



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

May 11, 2011

Via E-mail

Dan Gorski
Chief Executive Officer
Texas Rare Earth Resources Corp.
3 Riverway, Suite 1800
Houston, Texas 77056

**Re: Texas Rare Earth Resources Corp.
Amendment No. 1 to Registration Statement on Form S-1
Filed April 19, 2011
File No. 333-172116
Amendment No. 1 to Form 10-K for Fiscal Year Ended August 31, 2010
Filed April 19, 2011
File No. 0-53482**

Dear Mr. Gorski:

We have reviewed your amendments, and your letter dated April 19, 2011, and we have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information and by amending your other public filings, providing the requested information or advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement, your other public filings and the information you provide in response to these comments, we may have additional comments.

Amendment No. 1 to Registration Statement on Form S-1

1. Please be sure to provide updated disclosure with each amendment, such as your disclosure on page 28 that you intend to begin an airborne geophysical survey in April 2011.

2. We note your response to comment 5 in our letter dated March 7, 2011 and re-issue the comment in part. We note your statements that the selling stockholders may sell the common stock at the market price as of the date of sale. As the market for your common stock on the Pink Sheets is "limited, sporadic and volatile," there does not appear to be a true public market or a determinable market price for your securities. Please revise your disclosure to indicate the fixed price at which the shares will be sold for the entirety of the offering.

Prospectus Cover Page

3. We note your added statement that "No assurances can be given that ...a market will develop for the Warrants." Please explain the purpose of this added statement. Given that you are not registering the Warrants and they remain restricted, disclose in detail the preconditions to a market developing for the Warrants.

Risk Factors

Our failure to timely file certain periodic reports with the SEC..., page 12

4. Please expand this risk factor to also disclose that your failure to timely file the past required periodic reports and possibly future periodic reports has resulted in and could result in investors not receiving adequate information regarding your company with which to make investment decisions.

Selling Security Holders, page 15

5. We note your disclosure in footnotes 17 and 18 with respect to SSC, a registered broker-dealer. As SSC did not receive the securities as compensation for underwriting activities, please identify SSC as an underwriter.

Business, page 27

6. We note your response to comment 12 in our letter dated March 7, 2011. Please disclose that you have determined to outsource the study and sampling work to be performed on your prospects, but have not yet indentified the individuals who will perform that work.

Employment Agreements, page 42

7. We note that you have entered into at-will employment arrangements with Messrs. Gorski, Mathers and Korzeb. We also note that you have entered into a director's agreement with General Martin and have granted options to certain of your officers and directors. Please file these arrangements and agreements as exhibits. If they are not set forth in any formal document, please file a written description of each arrangement. See Item 601(b)(10)(iii) of Regulation S-K.

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Page 3

Interim Financial Statements

General

8. In order to provide useful information to an investor and considering the number of equity-based transactions entered into during the period, please revise to present a statement of stockholders' equity.

Notes to Interim Financial Statements

Note 4 – Capital Stock, page F-19

9. We note that you issued 656,250 shares of your common stock in exchange for \$382,813 in January 2011 and options to acquire 210,000 shares of your common stock in exchange for services in February 2011. However, it does not appear that you have provided footnote disclosure regarding these transactions. Please revise.

Other Equity Issues, page F-20

10. We note that you have recorded the fair value of the options granted to Sunrise Securities Corp. in November 2010 to paid-in capital as these options are deemed to be a cost of financing. Please provide us with your analysis of the relevant accounting literature supporting this classification in the context of the agreement with Sunrise Securities Corp. and tell us how your accounting will be impacted if you do not enter into a financing arrangement during the term of this agreement.

Signatures, page 53

11. We note your response to comment 20 in our letter dated March 7, 2011. Instruction 1 to the Signatures section of Form S-1 provides that “[t]he registration statement shall be signed by the registrant, its principal executive officer or officers, its principal financial officer, its controller or principal accounting officer and by at least a majority of the board of directors or persons performing similar functions.” In Amendment No. 1, Mr. Mathers signed on behalf of the registrant but not in his individual capacity. Please revise your Signatures section so that Mr. Mathers signs in his individual capacity.

Exhibit 5.1

12. We note that counsel has opined on the “shares of common stock and shares of common stock underlying Class A and Class B warrants.” Please provide a legal opinion that also opines on the common stock underlying the options exercisable at \$1.60 per share, the common stock underlying the options exercisable at \$5.00 per share and the common stock underlying the warrants exercisable at \$2.50 per share, which are also being registered herein.

13. We note the opinion that the shares being registered “will be” validly issued, fully paid and non-assessable. Given that 4,295,000 shares of common stock registered herein have already been issued, please provide an opinion as to whether such shares of common stock are validly issued, fully paid and non-assessable.

Engineering Comments

Overview of the Round Top Rare Earth-Uranium-Beryllium Project page 28

14. Please remove your reference to the “West End Ore Zone” on page 28 of your disclosure or provide a historical reference.

Planned Exploration and Development Activities page 28

15. We note your response to comment 28 in our letter dated March 7, 2011. In addition, we note on page 8 that you state that you have conducted preliminary tests on your property. Please disclose a summary of the preliminary test work you have performed on your property that has led you to determine you have mineralization on your property.
16. In addition, we note your reference to a high-grade beryllium resource. Please tell us how you have made the determination that there is a high grade beryllium resource on the Round Top property. Based on your response, you may need to remove the term high grade resource and replace it with mineralization.

Description of Rare Earth Elements page 29

17. We note your statement that the results of research published in the American Mineralogist stated that the Round Top rhyolites are so enriched that they should be considered large-tonnage, low grade resources. We are unable to locate this specific reference. Please provide us with this report or advise.
18. Please tell us how you have made the determination that most of the rare earth elements may be amenable to conventional flotation, gravity, or some combination of these processes of concentration. Supplementally please provide the results of any metallurgical testing you have performed.
19. We note your statement that there is geologic evidence that suggests that higher grade concentrations of these elements may be present in the deeper parts of the mineralizing system. Please tell us about the geological evidence that has led you to this determination.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filings include, as the case may be, the information the

Securities Act of 1933 and all applicable Securities Act rules require or the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in responding to our comments or in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact John E. Coleman, Mining Engineer, at (202) 551-3610 with questions about engineering comments. You may contact Andri H. Boerman, Staff Accountant, at (202) 551-3645 or Ethan Horowitz, Accounting Branch Chief, at (202) 551-3311 if you have questions regarding comments on the financial statements and related matters. Please contact Alexandra M. Ledbetter, Staff Attorney, at (202) 551-3317 or, in her absence, me at (202) 551-3611 with any other questions.

Sincerely,

/s/ H. Roger Schwall for

Anne Nguyen Parker
Branch Chief