

# Unlocking a National Treasure

**Mr. Anthony Marchese**  
Chairman, Board of Directors



**OTCQX: TRER**

# Legal Disclaimers

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The United States Securities and Exchange Commission (“SEC”) limits disclosure for U.S. reporting purposes to mineral deposits that a company can economically and legally extract or produce. This presentation uses certain terms that comply with reporting standards in Canada and certain estimates are made in accordance with Canadian National Instrument NI 43-101 (“NI 43-101”) and the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) - *CIM Definition Standards on Mineral Resources and Mineral Reserves*, adopted by the CIM Council, as amended (the “CIM Standards”). NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosures an issuer makes of scientific and technical information concerning mineral projects. This presentation uses the terms “resource,” “measured and indicated mineral resource,” and “inferred mineral resource.” We advise U.S. investors that while these terms are defined in accordance with NI 43-101 such terms are not recognized under the SEC’s Industry Guide 7 and are normally not permitted to be used in reports and registration statements filed with the SEC. Mineral resources in these categories have a great amount of uncertainty as to their economic and legal feasibility. “Inferred resources” have a great amount of uncertainty as to their existence and, under Canadian regulations, cannot form the basis of a pre-feasibility or feasibility study, except in limited circumstances. The SEC normally only permits issuers to report mineralization that does not constitute SEC Industry Guide 7 compliant “reserves” as in-place tonnage and grade without reference to unit measures. Under SEC Industry Guide 7 standards, a “final” or “bankable” feasibility study is required to report reserves, the three-year historical average price is used in any reserve or cash flow analysis to designate reserves and all necessary permits and government approvals must be filed with the appropriate governmental authority. **Our Round Top project currently does not contain any known proven or probable ore reserves under SEC Guide 7 reporting standards.** The results of the PEA disclosed in this presentation are preliminary in nature and include inferred mineral resources that are considered speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves and there is no certainty that the results of the PEA will be realized. U.S. investors are urged to consider closely the disclosure in our latest reports and registration statements filed with the SEC. You can review and obtain copies of these filings at <http://www.sec.gov/edgar.shtml>. **U.S. Investors are cautioned not to assume that any defined resource will ever be converted into SEC Guide 7 compliant reserves.**

This presentation contains statements regarding a historical beryllium resource and potential mineralization of uranium and thorium that have not been reviewed by an independent third-party consultant. Such statements are not compliant with NI 43-101 and do not represent SEC Industry Guide 7 compliant reserve estimates or economic recoveries. The estimates of management as presented in this presentation is preliminary in nature and may not occur as anticipated or estimated, if at all. While management believes these statements have a reasonable technical basis, they are based on estimates of management which may not occur as anticipated. The estimated beryllium resource is based on a historical internal feasibility study by Cypress Sierra Blanca, Inc. and does not represent a Guide 7 compliant reserve. Actual beryllium mineralization may not be economically recoverable. Estimates of uranium occurring in this presentation are based on an analysis of limited, historical drill holes at the Round Top project and may not be indicative of mineralization throughout the project area. Estimates of thorium are based on management’s assessment of limited, historical drill hole data and may not be indicative of mineralization throughout the project area. Such mineralization estimates may not occur in the amounts estimated and does not represent a Guide 7 compliant reserve. Investors are cautioned not to assume that these mineralization estimates will ever be realized as anticipated or sufficiently documented in a definitive feasibility study. **U.S. Investors are cautioned not to assume that any mineralization estimate will ever be converted into SEC Guide 7 compliant reserves.**

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## Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of the U.S. Securities Act of 1933, as amended, and U.S. Securities Exchange Act of 1934, as amended. The estimated resources at the Round Top project, potential recoverability of resources, estimated homogeneous distribution of HREEs and REEs in rhyolite, the possible 20,000 mtpd mine, the potential beryllium, uranium, and thorium mineralization at the property, possible whole rock recoveries, anticipated climate, labor and regulation at the Round Top project, anticipated processing choices, potential heap leach recovery, potential heap leach economics, potential market and values for REEs, including ytterbium, dysprosium, terbium, erbium, holmium, thulium, lutetium and thorium, process economic objectives, including costs for: mining, removal of waste elements, concentration of REEs, separation of REEs, estimates of values per ton and potential selling prices, management objectives including completion of heap leach PEA and the likely business friendly environment in Texas are forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by such statements. Such factors include, among others, uncertainty of mineralized material and mineral resource estimates, risks relating to completing metallurgical testing at the Round Top project, risks related to project development determinations, risks related to fluctuations in the price of rare earth minerals, the inherently hazardous nature of mining-related activities, potential effects on the Company's operations of environmental regulations, risks due to legal proceedings, risks related to uncertainty of being able to raise capital on favorable terms or at all, as well as those factors discussed under the heading "Risk Factors" in the Company's latest annual report on Form 10-K as filed on November 15, 2012 and other documents filed with the U.S. Securities and Exchange Commission. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those described in forward-looking statements, there may be other factors that cause results not to be as anticipated, estimated or intended. Except as required by law, the Company assumes no obligation to publicly update any forward-looking statements, whether as a result of new information, future events, or otherwise.

# Select Financial Highlights

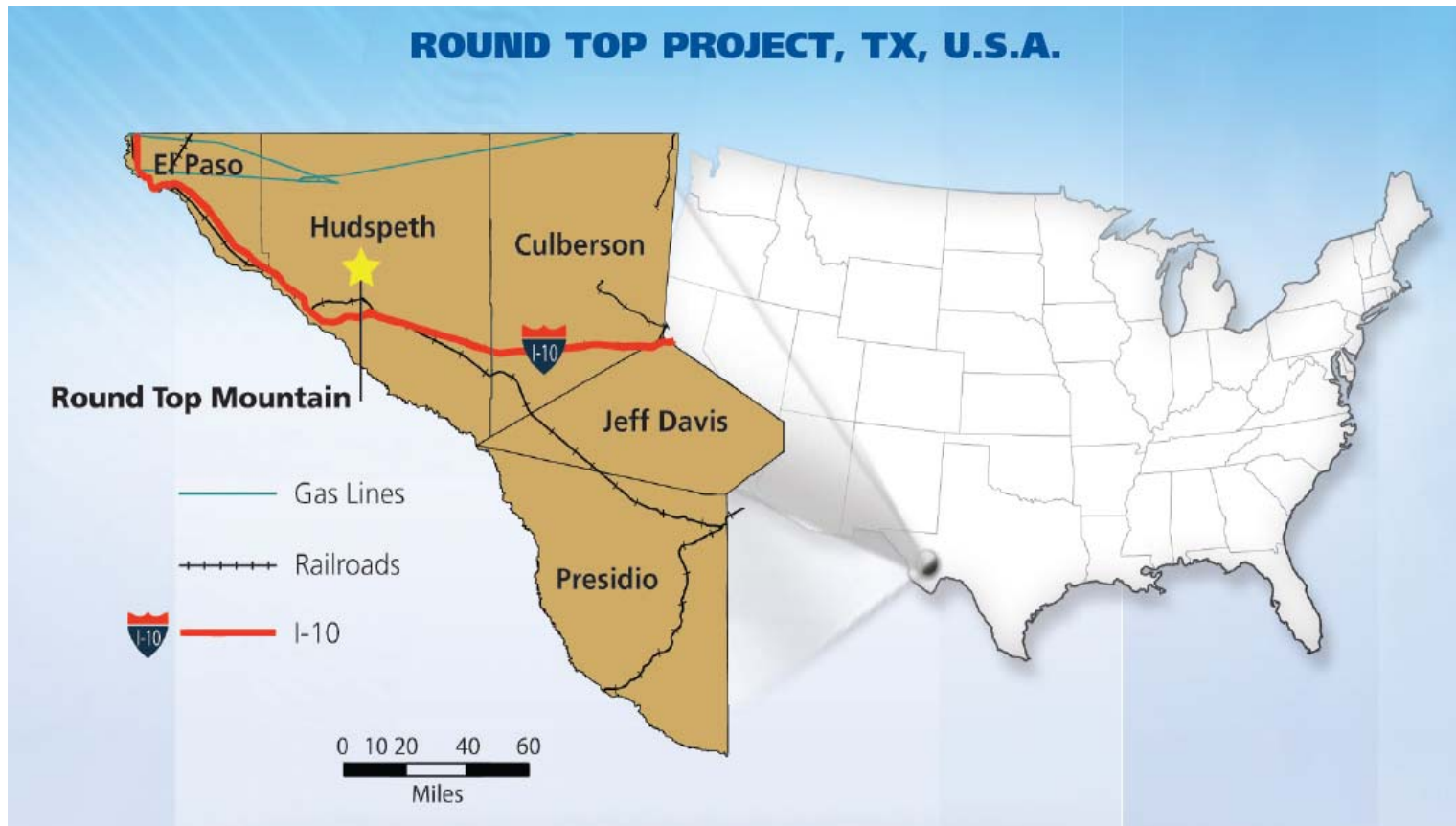
Fiscal Year End	August 31st
Symbol	OTCQX: TRER
Stock Price (10-3-13)	\$ 0.50
3-month Trading Range	\$ 0.2 - \$ 0.52
Shares Outstanding (4-20-13)	37 million
Market Cap	\$ 18.5 million
Average Daily Volume (10 d)	186,000
Cash (5-31-13)	\$ 3.2 million
Insider Ownership	36%
Institutional Ownership	17%
Float	47%



**ROUND TOP**

# A National Treasure

*in plain view in America's own back yard,  
out in west Texas*



# Our heavy rare earth deposit: Round Top Mountain

***1,250 feet high by 1 mile in diameter***



**and it's almost all mineralized material!**

## ***What makes Round Top a National Treasure?***

*The 6 E’s:*

*extent, exposure, enrichment,  
extractable, evenness, elements*

- Extreme ***extent*** of the deposit
- Excellent ***exposure*** and location
- Extraordinary ***enrichment*** in high-value heavy rare earths
- Unique ***extractable*** mineralogy
- Remarkable ***evenness*** of mineralization grade
- Additional high-value scarce ***elements***



# Extreme *extent* of deposit

2012 - TRER 43-101 Preliminary Economic Assessment\*



Measured Mineral Resource  
Indicated Mineral Resource  
Inferred Mineral Resource

81,552,000 kg REOs  
147,948,000 kg REOs  
430,598,000 kg REOs

\*PEA Gustavson Associates, 5-15-12;  
See Cautionary Note to Investors

REOs = Rare Earth Oxides

# Do the simple math....

Measured + Indicated + Inferred  
total 660,098,000 kg REOs\*

With an estimated 72% of it heavies  
(*scarce, high value REEs*)

Possible 475,000,000 kg heavies

In tons, possible **475,000 tons heavies**



***Is a possible 475,000 tons of heavies a lot?***

The world's HREE supplier, China, produces perhaps 25,000 tons  
of heavies a year...

... but exports only a small portion of that.

***Clearly Round Top is a potential world-class asset!***

## Excellent ***exposure*** and location

- Deposit is mostly above ground, allowing simple “open pit” mining
- No “cover” or overburden needs to be removed
- Close (3 miles) to US Interstate Highway 10
- Close by Southern Pacific, Missouri Pacific Railroads
- Texas General Land Office property surrounds site – a supportive neighbor/landlord
- Low population density
- Electricity nearby



## Extraordinary *enrichment* in scarce, high-value heavy rare earths

- Over 70% of REEs *in situ* are heavies (HREEs)\*
- Similar grade (concentration) to south China HREE deposits that account for virtually all current HREE production
- HREE enrichment greater than almost all other prospects; only a handful above 25% *in situ*
- Distribution of HREEs and all REEs in the rhyolite estimated to be *very* homogeneous – no surprises

\*includes yttrium

# Why are heavy rare earths so prized?

## The Heavies:

- Gadolinium
- Terbium
- Dysprosium
- Holmium
- Erbium
- Thulium
- Ytterbium
- Lutetium
- Yttrium\*

Heavy rare earth elements are far scarcer in nature than their light cousins

Scarcity and demand combine to create high market prices for specific heavies, e.g., terbium & dysprosium

Heavies, as do lights, have inherent properties indispensable in many current technologies

These are the molecular building blocks for exciting emerging technologies

The future also is in heavies – short supply has meant less attention paid to their potential applications

TRER’s Round Top deposit could meet anticipated US demand for heavies for decades to come

\* a related element with similar properties, usually included in this group. Europium sometimes also classified with heavies

# Volatile REE Prices, but Heavies often worth 10x to 100x Lights

## What are their prices?

The first point to note about Rare Earths prices is that there is significant variance in the relative market value for selected Rare Earths oxides. Secondly, the price of Rare Earths depends on the purity level, which is largely set by the specifications for each application.

The table below shows the average prices for a 'standard 99% purity of individual elements.

Prices are quoted in US\$/kg on an FOB China and domestic China (the price inside China) basis. The domestic price is related to the FOB price and can be calculated by taking FOB price less VAT, less export taxes (which range for 15% to 25%), the export quota cost; there may be some timing differences between the movements of internal and external China prices.

Note that higher purity oxides and other value added properties will attract higher prices than those shown.

Rare Earths Prices (US\$/kg)													
Rare Earths Oxide	FOB China Average Price						China Domestic Average Price						
	2009	2010	2011	2012	Q4/12	Q1/13	2009	2010	2011	2012	Q4/12	Q1/13	
Lanthanum Oxide	4.88	22.40	104.10	25.20	13.92	11.00	3.06	4.23	16.26	11.46	8.18	7.15	
Cerium Oxide	3.88	21.60	102.00	24.70	15.31	11.85	2.13	3.55	19.58	11.76	8.18	7.20	
Neodymium Oxide	19.12	49.50	234.40	123.20	87.46	79.15	11.66	29.28	132.06	74.72	60.60	52.64	
Praseodymium Oxide	18.03	48.00	197.30	121.00	88.46	85.00	11.38	27.60	104.60	70.51	60.79	58.14	
Samarium Oxide	3.40	14.40	103.40	64.30	34.85	25.00	2.05	2.47	11.85	10.44	8.19	7.71	
<b>Heavy</b>	Dysprosium Oxide	115.67	231.60	1449.80	1035.60	716.15	630.00	80.24	166.48	994.33	620.73	452.71	345.35
<b>Middle</b>	Europium Oxide	492.92	559.80	2842.90	2484.80	1853.08	1600.00	351.75	410.42	2025.00	1178.34	937.74	838.37
<b>Heavy</b>	Terbium Oxide	361.67	557.80	2334.20	2030.80	1446.15	1300.00	253.60	388.80	1596.82	949.04	709.92	617.81

# Heavy & Critical Rare Earth “Menu”

- Round Top dishing out potentially 20,000 tons/day -

	<u>ppm</u> (parts per million)	<u>kg / 20,000 metric tons</u> in rhyolite	<u>kg / 20,000 metric tons</u> at 67% recovery*
Gadolinium	10.6	212	<b>141</b> kg per day
Terbium (critical)*	3.6	72	<b>48</b> kg per day
Dysprosium (critical)	32.1	642	<b>428</b> kg per day
Holmium	8.1	162	<b>108</b> kg per day
Erbium	32.8	656	<b>438</b> kg per day
Thulium	7.1	142	<b>95</b> kg per day
Ytterbium	56.6	1132	<b>755</b> kg per day
Lutetium	8.9	178	<b>119</b> kg per day
Yttrium (critical)	224.4	4480	<b>2988</b> kg per day
Europium (critical middle)	0.2	4	<b>3</b> kg per day
Neodymium (critical light)	28.9	58	<b>39</b> kg per day

Unlisted light REEs may yield additional revenue

Menu for potential 20,000 tons per day of rock processed

\*Estimated amounts assuming 67% recovery rock to shipped product

\*\*Critical per US Dept Energy 2011 *Critical Materials Report*

1 kg = 2.2 lbs

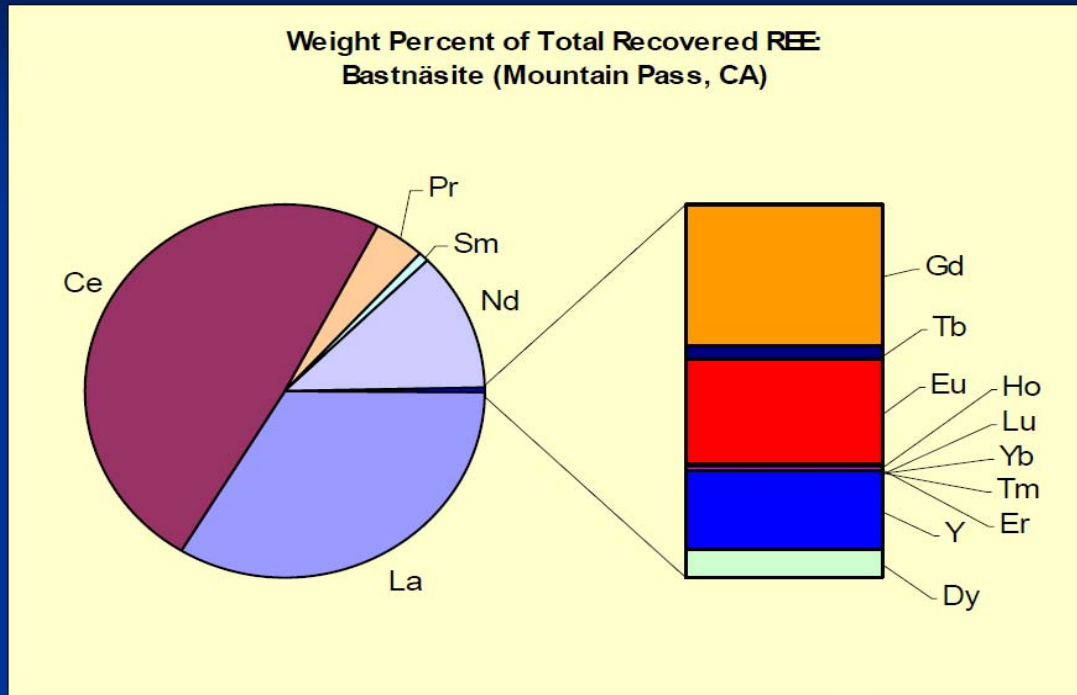
1 metric ton = 1,000 kg = 2,200 lbs

ppm data: TRER 2012 PEA 15

See Cautionary Note to Investors

America’s only REE mine  
Molycorp’s Mountain Pass Deposit  
*but almost no heavy rare earths*

**Mountain Pass, CA**





# Molycorp, Inc – Stock Price

Fell sharply as REE prices dropped – Light REEs most affected

Molycorp, Inc. (MCP) - NYSE

[+ Add to Portfolio](#)

**6.73** +0.06(0.90%) May 24, 4:01PM EDT | After Hours: **6.70** -0.03 (0.45%) May 24, 7:58PM EDT

## Basic Chart

Get Basic Chart(s) for:  [GO](#)

Molycorp, Inc Common Stock \$0.0 (NYSE)

[Edit](#)

Range: [1d](#) [5d](#) [1m](#) [3m](#) [6m](#) [1y](#) [2y](#) [5y](#) Type: [Bar](#) | [Line](#) | [Candle](#) Scale: [Linear](#) | [Log](#) Size: [M](#) | [L](#)

Compare: MCP vs   S&P 500  Nasdaq  Dow [Compare](#)

Molycorp, Inc Common Stock \$0.0

■ MCP

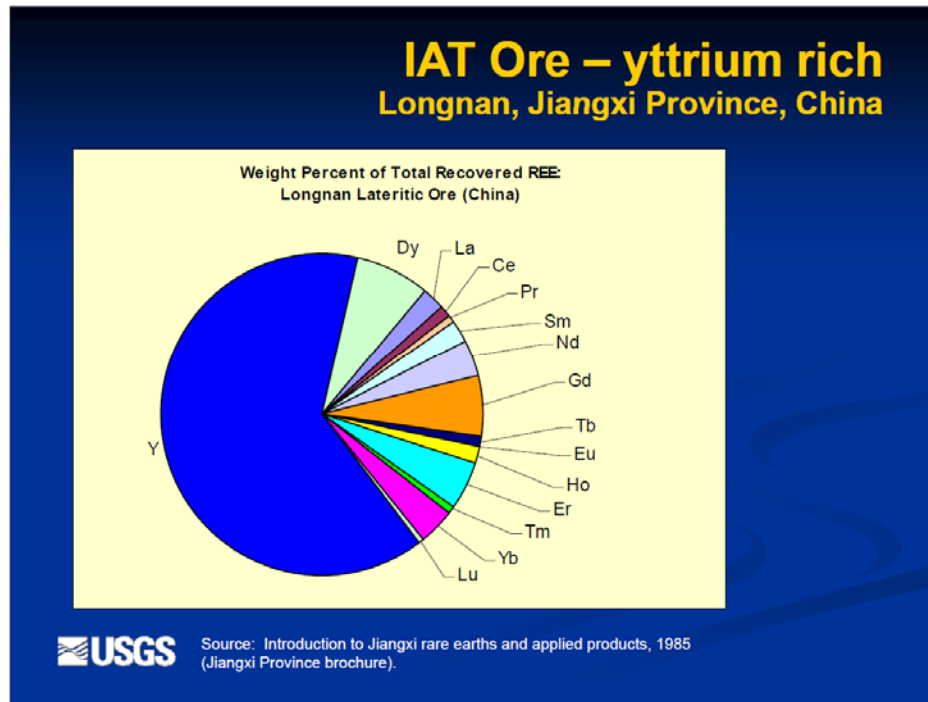
May 24, 2013



## South China Heavy Rare Earth Deposits

90% Heavies - 0.20 – 0.05 % Total Rare Earths in Ore – Rare Earths “Stuck” on Clay

**World’s only significant source of heavy rare earths**



**VS.**

## Round Top Mountain

72% Heavies - 0.05 % Total Rare Earths in Ore – Rare Earths in Yttrifluorite in Rhyolite

**Western World’s future source of heavy rare earths?**

## Unique *extractable* mineralogy

- **Yttrifluorite** – The mineral fluorite, with yttrium and heavy rare earths substituting for some calcium atoms
- $(\text{Ca}_{1-x}\text{Y,HREE}_x)\text{F}_{2+x}$   
an uncommon mineral
- **Potential low-cost extraction**  
*Dilute sulfuric acid  
dissolves yttrifluorite  
at room temperature*
- Bulk rock is 90-95% quartz & feldspars that don't dissolve
- **Unique** – We found no other deposit in which yttrifluorite is the major rare earth ore mineral



## Our Key Economic Driver

*that the marketplace doesn't yet grasp*

Here it is in capital letters:

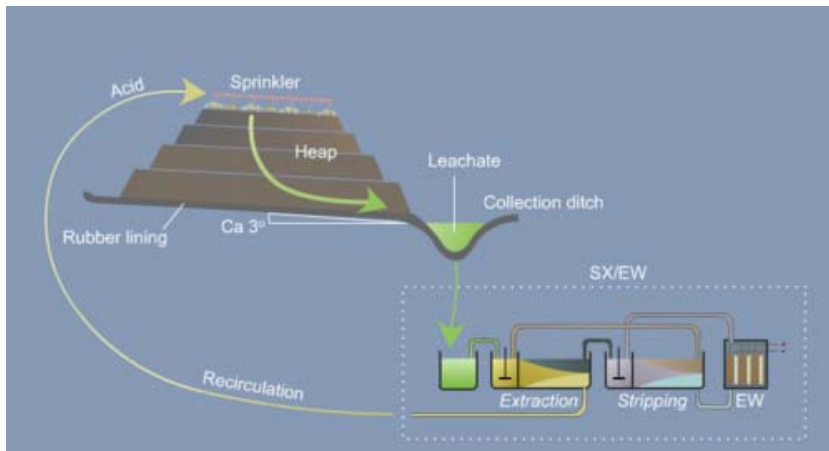
### YTTROFLUORITE

- Round Top is heavy rare earths in yttrifluorite
- Dilute sulfuric acid dissolves yttrifluorite at room temperature
- Sulfuric acid is an inexpensive (\$ 100-200 a ton) & universally available industrial commodity; anticipate low consumption
- Bulk rock 90-95% insoluble quartz & feldspar



# Extraction Options

## Heap Leach and Froth Flotation

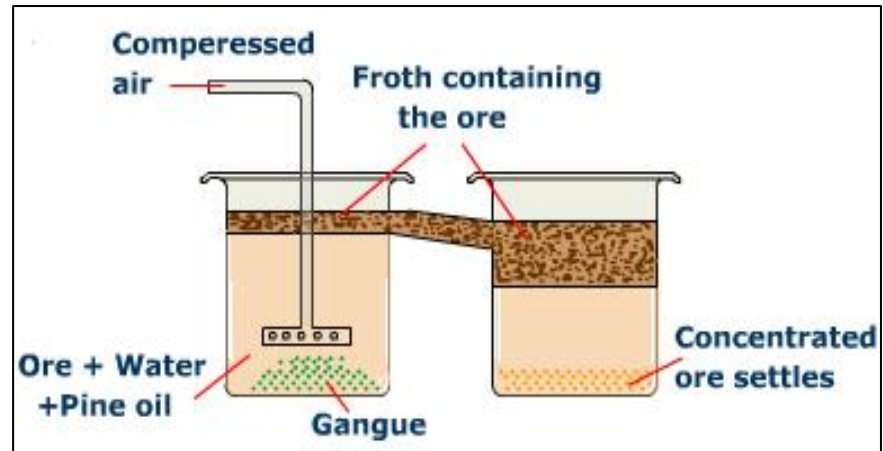


Generic Heap Leach

Crush rock, put in pile  
Irrigate with sulfuric acid  
(days to weeks)  
Collect acid with dissolved minerals

Next step:  
Separate REEs from valueless dissolved elements in the solution

**HEAP LEACH PROVIDES BEST POTENTIAL ECONOMICS**



Generic Froth Flotation

Crush & grind rock very fine  
Put in vat with water & special chemicals  
Generate air bubbles at bottom  
Yttrifluorite clings to bubbles, rises  
Collect surface mineral scum  
Dissolve concentrate in sulfuric acid

Next step:  
Separate REEs from valueless dissolved elements in the solution

# Column Acid Leach Results\*

*Recoveries of high-value REEs*

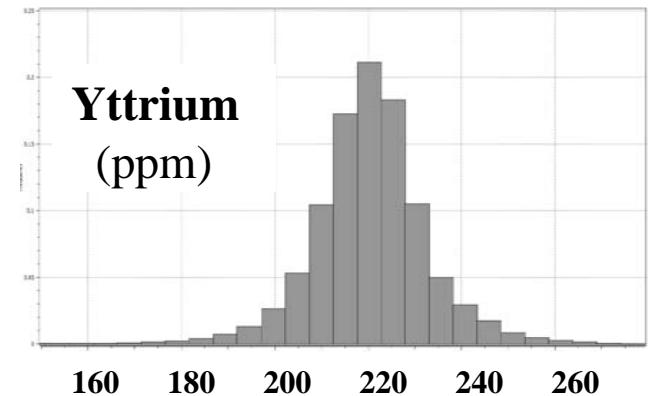
Yttrium	91 %
Dysprosium	87 %
Lutetium	67 %
Holmium	86 %
Erbium	83 %
Thulium	77 %
Ytterbium	74 %
Terbium	87 %

\*Tests recently conducted by independent laboratory

½ inch crush size, 60 days exposure, ~4.25 volume % sulfuric acid <sup>22</sup>

## Remarkable ***evenness*** of ore grade

- Top pay mineral ***yttrifluorite estimated to be distributed evenly*** in deposit
- Yttrifluorite extremely fine-grained, much smaller than diameter of hair
- ***Rock properties homogeneous*** (physical, mechanical, chemical)
- ***Why is an even ore grade important?***



Even ore grade means ***no surprises***

Economics easy to predict. Try that with a vein deposit!

Ore grade & mine feedstock constant over life of mine

***Mining process optimized just once***

***REE separation chemistry can be optimized***

# Additional scarce high-value *elements*

## *Beryllium and Lithium*

Beryllium

High-tech super-light metal used in aerospace, defense, alloys, & electronics

Lithium

Component of lithium-ion batteries, essential for cell phones, laptops, & electric cars



US is self-sufficient in beryllium, but we can be low-cost  
US imports virtually all of its lithium



**These byproducts could increase our revenue stream by as much as 10%**



## Separate World-Class Beryllium Deposit at Base of Round Top Mountain

- Chemical reaction between hot rhyolite and underlying limestone concentrated Beryllium in contact zone
- **High grade mineralization – 300,000 tons at 2% BeO \***
- **5,500 tons BeO**; 230 tpy world production, 85% US
- Materion, world Be leader, thought to mine 1% BeO ore at Spor Mountain.
- 1988 Cyprus mine plan
- 867' long, 10'x10' decline with vent fan & services in place (still usable)



\*See Cautionary Note to Investors

## Near-Term TRER “To Do” List

- Determine best method to separate REEs from sulfuric acid solutions
- Determine how far to purify individual REEs
- Establish the status of uranium and thorium
- Initiate mine permitting process
- Complete new heap leach PEA

## REE Recovery from Acid Solution

*After removal of REEs from rock by dissolution in sulfuric acid, they must be both separated from other elements and extracted from the acid, and then separated from each other (purified)*

- Traditional technique is solvent extraction as used in China and at Molycorp
- Ion-exchange resin column approaches are possible

*TRER is actively engaged in testing and technical discussions with appropriate parties*

# Radioactive Elements

- Round Top rhyolite, like most REE deposits, contains some uranium and thorium
- Uranium could be separated & sold – more potential profit
- Thorium might be stockpiled for future advanced reactors



## *Where we are today*

- TRER understands the unique nature of its Round Top deposit
- The REEs dissolve expeditiously
- No technical barriers to a profitable operation are currently evident
- TRER is entering the economic refinement stage of the Round Top Project
- Engaged investment banking firm to help us evaluate wide range of strategic alternatives to assist in moving project forward

# Economic Goal

## Robust Operations-Business Plan

Create operations model to capture maximum profit  
from our rare earth element basket

Goal 1 – \$ 5 - 10 / t mining, heap leach dissolution

Goal 2 – \$ 2 - 3 / t remove valueless elements from solution

Goal 3 – \$ 2 - 3 / t concentrate REEs

Goal 4 – \$ 5 - 10 / t separate individual REEs

**\$ 14 - 26 / t total operating costs, mine to REO products**

Goal 5 – \$ ? / t separate Lithium, Beryllium, and Uranium from  
solution to capture potential extra income stream

Goal 6 – develop **CAPEX \$ 150–300 million**

## Marketplace Challenges Demand Robust Business Plan

*Volatile REE prices due to Chinese monopoly*

**Build in very large operations margins**

*Potential competition from new HREE projects*

**Be the low-cost producer**

**Get early to market – modest infrastructure**

**Simple operation (heap leach?)**

*Scarcity of funding capital*

**Minimize CAPEX**

*Future opportunities*

**Scalable operation to increase production**

## **So Why Has TRER Been Flying Under the Radar?**

- Market pundits considered our 0.05% grade too low, but

***They can go tell it to the Chinese, who supply all the world’s HREEs from ore grades similar to ours***

- Technical experts can evaluate deposits of bastnaesite, monazite, loparite, etc., but

***They’ve never studied or even seen an yttrifluorite deposit – to our knowledge, we’re the only one on the planet***



## So Why Has TRER Been Flying Under the Radar?

- Analysts are really great at rating plans for REE mines underground,

***Did you notice our mountain?***

in far off, dismal places,

***Welcome to west Texas, y'all.***

with hard-to-treat pay minerals,

***Got to love how our yttrifluorite dissolves!***

full of low-value light rare earths.

***We're no lightweights, 72% heavies***

***TRER heavy rare earths are fixin' to fly high...***

# ***... Keeping America Free***



**Joint Strike Fighter**

***“each aircraft contains 920 lbs. of rare earths”***

House Armed Services Committee

F-35 final assembly done at  
Lockheed Martin Aeronautics Company in Fort Worth, Texas