



## Major Processing Design Improvements Boost Recovery of Critical Rare Earths at Pele Mountain's Eco Ridge Mine Project

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### FOR IMMEDIATE RELEASE

November 23, 2011 - Toronto - Pele Mountain Resources Inc. (TSX Venture: **GEM**; OTCQX: **GOLDF**) ("**Pele**" or the "**Company**") today announced that processing design improvements have resulted in sharply higher recoveries of critical rare earth oxides ("**REO**"), including neodymium, dysprosium and yttrium oxides, (Pele's "**Big 3 REO**") at its Eco Ridge Mine Rare Earths and Uranium Project ("**Eco Ridge**" or the "**Project**") in Elliot Lake, Ontario.

The design improvements present opportunities to improve upon the robust Preliminary Economic Assessment ("**PEA**") for Eco Ridge prepared by Roscoe Postle Associates ("**RPA**") and will result in a significantly greater emphasis on REO production than was envisioned previously. The Company is rapidly advancing work to realize these opportunities and together with its technical team has reached the following decisions:

- The processing flow chart will be modified to optimize REO recovery and will include acid baking rather than the heap leach and bioleach methods proposed in the PEA. Acid-baking is a well-established process for extracting REO from monazite, the primary REO-bearing mineral at Eco Ridge, and is expected to improve mineral recoveries by up to 10-fold for Light REO such as neodymium oxide and by up to more than double for Heavy REO such as dysprosium and yttrium oxides.
- The modified processing flow chart will also include crushing, grinding, and ore concentration using magnetic separation and floatation prior to acid-baking. ([Click here to see a preliminary processing flow diagram](#)) Bench-scale testing has demonstrated that more than 90-percent of total REO can be concentrated into just 20-percent of the initial ore mass.
- The mining width at Eco Ridge may increase modestly beyond the average 2.7 metres used in the PEA, by including material from the Hanging Wall, in addition to the Main Conglomerate Bed ("**MCB**"). The additional mineralization recently discovered in the Hanging Wall is expected to add considerable resources and will allow for scalability in production rates in the future.
- An updated PEA, incorporating these modifications, is expected during Q1 2012.
- Given the success in optimizing the processing flow chart and the excellent recoveries established in the bench-scale tests to-date, Pele is preparing to conduct larger scale bench testing and pilot plant operations during the first half of 2012.

Pele Executive Vice-President Roger Payne P. Eng. stated, "Given the developments in the REO market over

the past year, particularly for critical REO that are forecast to be in deficit for the next several years, it is logical that Eco Ridge transform from a uranium-focused to an REO-focused project. While the leaching and bioleaching processing methods used in the PEA have been considered appropriate for uranium recovery, they achieve relatively poor recovery of rare earths in monazite. By employing well-established ore concentration and acid baking methods, we can produce much greater quantities of REO than presented in the PEA, while increasing uranium production as well. We are excited about the new direction these decisions provide for Eco Ridge.”

Metallurgical testing at SGS Canada and the Saskatchewan Research Council (“SRC”) using acid baking, has demonstrated greatly improved REO recoveries over those projected in the PEA. Preliminary bench-scale test results show that the acid baking-leaching process is effective for treating Eco Ridge samples with recoveries ranging from over 80-percent to over 90-percent recovery of total REO. This compares to recoveries used in the PEA, which relied on heap leach and bioleach methods, and averaged 7-percent for Light REO, 34-percent for Heavy REO, and 70-percent for uranium oxide (“U<sub>3</sub>O<sub>8</sub>”).

SRC is also working to optimize the physical concentration of Eco Ridge ore to reduce the total mass requiring treatment in the acid baking process. Bench-scale crushing and grinding tests have resulted in 75-percent of the crushed ore reporting to the coarse fraction (particle size 45-300 microns) and the other 25-percent reporting to the fine fraction (particle size <45 microns). The coarse fraction is readily concentrated with magnetic separation, a simple and low-cost technique, with preliminary results demonstrating 97-percent REO recovery from just 18-percent of its initial mass. The fine fraction is also readily concentrated, through floatation, with preliminary results demonstrating 77-percent REO recovery from just 24-percent of its initial mass. Combined, these results indicate that the two methods can achieve at least 90-percent REO recovery from just 20-percent of the initial mass. The ability to physically concentrate the ore will reduce acid baking costs substantially.

Pele recently announced the discovery that REO mineralization outside the MCB extends much farther than previously realized, with one resampled drill hole revealing more than 140 metres of continuous mineralization. Assay results from expanded sampling returned an average of 766 grams per tonne (g/t) (1 g/t = 1ppm) total REO over a true thickness of 21.6 metres from the base of the MCB into the Hanging Wall. Pele has commenced the second phase of its core resampling program which is designed to increase the sampling range from the base of the MCB into the hanging wall to at least 25 metres for 165 previously drilled holes at Eco Ridge, and will be used to support an updated mineral resource calculation for the Project.

Pele and RPA have decided to optimize the mining width at Eco Ridge by focusing on the higher grade MCB (which averages 2.7 metres thick), combined with a relatively modest contribution from the Hanging Wall, in the early years of the mine life. It was determined that this approach will maintain a higher mining grade allowing faster payback of capital costs while leaving existing permitting and mining plans largely intact. The additional mineralization in the Hanging Wall above the MCB is expected to add considerable resources and will allow for scalability of future production rates. Pele’s recently announced PEA for Eco Ridge, as well as all of the NI 43-101 mineral resources reported at Eco Ridge to-date, are from within the MCB alone.

Estimated recoveries for the “Big 3” REO (which account for about 60-percent of REO revenue in the PEA) and U<sub>3</sub>O<sub>8</sub> are shown in the table below for both the PEA Base Case and a “Recovery Upside Scenario” (as presented in Table 1-3 of Pele’s Eco Ridge PEA) based on a relatively conservative assumption of 80-percent recovery using an acid baking process. These estimated recoveries are based on resources in the MCB only and do not account for possible mineralization contributions from the Hanging Wall.

**Eco Ridge PEA: Estimated Mineral Recovery**

Individual Oxide	Average Grade	Base Case Using Bio Leaching		Recovery Upside Scenario Using Acid Baking	
		Estimated Recovery	Life of Mine Production	Estimated Recovery	Life of Mine Production
Neodymium (Nd <sub>2</sub> O <sub>3</sub> )	196.6 ppm	8 %	581,000 kg	80 %	5,815,000 kg
Dysprosium (Dy <sub>2</sub> O <sub>3</sub> )	14.1 ppm	38 %	195,000 kg	80 %	416,000 kg
Yttrium (Y <sub>2</sub> O <sub>3</sub> )	64.4 ppm	40 %	940,000 kg	80 %	1,904,000 kg
Uranium (U <sub>3</sub> O <sub>8</sub> )	0.044 %	70 %	24,960,000 lbs	80 %	28,558,000 lbs

Scoping-level studies are underway to estimate operating and capital costs based on significantly higher recovery rates that will be possible if initial results of the acid baking and ore concentration are representative. These updated studies will be used to support a new economic model for the Project that will be announced in an updated PEA during the first quarter of 2012.

The updated PEA will provide a roadmap for the Company as it transitions Eco Ridge into the feasibility and licensing stages. Eco Ridge has inherent advantages that may enable its development ahead of other REO projects, including:

- It is one of the only North American REO deposits with a positive NI 43-101 PEA.
- Excellent progress has been achieved toward improved recoveries and increased mineral resources from those reported in the PEA base case, especially for REO.
- It features some of the most critical rare earth elements, including neodymium, dysprosium, and yttrium, and is diversified with uranium.
- The deposit outcrops at surface for more than four kilometres and dips at a shallow angle in a consistent, predictable manner over a vast area; geology, mineralogy, and metallurgy are well-understood from current and previous exploration.
- There is outstanding regional infrastructure in-place: roads, railway, power, natural gas, airport, and deep-water ports.
- There is enthusiastic local support for the project and a highly-qualified local work force.
- Elliot Lake is a proven mining camp with more than 300-million pounds of historic uranium oxide (“U<sub>3</sub>O<sub>8</sub>”) production and is the only Canadian camp to have achieved commercial REO production.

Pele’s Eco Ridge PEA demonstrates its potential to become a profitable producer of REO and U<sub>3</sub>O<sub>8</sub>. The PEA base case forecasts cumulative production of 10.7-million pounds of Total REO and 24.9-million pounds of U<sub>3</sub>O<sub>8</sub> over a 15-year mine life with pre-tax cash flow of US\$1.28-billion, a positive NPV of \$644-million (at a 7.5% discount rate), and an IRR of 45-percent.<sup>1</sup> For more details on the PEA, see [Pele’s press release dated September 7, 2011](#).

The technical information contained in this press release regarding the PEA has been reviewed and approved by Jason Cox, P.Eng., Director of Mine Engineering for RPA, an independent qualified person under NI 43-

101.

### **About Pele**

Pele Mountain Resources, a leader in Canadian rare earths development, is focused on the sustainable development of its 100-percent owned Eco Ridge Mine Rare Earths and Uranium Project. Eco Ridge is one of the only North American rare earths deposits with a positive NI 43-101 Preliminary Economic Assessment and is located in Elliot Lake, the only Canadian mining camp to have ever achieved commercial REO production. With well-understood geology, mineralogy, and metallurgy, excellent regional infrastructure, and strong local support, Eco Ridge is an ideal location for a safe, secure, and reliable long-term supply of REO and U<sub>3</sub>O<sub>8</sub>. Pele also holds interests in a portfolio of Northern Ontario gold properties at Highland and Ardeen. Pele's shares are listed on the TSX Venture Exchange under the symbol “**GEM**” and on the OTCQX under the symbol “**GOLDF**”.

For further information please contact Al Shefsky, President, at (800) 315-7353, or visit the Pele website at [www.pelemountain.com](http://www.pelemountain.com).

1. The PEA is preliminary in nature. It includes inferred mineral resources which are considered too 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 preliminary economic assessment will be realized.

**Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.** Some of the statements contained in this release are forward-looking statements, such as estimates and statements that describe Pele's future plans, objectives or goals, including words to the effect that Pele or management expects a stated condition or result to occur. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. The economic viability of the 43-101 mineral resource at Pele's Elliot Lake Project has not yet been demonstrated by a preliminary feasibility study.