Pele Mountain Samples 14.76 g/t Gold over 3.6 Metres at Its East Highland Gold Project

Symbol: **GEM**
Listing: TSX Venture Exchange
Common Shares Outstanding: 101,588,608

FOR IMMEDIATE RELEASE

December 23, 2009 - Toronto - Pele Mountain Resources Inc. (TSX Venture: GEM) ("Pele" or the "Company") today announced assay results from channel sampling at its East Highland gold project in Northern Ontario. Highlights include a channel sample at the Lone Ranger zone, across a portion of the mineralized outcrop, that gave 14.76 grams per tonne (g/t) gold over 3.6-metres. East Highland is 100-percent owned by Pele Gold Corporation, a wholly owned subsidiary of the Company.

Pele President and CEO Al Shefsky stated, “We are pleased with our new discoveries and overall progress at our Highland gold properties this past field season. These sampling results will be used to finalize locations for a core drilling program scheduled to begin in January, to test targets at the Lone Ranger, Haystack, and Golden Eagle East zones. We are also planning to drill the previously bulk sampled ‘A’ zone.”

At the Lone Ranger zone, nine channel samples were taken over a 100 m strike length, giving results ranging from non detect (ND < 5 ppb gold) to 1.24 g/t gold over 6 metres, 0.60 g/t gold over 4 metres, and the high-grade sample reported above. The Lone Ranger occurrence, approximately 40 metres wide, has been traced in outcrop over a 160-metre strike length, and remains open along strike. Samples with high grade values carrying visible gold are associated with widespread stockwork quartz veining carrying variable pyrite in the felsic unit. Previous channel sampling at Lone Ranger returned gold values ranging from ND to the highest value of 34.0 g/t gold over 2.0 metres in the high grade zone mentioned above (see news release dated August 11, 2009). The anomalous values are not cut off and the zone carrying the quartz stockwork and pyrite mineralization appears open to the northeast and east.

At the Haystack zone, 23 channel samples were taken over a 675 m strike length on both the Haystack East and West zones giving results ranging from ND to 3.2 g/t gold over 2.2 metres, 2.84 g/t gold over 3.05 metres, and 2.39 g/t gold over 1.2 metres. Other samples gave anomalous gold assays, outlining a continuous gold zone along a strike length of more than 500 metres with all samples exceeding 0.5 g/t gold over an average width of 3 metres. In this zone, a higher grade section averaged 2.8 g/t gold over 135 metres of strike length. Grab sampling of old trenches from the 1930s earlier in the field season gave gold values ranging from ND to 9.3 g/t. Historic data also includes two chip samples assaying 19.0 g/t and 18.1 g/t gold over 1.8 metres, along with a grab sample of 44.5 g/t gold from samples in this zone.

At the Macallan zone, 14 channel samples were taken over a 100 m strike length giving gold results ranging from ND to 1.28 g/t over 2.65 metres, 1.57 g/t over 1.88 metres, and 1.48 g/t over 2.08 metres. The stripping program resulted in the discovery of a system of multiple, parallel, quartz veins, exposed intermittently over a 560-metre strike length over widths up to, and exceeding, 10 metres. The Macallan zone was first explored by Pele in 2004, with initial grab samples giving gold values ranging from ND to 57.7 g/t. Grab samples taken this field season gave gold values ranging from ND to 12.6 g/t. At the Golden Eagle East zone, one channel sample gave 0.78 g/t gold over 5.85 metres where stripping exposed a portion of a mineralized ironstone formation at least 5.9 metres wide containing pods of mottled grey white quartz veins carrying strong sulphides, mainly pyrite.

Pele's Highland gold properties cover more than 10,000 acres along the Michipicoten Greenstone Belt, approximately 100 kilometres southeast of Hemlo in Northern Ontario. In the late-1990s, Pele mined a 10,000-tonne bulk sample (to a maximum depth of ten metres) at East Highland's Markes Zone, returning positive cash flow when gold was trading at US$300 per ounce. With outstanding local infrastructure including three nearby modern gold mills, Pele management believes there is excellent potential to establish revenue generating operations at East Highland.

Samples were analyzed for gold by fire assay with AA finish at Accurassay Laboratories in Thunder Bay, an independent, ISO 17025 accredited laboratory. The Company is performing routine QA and QC on laboratory assay results. Plan maps showing the channel samples and their values are available on Pele's website at http://www.pelemountain.com/pdfs/HighlandEast_Maps.pdf

This news release has been reviewed and approved by Peter Dimmell, P.Geo. (NL, Temp ON), a Pele Director and a Qualified Person under National Instrument 43-101.

About Pele

Pele Mountain Resources is discovering and developing the mineral wealth of Northern Ontario. At its Eco Ridge Mine uranium project, Pele is advancing toward the sustainable development of a safe, secure, and reliable operation near Elliot Lake. At its East Highland Gold project, Pele has located several high-grade showings and is working to identify mineable gold resources. The Company also holds the Ardeen Gold and Sudbury Nickel projects, which are actively explored under option agreements with Coventry Resources Ltd. and Wallbridge Mining Company, respectively. Pele's shares are listed on the TSX Venture Exchange under the symbol "**GEM**".

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