

FRONTIER RARE EARTHS SECURES MAJOR NEW PROSPECTING RIGHT IN SOUTH AFRICA

Fully-funded exploration program to commence in Q4, 2011

September 14, 2011

Toronto, Ontario: Frontier Rare Earths Limited (TSX: FRO) (TSX: FRO.WT) (“Frontier” or “the Company”) is pleased to announce that it has been granted a new prospecting right by the South African Department of Mineral Resources for rare earths and other related minerals of interest in close proximity to its flagship Zandkopsdrift project.

The new prospecting right covers an area of approximately 75,000 hectares in the Namaqualand region of the Northern Cape Province of South Africa (the “Prospecting Right”). Frontier’s exploration team has extensive knowledge and experience in the Namaqualand region and the area covered by the Prospecting Right is considered by the Company to be prospective for rare earth mineralisation. The Prospecting Right is located approximately 80km northeast of Frontier’s world class Zandkopsdrift rare earth deposit where the Company is currently conducting a preliminary economic assessment, the results of which are expected to be made available in Q4 2011.

A comprehensive exploration program is planned for the new area, and work is expected to commence in Q4 2011. The proposed work program is fully funded and was provided for in the budget set out in the prospectus issued by the Company at the time of its initial public offering in November 2010.

“We are very pleased to have been awarded a prospecting right over an area that we believe to be highly prospective for rare earth mineralisation. There are already two significant rare earth deposits being evaluated in the Namaqualand region of South Africa, including Frontier’s world class Zandkopsdrift deposit, and we believe that the region has the potential for further rare earth discoveries to be made” commented James Kenny, Chief Executive Officer of Frontier Rare Earths.

The Prospecting Right is held by the Company’s 74% owned subsidiary, Victor Minerals (Pty) Limited (“Victor”). The remaining 26% of Victor is held by South African shareholders in accordance with South African black economic empowerment requirements.

About Frontier Rare Earths Limited (TSX: FRO) (TSX: FRO.WT)

Frontier Rare Earths Limited (www.frontierrareearths.com) is a mineral exploration and development company exclusively focused on the development of rare earths projects in Southern Africa. Frontier’s flagship asset is the Zandkopsdrift rare earth project (95% economic interest held), which is located in the Northern Cape Province of South Africa and is one of the largest undeveloped rare earth deposits worldwide. After Molycorp’s Mountain Pass and Lynas’ Mount Weld projects, the Zandkopsdrift B Zone has the highest TREO⁽¹⁾ grade and the highest grade of high value HREOs⁽²⁾ of significant advanced deposits⁽³⁾ outside China. Zandkopsdrift’s favourable location is expected to provide significant advantages in relation to capital costs, operating costs and development time compared to other rare earth projects currently being evaluated, and makes it well positioned to become one of the first significant new producers of rare earths outside China after Molycorp and Lynas. In July 2011, Frontier announced a major strategic partnership agreement with Korea Resource Corporation (www.kores.or.kr) in relation to the development of the Zandkopsdrift rare earth project.

Frontier filed a NI 43-101 report on Zandkopsdrift in October 2010, which included a resource estimate of circa 43m tonnes at an average grade of 2.2% containing 950,000 tonnes TREO applying a 1% cut-off, of which 56% is in the Indicated Resource category. Frontier is well funded with approximately \$46m cash and no debt and this strong working capital position will finance the proposed work programme of the Company and the expected completion of a Preliminary Economic Assessment, Preliminary Feasibility Study and Definitive Feasibility Study on Zandkopsdrift. Frontier plans to commence production of rare earths at Zandkopsdrift in 2015 at a rate of 20,000 tonnes per annum. Frontier is listed on the main board of the Toronto Stock Exchange and currently has 89,562,781 shares outstanding.

Notes:

(1) TREO = total rare earth oxides and includes the elements lanthanum to lutetium expressed as trivalent oxides

(2) HREOs = heavy rare earth oxides; high value HREOs are Europium, Terbium and Dysprosium

(3) Significant advanced deposits are those with >200,000 tonnes TREO under SAMREC, JORC, CIM or equivalent international codes

Forward-looking Information: Certain information set forth in this news release may contain forward-looking statements that involve substantial known and unknown risks and uncertainties. These forward-looking statements are subject to numerous risks and uncertainties, certain of which are beyond the control of the Company, including, but not limited to the impact of general economic conditions, industry conditions, commodity prices, availability of financing, results of feasibility studies and dependence upon regulatory approvals. Readers are cautioned that the assumptions used in the preparation of such information, although considered reasonable at the time of preparation, may prove to be imprecise and, as such, undue reliance should not be placed on forward-looking statement.

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