as we discount recent product prices by 79%, assume \$600 mm of revenues are not salable in stockpiling Ga, Yb and Er and running the underground mine at 100 not 500 mtpd and we estimate a 50,000 not 70,000 mtpd open pit mine, we model over 1/3 net margins after taxes and roughly 1/2 pretax profit margins.

Half of the costs we have estimated "are a plug," as we estimate TRER pays \$200 mm annually to a future federal REE final processing lab and we allow for \$164 mm or 10% of sales for a contingency. Thus, a remote scenario exists where full revenues are \$2.2 billion and operating costs as little as \$0.7 billion to generate a \$1.5 billion rather than \$0.9 billion pretax margin.

The profit margins appear likely to be so large that TRER should be able to repay financing very quickly. The magic is in a 21 product sales portfolio, where we have

assumed that 5 of the 26 contained elements do not prove salable. We estimate TRER will be the largest supplier in the world for 10 of these elements.

Thus, we estimate roughly \$12 per share in future earnings, a fiscal 2018 debt payoff and a \$1.8 billion cash position at August 31, 2019. In effect, the 100% of the tin and 50% of the uranium will be delivered forever, and those advanced sales “never are paid off” but may permit TRER to build its mine without issuing common stock at all.

YTTERBIUM MARKET OUTLOOK

At \$722 mm in estimated future revenues if not stockpiled, ytterbium appears to be the “make or break” product for TRER. It is 1/3 of the highly discounted estimated revenue stream we calculate with no stockpiling. Further, TRER would increase our estimate of global supply by nearly eightfold, a remarkable amount.

The US DOE made no market estimate for ytterbium in its December 2010 background study on critical materials. We estimated the market size crudely at 100 tonnes, or somewhere between nil and 250 tonnes broad range.

It is used in portable x-ray machines that need no electricity, stress gauges to monitor ground deformations after earthquakes or underground explosions, in laser amplifiers, catalysts and in alloys to improve grain refinement and strength in stainless steels. The descriptions in www.wikipedia.com suggest a highly experimental material with limited experience that is difficult to handle. It reports:

Production

Recovery of ytterbium from ores involves several processes which are common to most rare-earth elements: 1) processing, 2) separation of Yb from other rare earths, 3) preparation of the metal. If the starting ore is [gadolinite](#), it is digested with hydrochloric or [nitric acid](#) which dissolves the rare-earth metals. The solution is treated with [sodium oxalate](#) or [oxalic acid](#) to precipitate rare earths as oxalates. For [euxenite](#), ore is processed either by fusion with [potassium bisulfate](#) or with [hydrofluoric acid](#). [Monazite](#) or [xenotime](#) are heated either with sulfuric acid or with caustic soda.

Ytterbium is separated from other rare earths either by [ion exchange](#) or by reduction with sodium amalgam. In the latter method, a buffered acidic solution of trivalent rare earths is treated with molten sodium mercury alloy, which reduces and dissolves Yb^{3+} . The alloy is treated with hydrochloric acid. The metal is extracted from the solution as oxalate and converted to oxide by heating. The oxide is reduced to metal by heating with [lanthanum](#), [aluminium](#), [cerium](#) or [zirconium](#) in high vacuum. The metal is purified by sublimation and collected over a condensed plate.^[8]

Applications : Source of gamma rays

The ^{169}Yb [isotope](#) has been used as a [radiation](#) source substitute for a portable [X-ray](#) machine when [electricity](#) was not available. Like X-rays, [gamma rays](#) pass through soft tissues of the body, but are blocked by bones and other dense materials. Thus, small ^{169}Yb samples (which emit gamma rays) act like tiny X-ray machines useful for [radiography](#) of small objects. Experiment shows that radiographs taken with ^{169}Yb source are roughly equivalent to those taken with X-rays having energies between 250 and 350 keV.^[9]

Doping of stainless steel

Ytterbium can also be used as a [dopant](#) to help improve the grain refinement, strength, and other mechanical properties of [stainless steel](#). Some ytterbium [alloys](#) have rarely been used in [dentistry](#).^{[2][3]}

Yb as dopant of active media

Yb is used as dopant in optical materials, usually in the form of [ions](#) in [active laser media](#). Several powerful [double-clad fiber](#) lasers and [disk lasers](#) use Yb^{3+} ions as [dopant](#) at concentration of several [atomic percent](#). Glasses (optical fibers), crystals and ceramics with Yb^{3+} are used.^[10]

Ytterbium is often used as a [doping material](#) (as Yb^{3+}) for high power and wavelength-tunable [solid state lasers](#). Yb lasers commonly radiate in the 1.06–1.12 μm band being optically pumped at wavelength 900 nm–1 μm , dependently on the host and application. Small [quantum defect](#) makes Yb prospective dopant for efficient lasers and [power scaling](#).^[11]

The kinetic of excitations in Yb-doped materials is simple and can be described within concept of [effective cross-sections](#); for the most of Yb-doped laser materials (as for many other optically pumped gain media), the [McCumber relation](#) holds,^{[10][12][13]} although the application to the Yb-doped [composite materials](#) was under discussion.^{[14][15]}

Usually, low concentrations of Yb are used. At high concentration of excitations, the Yb-doped materials show [photodarkening](#)^[16] (glass fibers) or ever switch to the broadband emission^[17] (crystals and ceramics) instead of the efficient laser action. This effect may be related with not only overheating, but also conditions of the [charge compensation](#) at high concentration of Yb ions.^[18]

Others

Ytterbium metal increases its electrical resistivity when subjected to high stresses. This property is used in stress gauges to monitor ground deformations from earthquakes and explosions.^[19]

THULIUM MARKET OUTLOOK

At \$221 mm in estimated future revenues, thulium appears to be an important product for TRER. It is $1/10^{\text{th}}$ of the highly discounted estimated revenue stream we calculate. Further, TRER would roughly double world supply.

The US DOE made no market estimate for thulium in its December 2010 background study on critical materials. We estimated the market size crudely at 100 tonnes, or somewhere between nil and 250 tonnes broad range.

Wikipedia lists thulium applications as follows:

Laser: [Holmium-chromium](#)-thulium triple-doped [YAG](#) (Ho:Cr:Tm:YAG , or Ho,Cr,Tm:YAG) is an active laser medium material with high efficiency. It lases at 2097 nm and is widely used in military, medicine, and meteorology. Single-element thulium-doped YAG (Tm:YAG) lasers operate between 1930 and 2040 nm.^[10] The wavelength of thulium-based lasers is very efficient for superficial ablation of tissue, with minimal coagulation depth in air or in water. This makes thulium lasers attractive for laser-based surgery.^[11]

X-ray source: Despite its high cost, portable X-ray devices use thulium that has been bombarded in a [nuclear reactor](#) as a radiation source. These sources are available for about one year, as tools in medical and dental diagnosis, as well as to detect defects in inaccessible mechanical and electronic components. Such sources do not need extensive radiation protection – only a small cup of lead.^[12]

Others: Thulium has been used in [high temperature superconductors](#) similarly to [yttrium](#). Thulium potentially has use in [ferrites](#), ceramic magnetic materials that are used in [microwave](#) equipment.^[12]

Biological role and precautions: Thulium has no known biological role, although it has been noted that it stimulates metabolism. Soluble thulium salts are regarded as slightly toxic if taken in large amounts, but the insoluble salts are non-toxic. Thulium is not taken up by plant roots to any extent and thus does not get into the human food chain. Vegetables typically contain only one milligram of thulium per tonne (dry weight).^[9]

GALLIUM MARKET OUTLOOK

We estimate Round Top's gallium output at a ninefold increase to world supply, and as 1/11th of the project's revenue. The US DOE December 2010 study listed gallium as a critical material. The US DOE December 2010 p. 85 study opined on gallium as follows: "The basic availability of gallium appears more than adequate. Estimated 2015 supply is sufficient to meet projected demand beyond 2020 in all but Trajectory D. Continuing industry trends of reducing material intensity provides significant payoff for reducing overall material demand. While the share of clean energy demand relative to non-clean energy demand increases from 5% in 2010 to 16% in 2025, non-clean energy demand still dominates across Trajectories A–C. U.S. clean energy demand contributes about one-sixth of global clean energy demand in 2025 under Trajectory C. High penetration of CIGS PV without advances in material intensity, global supply of gallium would need to increase by roughly 85% between 2015 and 2025 to meet global demand."

YTTRIUM MARKET OUTLOOK

We estimate Round Top's gallium output at a 34% increase to world supply, and as 1/20th of the project's revenue. The US DOE December 2010 study listed yttrium as a critical material. The US DOE December 2010 p. 89 study opined on yttrium as follows: "The basic availability of yttrium oxide appears very tight in the short and medium term. Global demand in 2010 exceeds current production. ⁸³ Production is anticipated to grow 10% by 2015. At this level, it will be unable to meet growing demand in the short and medium terms. Significant additional production will be needed to meet short term demand. Production will need to grow by more than 40% over the 2015 level by 2025 in order to meet even the low-growth trajectory. Clean energy demand in phosphors accounts for approximately 50% of global demand throughout the short and medium term. Trajectories assume limited substitution of LEDs and OLEDs for fluorescents, which could substantially mitigate demand in the 2020–2025 timeframe. If high-temperature superconductors, which generally contain yttrium, begin to capture market share from permanent magnets for use in wind turbines, demand for yttrium may increase more rapidly."

DISCLOSURES CONCERNING JOHN TUMAZOS ADVISORY AND COMPENSATED RESEARCH, LLC (JTACR)

John Tumazos Advisory and Compensated Research, LLC (JTACR) is a separate investment advisor registered with the State of New Jersey Bureau of Securities on June 29, 2011 with CRD # 157606. **Under no circumstances will JTACR be commissioned by a mining or other publicly traded company simply to write a “paid” research report.** Its purpose is to include research reports after separate compensation has been received for an advisory service such as a fairness opinion, mergers & acquisitions advice, introductions of investors in a capital raising or other advisory services. Regulators presume that any “compensation” or potential compensation biases research reports, however small, and outside counsel advises us that we should not write about a company as “John Tumazos Very Independent Research, LLC” if compensated or seeking compensation.

We have created a separate web site, www.advisoryandcompensatedresearch.com to support JTACR. It is separate from our normal research investment advisor site, www.veryindependentresearch.com.

Paramount Gold and Silver, Galway Resources and Texas Rare Earth Resources have published favorable results from mineral properties, and their shares appreciated after we received compensation. The purpose of JTACR is to remedy a “regulatory blackout,” where we cannot publish research as “independent” under JTVIR after accepting compensation. The creation of JTACR remedies such a “regulatory gag,” while openly communicating that we were compensated. It is possible that some institutional investors may consider it to be a “feather in the cap” of a small company that it engaged us to advise them in a transaction owing to our experience.

After receiving compensation from Paramount Gold and Silver in June 2010 for a fairness opinion in its acquisition of X-Cal Resources or later in 2011 from Galway Resources, Tara Gold Resources, Appia Energy, Focus Gold, Texas Rare Earth Resources or potentially other companies in the future, John Tumazos Very Independent Research, LLC (JTVIR) refrains from publishing research reports on such companies.

We define “compensation” as any consideration that creates direct pretax income for any of our businesses, research or advisory or any of our employees personally. However, we do permit companies to defray expenses, and large companies’ policies vary. Rio Tinto or Teck have invoiced us for charter aircraft. In contrast, we have accepted free air travel to mine sites from Agnico-Eagle to Finland, Chihuahua or Nunavut, Stonegate Agricom to Idaho, Fortescue Metals to its Pilbara mines from Perth, HudBay Mineral to Manitoba, Goldcorp, Brigus and VG Gold each to Timmons, Augen Gold to Swayze, Paramount Gold and Silver to Chihuahua, Goldcorp to Zacatecas, and many others. We do not define as “compensation” if Barrick Gold, Duluth Metals, Wits Gold or some other company picks up a group client lunch tab or buys us lunch alone. We do not define as “compensation” if a company charters an airplane to facilitate a research visit to a mine location without convenient commercial air service. We routinely invoice companies

participating in our investor conferences \$1,000 to \$2,000 each to cover their pro rata expenses of the conference on a “Dutch Treat” basis, where we send each company a full expense accounting of our conferences as well.

As of June 30, 2011, Paramount Gold and Silver, Galway Resources, Tara Gold, Appia Energy and Focus Gold are eligible for JTACR research reports as having been “advised” and we have been “compensated.” However, Texas Rare Earth Resources, Augen Gold and Quaterra Resources are the subject of current engagements, and we cannot write on them as regulators may presume we possess none-public information unless the company files an SEC form 8K or press release specifically disclosing our project or that no discussions are ongoing. In the past we have advised Duluth Metals, the Dorado Ocean Resources former subsidiary of Odyssey Marine Exploration and a private forest products company FXX, LLC without success and without receiving compensation.

Because of Texas Rare Earth Resources June 10, 2011 disclosure of a financing upon which we had advanced knowledge and introductions, the June 28, 2011 disclosure that its S1 registration statement was effective with the SEC, and a subsequent July 14, 2011 8K filing with the SEC describing both our advisory relationship and that no mergers and acquisition discussions currently are ongoing, we treat July 2011 as an “open window” in which JTACR may write on TRER and during which a group of our employees or outside sales representatives may buy shares 3 days after publication of this report in TRER.

We will distribute JTACR reports to JTVIR paid subscribers free, the particular mining companies may distribute JTACR reports from time-to-time and eventually we may sell JTACR to its own subscribers for \$5,000 annually after building up a coverage list.

We will monitor the financial returns of JTACR investment recommendations over time, and compare them to JTVIR returns. We expect that JTACR recommendations will provide much more volatile returns than the larger, more established companies JTVIR covers as large as BHP Billiton, Vale or Rio Tinto. Under previous employment at Donaldson, Lufkin & Jenrette, John Tumazos participated in the sole managed IPOs of Huntco in 1993 and Reliance Steel & Aluminum in September 1994 at \$3.225. Huntco subsequently went bankrupt after speculating on inventory and operating at low utilization rates. Reliance Steel & Aluminum, however, appreciated 16-fold to \$51.32 as of May 20, 2011. It is inevitable that some companies will make better decisions than others.

CERTIFICATION OF OUR RESEARCH OPINIONS

I, John Tumazos, certify that the opinions written in all research reports are my own. I believe what we write, and from time to time I may buy or sell the shares we recommend after a 48 hour delay after publishing our reports following the advice we give. Further, I personally proofread and “click the pdf button” on virtually every report we publish except sometimes when I am abroad.

It is my management policy that any employee is welcome and encouraged to disagree with me at any time. We have active and vigorous internal debates concerning appropriate discount rates or long-term terminal growth rates to use in net present value valuations or other analytical issues. My team realizes that customers want to pay for my 30+ years of experience, but I encourage them to disagree, correct or provoke debate concerning any view to improve the quality our work.

DEFINITION OF A RESEARCH OPINION

We have target prices, investment ratings, earnings estimates and financial models for about 35 to 40 companies upon which we maintain regular research coverage.

The legal or regulatory definition of research, however, is more broad. Regulators consider any written or editorial commentary about a stock or publicly traded company to be “research.” However, a “recommendation” or “opinion” is not rendered unless there is a price target and specific buy or sell recommendation.

From time-to-time we visit very large, important global companies outside our research coverage. Our objective may be to be well informed about industry events, predict future mine output or “supply” in a particular market or to begin to learn about a complex company to begin future full research. We may need to learn and become familiar to provide inputs to our financial models. In May 2008 we published a partial report on Xstrata after visiting two of its mines in South America. In November 2008 we published a partial report summarizing our visits to the London headquarters of Xstrata and Anglo-American outside our coverage as well as Rio Tinto and Antofagasta PLC within our full coverage. In August 2009 we published two research reports on Severstal after visiting its Columbus, MS newest steel plant a second time. These “partial” reports contained no price target, investment rating, earnings estimates or financial models. Instead, they provided detailed descriptions of the important locations we visited or meetings in headquarters.

We provide research about commodities markets in general, “seminar highlights” on up to another 75 or more companies we host annually at our conferences outside our regular full research coverage and “partial reports.” We have no price target, written investment opinion, earnings estimates or financial models (production, incomes statement, cash flow or balance sheet simulations) of such companies outside our coverage that speak at our March or November conferences. Any viewpoint we have without complete financial models or careful financial analysis is “winging it.”

Our intent in writing Seminar Highlights is to provide a one page written summary of each seminar participant company’s presentation. We provide live open, public, unrestricted webcasts of each such corporate presentation at our conferences as a courtesy to each participating company, and archive each webcast under the “conferences” tab of www.veryindependentresearch.com.

Our clients should not automatically consider our invitation of a company to speak at our future conferences as a “Buy Recommendation” or complete endorsement. We may not have visited the mines or assets of some of these companies. Occasionally we invite a company to speak to learn more about them as a stage in our learning process. Knight Capital Group co-hosted our November 18-19, 2009 industry conference, providing us with “more hands” to administer the event and share costs. Knight Capital Group invited a company to speak as well. We have been approached by other broker-dealers interested in sponsoring or co-hosting our conferences, and our small team may accept help in hosting 275 or so guests at such a program.

ORGANIZATION OF JTVIR

John Tumazos Very Independent Research, LLC (JTVIR) is organized as an investment advisor in the State of New Jersey and regulated by the NJ Bureau of Securities. We publish about 20 research reports each month covering about 35 to 40 stocks in the metals commodities markets, forest products, aluminum, steel, gold, copper and other mining sectors. We travel abroad or domestically typically each month visiting companies. We host two Metals Conferences each year in which companies make presentations, which are archived for roughly one year at www.veryindependentresearch.com under the “conferences” tab.

Currently we have over 40 paid clients in the U.S., Canada, and U.K. Three of our clients have engaged us to write “custom studies” on pre-production mining stocks without any U.S. or global research coverage, including Skye Resources (an 11 bil lb nickel resource in Guatemala), Mercator Minerals (a copper-moly restart in Arizona) and JSW Steel’s 70%-owned Minera Santa Fe (48 sq km undrilled magnetic anomaly and associated iron ore properties in 3rd Region of Chile).

JTVIO

John Tumazos Very Independent Opinions, LLC (JTVIO) is a separate company providing various services “other than” investment research sold to institutions in JTVIR. Counsel advised any other activities be organized separately.

Such other activities have involved < 5% of our time.

In general, we may provide investment banking or advisory services mostly to sub-\$100 mm mining companies that have defined a “deposit,” but need more capital after a discovery for infill drilling, bulk metallurgical testing, definitive feasibility study or the capital outlays to build a mine. The “research coverage” of JTVIR largely involves very large companies with completed steel, aluminum, forest products or mine plants with market capitalizations usually between \$1 and \$250 billion. Historic companies often over one century old, such as Alcoa or U.S. Steel or BHP Billiton, will use top ten commercial or investment banks for advisory services and we make no attempt to be engaged by them owing to their long historic relationships.

We prefer to advise companies without revenues, which large investment banks like Goldman Sachs, JP Morgan, Morgan Stanley or BMO avoid. Such mining companies without revenues are not as competitively over-banked, and many of the geologists are quite gifted and have extremely promising projects.

We have accepted compensation from Texas Rare Earth Resources and Appia Energy, a private concern, related to introducing investors to them.

On October 6, 2010 we were engaged by Dorado Ocean Resources Limited, a privately held company. That assignment has concluded without success or compensation.

On October 9, 2010 we were engaged by Tara Gold Resources to evaluate the fairness of their September 13, 2010 proposed merger to amalgamate with Tara Minerals, which it terminated on March 7, 2011. That assignment took a different form, however, as Tara Gold Resources adapted to new developments. We delivered a “structure opinion” to Tara Gold Resources and Tara Minerals on May 20, 2011.

On June 24, 2010 we delivered a Fairness Opinion to the board of directors of Paramount Gold and Silver in their acquisition of X-Cal Resources, Ltd concerning the Sleeper gold mine near Winnemucca, NV formerly operated in 1986-1996 by Amax Gold and having past output of 1.66 mm oz gold and 2.3 mm oz silver plus 26,000 oz of placer gold almost one century ago. We covered Amax Gold and its parent companies, Amax Inc. and Cyprus Amax Minerals, as an analyst during its 1986-1996 former period of operation. We have received compensation from Paramount Gold and Silver.

On June 3, 2008 Galway Resources engaged JTVIO to commercialize its Victorio, New Mexico molybdenum-tungsten deposit containing over 200 mm pounds of each mineral in situ, which is JTVIO’s first activity (see www.galwayresources.com June 3, 2008 press release). We have received compensation from Galway Resources. That assignment concluded, as Galway determined to take its moly-tungsten project in Canada using a new publicly traded listed vehicle.

These past engagements pose no “conflict of interest” with JTVIR research coverage as long as JTVIR does not cover or write on Paramount Gold and Silver, Galway Resources, or other sub-\$250 mm market cap emerging companies. However, subsequently Galway Resources has documented gold occurrences on Galway grounds and begun drilling. After our November 6-12, 2009 trip to the California gold district of Colombia, we published research reports on Greystar Resources and NOT Galway Resources to avoid conflicted research. We omitted Galway Resources from our “Conference Highlights” report even though it spoke at our November 19, 2009 conference in a similar vein to avoid conflicted research.

Two other small capitalization companies, which we have not named as they have not made disclosures, engaged us to sell assets or negotiate joint ventures. These assignments expired without success or compensation, and we forfeited one year “follow on” periods. We may have occasional discussions with others.

Knight Capital Group asked us to “introduce” capital raising clients to it, principally in the range of \$100 mm to \$1 billion market capitalization emerging mines. Knight paid us nothing, and enjoyed no success. We have terminated that relationship.

JTVIO envisions merger advisory, “second opinion” critiques of investment banking advice, strategic consulting, valuation opinions, fairness opinions, mine technical services such as “Third Party Reviews” of technical studies or other corporate services.

POTENTIAL MONEY MANAGEMENT ACTIVITIES

We manage over \$10 mm of my own money. Our trades conform to our published research and follow publication by a minimum of two business days.

Money Management for clients could be another line of business, which we have thought about. However, to date we have been too busy to organize client advisory funds, but we do manage our own personal capital and intend to expand into this direction. “Mine Development Fund” is a “current” project to establish a small fund to invest in post-discovery, large resource companies (over \$2 billion in situ mineral value already defined) requiring financing to “build the mine” and grow. The target market cap of the companies in which it would invest would be \$0.1 to \$10 billion. Our detailed studies of emerging mines may prove synergistic across several applications. We have also considered creating sector ETFs, but determined there is more value-added in fund management.

Our published research of nearly 1,000 research reports to Since July 7, 2007 has concentrated on the metals commodities themselves, steel, aluminum, forest products and larger capitalization mines like Rio Tinto, BHP, Freeport-McMoRan Copper, Barrick Gold, etc. Only 7%-10% of our written research involves the “sub-\$2 billion mine” size range that would be the focus of either JTVIO or Mine Development Fund. Thus, compliance issues or conflicts of interest would occur in a smaller subset of JTVIR coverage as JTVIR coverage involves larger caps, “established processing companies” or commodities. JTVIO or the buy-side Mine Development Fund will focus on much smaller companies

POTENTIAL MINE SERVICES ACTIVITIES

We do not aspire to have a “consulting” business billed by the hour. However, as a substantial user of mine feasibility study reports or other technical reports prepared at early stages after first discovery, sometimes we are very dissatisfied.

We have not yet launched such a service, but we may from time-to-time provide “Third Party Review,” critique or correct what we deem to be shortcomings in such mine scoping study or prefeasibility study reports. We do not seek to “second guess” scientific issues of mine engineering or metallurgy. However, we may differ with the mathematics of reserve determination, capital cost estimates, “simultaneity” of price and cost

assumptions, various business planning issues, the opportunity to “phase” or subcontract to reduce initial capital costs or other financial issues. The “custom studies” we have provided to several buy-side JTVIR customers may resemble “Mine Services” future products presented as “Third Party Review” of mine technical studies.

JTVIR DISCLOSURES

“John Tumazos Very Independent Research, LLC” (JTVIR) is a Delaware Corporation formed July 6, 2007 with registration effective on August 27, 2007 as an investment advisor in the state of New Jersey owing to our place of business in New Jersey.

JTVIR is not a broker-dealer, and conducts no trades. Its primary business is to provide “unbundled” metals and paper industry securities and market research to institutions or corporations in a zero commission, electronic execution, electronic dissemination, unbundled format for a specified annual fee structure.

Our investment rating system for securities recommendations is Overweight, Neutral Weight or Underweight. Overweight or Underweight recommendations are estimated to vary from the relative performance of the S&P 500 by more than 10% annually, and the intended time horizon is up to 24 months. Our securities research is intended for institutional investors that might buy up to 10% of a given company, and as such focuses more towards longer-term dynamics impacting the net present value of future cash flows rather than “day trading” sorts of near-term issues.

Except for SilverBirch Energy, HudBay Minerals, VMS Ventures, Advanced Exploration Inc., Rainy River Resources Ltd, Vale, Xstrata, Anglo American, Vale, Allegheny Technologies, Worthington Industries, Capstone Mining, Tahoe Resources, Everton Resources, Majescor, Anglo Aluminum, Stonegate Agricom, Premier Gold, Wits Gold, Virginia Mines, Royal Gold, Paramount Gold and Silver, Entrée Gold, Torex Gold, Minera Andes, Claude Resources, Kirkland Lake Gold, Magellan Minerals, Argonaut Resources, Northern Superior, Connacher Oil and Gas, Duluth Metals, Polymet Mining, URU Metals, Kalahari Minerals PLC, Focus Gold, Appia Energy, Texas Rare Earth Resources Corp., Galway Resources, Greystar Resources, Pilot Gold, Renaissance Gold, Klondex Mines, and Atna Resources, neither JTVIR, its members or its employees own or have a financial interest in any securities discussed in this report or any reports we have published recently. Our policy is full disclosure.

Our policy permits personal trading in the metals or paper industries. Our policy is that any personal trading must be consistent with our recommendation, made two business days or more AFTER a recommendation or change in recommendation and held for a minimum of 30 days or one month. We believe it is virtuous for a securities analyst to “put his or her money where his mouth is” to invest consistent with the recommendation to clients after such recommendation has been made, and we disagree with some restrictions made upon broker-dealer employees after 2000 era scandals.

To date we have declined all requests to join corporate boards as our existing business keeps us busy. However, our policy permits up to three directorships and up to five consulting projects, advisory assignments or financial advice to corporations that might supplement, backcheck or substitute for certain services of a large investment banking firm. For example, we would accept an engagement to evaluate investment banking advice on behalf of a manufacturing company concerned whether advice is sincere or intended to maximize fees.

Our policy is full disclosure of any advisory relationship or conflict going back three years, except if our corporate clients have not disclosed the asset (or company itself) is for sale.

Numerous prior investment banking relationships existed prior to three years history to the pre-1997 time frame under the employment of Donaldson, Lufkin and Jenrette or Oppenheimer & Co., Inc. Some of these we can recollect included 14 different gold mine valuations or sales for Barrick Gold, LAC Minerals (later acquired by Barrick), Addington Resources (gold assets in Montana acquired by Canyon Resources), Westworld Industries (Bolivian assets acquired by Battle Mountain Gold later acquired by Newmont Mining), Coeur d'Alene Mines, Crown Resources (acquired by Kinross Gold), Freeport-McMoRan Gold (acquired by Minorco later AngloGold later Queenstake Resources), FMC Gold (later renamed Meridian Gold) and others. Sole managed initial public offerings included Reliance Steel & Aluminum and Huntco. Lead-managed initial public offerings included American Steel & Wire (later acquired by Birmingham Steel) and lead-managed underwritings included Quanex. Co-managed underwritings included the IPO of Century Aluminum and Grupo Imsa and offerings for AK Steel, Kaiser Aluminum, Agnico-Eagle Mines, Cameco and others. Asset sales or purchase advisories, fairness opinion or trusteeships were done for Thypin Steel (sold to Ryerson Tull), Cyclops Corp. (sold to Armco later sold to AK Steel), Allegheny Corp., Bethlehem Steel, the U.S. Dept. of Justice pursuant to the June 1984 merger of LTV and Republic Steel to sell the Gadsden, AL integrated flat-rolled mill, Cobre Copper, and others. Typically more than five investment banking assignments were evaluated, partly executed or "due diligenced" for any completed transaction. Some examples we can recall for which a prospectus was either drafted or partly drafted indicating much work included stock underwritings not completed for Wheeling-Pittsburgh Steel, Steel Dynamics, Atlas Corp., Webco, Sharon Steel, IPSCO, Co-Steel Inc., and others.

ANALYST UNIVERSE COVERAGE:

John C. Tumazos, CFA as of June 2007: Rio Tinto, Louisiana-Pacific, Nucor Corp., Newmont Mining, U.S. Steel, International Paper, BHP Billiton, MeadWestvaco Corp., Antofagasta PLC, Allegheny Technologies, Alcoa Inc., Inco Limited, Bowater, Temple-Inland, Barrick Gold, Abitibi-Consolidated, Weyerhaeuser Co., Alcan Inc., Smurfit-Stone Container, Plum Creek Timber, Worthington Industries, Goldcorp Inc., AngloGold Ashanti, Freeport-McMoRan Copper & Gold, and FNX Mining..

Dynatec, Alcan and Bowater are companies not continued in the research coverage of JTVIR, LLC that was previously included in the prior June 6, 2007 Prudential Equities Group universe

owing to takeovers. Smurfit-Stone Container and AbitibiBowater were dropped from JTVIR research coverage after they entered bankruptcy. Skye Resources and FNX Mining were dropped after full coverage initiation due to takeover. FNX Mining, Brett Resources, Linear Gold, Comaplex Resources, Skye Resources, Fording Coal, Gold Eagle Mines, International Royalty, Selkirk Metals, Franconia Minerals and Fronteer Gold are companies that have spoken, were scheduled or invited to speak at our conferences and later taken over, and UTS Energy successfully defended a takeover offer.

Subsequently, since September 2007 JTVIR, LLC has initiated regular coverage of new companies not previously covered in the former universe at the former Prudential Equities Group. These new companies include Teck, Agnico-Eagle Mines, Mercator Minerals, Skye Resources, General Moly, Inc., Duluth Metals, Polymet Mining, Greystar Resources, Vale, Xstrata, Anglo American, Packaging Corp. of America, Norbord, Rock Tenn, Quadra FNX Mining, HudBay Minerals, Alumina Ltd., Fortescue Metals, and Century Aluminum.

In accordance with applicable rules and regulations, we note above parenthetically that our stock ratings of "Overweight," "Neutral Weight," and "Underweight" most closely correspond with the more traditional ratings of "Buy," "Hold," and "Sell," respectively; however, please note that their meanings are not the same. (See the definitions above.) We believe that an investor's decision to buy or sell a security should always take into account, among other things, that the investor's particular investment objectives and experience, risk tolerance, and financial circumstances. Rather than being based on an expected deviation from a given benchmark (as buy, hold and sell recommendations often are), our stock ratings are determined on a relative basis (see the foregoing definitions).

There is no intention to "balance" the number of Overweight or Underweight ratings, as instances of broad over- or under-performance among basic industrials may occur. JTVIR makes each investment judgment in a "bottoms up" manner based on the assets of each individual company.

Price Target – Methods/Risks

The methods used to determine the price target generally are based on future earning estimates, product performance expectations, cash flow methodology, historical and/or relative valuation multiples. The risks associated with achieving the price target generally include customer spending, industry competition and overall market conditions.

Additional risk factors as they pertain to the analyst's specific investment thesis can be found within the report.

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Information contained herein is based on data obtained from recognized statistical services, issuer reports or communications, or other sources, believed to be reliable. Any statements nonfactual in nature constitute only current opinions, which are subject to change.

There are risks inherent in international investments, which may make such investments unsuitable for certain clients. These include, for example, economic, political, currency exchange rate fluctuations, and limited availability of information on international securities. John Tumazos Very Independent Research, LLC, and its affiliates, make no representation that the companies which issue securities that are the subject of their research reports are in compliance with certain informational reporting requirements imposed by the Securities Exchange Act of 1934.

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Additional information on the securities discussed herein is available upon request. The applicable disclosures can be obtained by writing to: John Tumazos Very Independent Research, LLC, 11 Yellow Brook Road, Holmdel, NJ 07733 Attn: John C. Tumazos.

