

# Updated Resource Estimate and Preliminary Economic Assessment Estimates - Viken Project NPV at US\$1 billion

06.02.2014 | [Marketwired](#)

## IRR of 13% over 34-year mine life

TORONTO, ONTARIO--(Marketwired - Feb 6, 2014) - [Continental Precious Minerals Inc.](#) ("the Company" or "Continental") (TSX:CZQ) is pleased to announce positive results from an updated Mineral Resource Estimate and Preliminary Economic Assessment ("PEA") on its MMS Viken Project in Sweden. The PEA was completed by P&E Mining Consultants Inc. ("P&E"), with Lawrence Consulting Ltd. ("LCL") and DENM Engineering Ltd. ("DENM") having completed the metallurgical components of the study. The PEA technical report, which will be prepared in compliance with National Instrument 43-101, will be filed with the regulators and made available on SEDAR at [www.sedar.com](http://www.sedar.com) within 45 days of this news release.

***Readers are cautioned that the PEA is preliminary in nature and includes Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. There is no certainty that the Inferred resources will be converted to the Measured and Indicated categories, that the Indicated resources will be converted to the Proven and Probable mineral reserve categories and there is no certainty that the PEA will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability; the estimate of mineral resources in the PEA and updated mineral resource statement may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.***

All currency amounts in this news release are in United States dollars unless otherwise indicated.

"The Company has taken a fresh approach towards the recovery of minerals from the MMS Viken Project" said Rana Vig, Chairman and CEO of Continental. "Bio-heap leaching has been studied, as opposed to the fine grinding, tank leaching and roasting approach taken in the 2010 PEA. This has substantially lowered operating and capital costs, and has led to more robust project economics."

### Basis of the Updated PEA

The Viken MMS mineral resource is a poly-metallic shale resource contained within the Viken Shale that regionally is referred to as the Alum Shale. P&E issued a PEA in 2010 that concluded the MMS Viken Project had economic potential as an open pit mine and processing facility producing Uranium Oxide, Vanadium and Molybdenum. The three products were to be recovered by fine grinding and tank leaching, followed by roasting. The Company later announced that it had received a report prepared by Hatch Ltd. ("Hatch") which evaluated bio-heap leaching for the production of Uranium Oxide, plus Nickel, Zinc and Copper sulphides at the Viken Deposit. In 2012, the Company decided to update the 2010 Viken PEA under the new bio-heap leach scenario and incorporate recent drill hole assay results in a recalculation of the mineral resource. The updated mineral resource estimate, as of Feb 1, 2014, is listed in the table below:

**Table 1: Updated Mineral Resource Estimate.<sup>1,2,3</sup>**

		U <sub>3</sub> O <sub>8</sub>	Ni	Cu	Zn

INDICATED	Mt		43		
	lbs./ton	0.38	0.68	0.21	0.81
	Grade ppm	191	338	103	406
	lbs.(M) metal/oxide	18	32	10	38
INFERRED		U <sub>3</sub> O <sub>8</sub>	Ni	Cu	Zn
	Mt		3,019		
	lbs./ton	0.35	0.67	0.44	0.84
	Grade ppm	172	335	120	421
	lbs.(M) metal/oxide	1,145	2,230	799	2,802
	NSR Cut-off = US\$11.00/tonne				

<sup>1</sup> Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing or other relevant issues.

<sup>2</sup> The quantity and grade of reported inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured mineral resource category.

<sup>3</sup> Mineral resources are reported within an optimized pit shell.

The bio-heap leach case is very different from the roasting methodology in the 2010 PEA. A significant change is that the leaching is acidic rather than alkaline. The key to a low cost operation is the utilization of the sulphide components in the mineralized shale with the help of microbial activity, to self-generate a sufficient amount of acid to overcome a large part of the acid consuming components in the shale. The acid is used to neutralize the acid consumers (mainly carbonates) and subsequently leach the payable minerals.

Another key difference is that with the new plan, the mine product is coarsely crushed for stacking on a heap leach pad rather than being finely ground for tank leaching. Heap leaching involves stacking the mineralized shale in large piles and irrigating solution on top. This type of leaching has been used in many applications such as for gold and copper and is effective when dealing with low grade mineralization due to the low operating and capital costs. With bio-heap leaching, metals associated with the sulphides, which in this case include Nickel, Copper and Zinc, can be recovered together with Uranium oxide.

**Readers are cautioned that the projected mining method, potential production profile and plan and mine plan referred to in the PEA and this release are conceptual in nature and additional technical studies will need to be completed in order to fully assess their viability. There is no certainty that a potential mine will be realized or that a production decision will be made. A mine production decision that is made without a Feasibility Study carries additional potential risks which include, but are not limited to, the inclusion of Inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves. Mine design and mining schedules, metallurgical flow sheets and process plant designs may require additional detailed work and economic analysis and internal studies to ensure satisfactory operational conditions and decisions regarding future targeted production.**

## Conclusions and Recommendations of the Updated PEA

P&E concludes that the MMS Viken Project has economic potential as an open pit mine and bio-heap leach process facility, to recover Uranium Oxide, Nickel, Copper and Zinc. The study contemplates a 60,000 tonnes per day process feed rate and a 34 year mine life, at an average life-of-mine waste to mineralized shale strip ratio of 0.6:1. Pre-production capital expenditures, including contingencies, are estimated to be in the order of US\$1.23 billion. The MMS Viken Project is estimated to generate an after-tax net present value of US\$0.94 billion (at a 6.5% discount rate) and an internal rate of return of 12.9%. This is based on using December 31, 2013 three year trailing average prices of US\$50.0/pound U<sub>3</sub>O<sub>8</sub>, US\$8.38/pound Nickel, US\$3.64/pound Copper and US\$0.91/pound Zinc. A potentially mineable portion of the mineral resource was developed, based on a US\$12.00/tonne net smelter return ("NSR") cut-off. This mineral resource was the basis of the mine plan and includes mining dilution and losses. Two open pits are envisaged, namely the North and South pits. Details of the potentially mineable portions of the mineral resource in each open pit are provided in the table below:

Table 2: Potentially Mineable Portion of the Mineral Resource

Pit	Potentially Mineable Portion of Resource (Mt)	U <sub>3</sub> O <sub>8</sub> (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	NSR US \$/tonne	Strip Ratio	Waste Rock (Mt)	Total Tonnes
North Pit	445.2	206	398	125	432	22.95	0.86:1	381.3	
South Pit	250.5	192	380	117	451	21.58	0.20:1	50.6	

Total	695.7	202	392	122	439	22.46	0.62:1	431.9	1,
-------	-------	-----	-----	-----	-----	-------	--------	-------	----

Note: The mineable portion of the mineral resources in the above table contain the following in the Indicated category: 34.4 Mt @ 196ppm U<sub>3</sub>O<sub>8</sub>, 358 ppm Ni, ppm Cu and 416ppm Zn.

The potentially mineable portion of the mineral resource represents only a small portion of the total mineral resources reported by P&E in Table 1 of this press release. The total mineral resources include 43.4 million tonnes of Indicated Resources and 3.02 billion tonnes Inferred Resources, at an NSR cut-off grade of US\$11.00 per tonne. While the selected potentially mineable portion of the Indicated and Inferred Mineral Resource encompasses material identified from drill holes with the higher grades, there are other areas on the MMS Viken Project that have been excluded that contain similar grades. It is estimated that mining activities will occupy less than 6% of the total contiguous land area held by the Company related to the MMS Viken Project. Moreover, several other minerals of interest such as Molybdenum and Vanadium are found in the Alum Shale deposit at MMS Viken which will be assessed in future studies. The PEA is preliminary in nature and includes Inferred mineral resources that 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 assessment will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

## Economic Analysis

The economic analysis uses an after-tax cash flow model in which annual undiscounted revenues are projected to be relatively constant during the 34 year mine life. This is due to the consistent mineral grades expected to be mined and an assumption of constant commodity prices during the life of the project. The mine would produce four product streams including U<sub>3</sub>O<sub>8</sub>, NiS, CuS and ZnS products at standard industry grades. Highlights of the economic analysis are shown in the following table:

Viken Economic Indicators (US dollar amounts in millions except \$/tonne)	
Net present value	
Undiscounted	\$4,449
5.0% discount	\$1,378
6.5% discount (base case)	\$943
8.0% discount	\$619
Internal Rate of Return	12.9%
Project Payback Period From Start of Production (years)	6.9
Total Pre-Production Capital	\$1,233
Total Sustaining Capital	\$777
Life of Mine Average NSR Value (\$/tonne)	\$22.32
Life of Mine Average Operating Cost (\$/tonne)	\$11.24
Life of Mine Average Operating Cost per lb U <sub>3</sub> O <sub>8</sub> incl. Ni, Cu, Zn credits credcrddiceduit	\$24.44

A breakdown of capital costs is presented in the table below:

CAPITAL COSTS	Pre-Production	Production	TOTAL
			US M\$/yr
<b>Mine Development</b>			
Pre Stripping	\$3.40	\$0	\$3.40
Indirect Mining Cost	\$14.20	\$0	\$14.20
G&A - Owner's cost	\$25.80	\$0	\$25.80
<b>Plant and Equipment</b>			
Site Infrastructure	\$39.10	\$9.20	\$48.30
Mine	\$67.10	\$226.00	\$293.10
Process Plant	\$797.20	\$0	\$797.20
Environmental	\$2.00	\$0	\$2.50
Washed Solids Waste System	\$50.00	\$0	\$51.50
Engineering and EPCM	\$25.00	\$0	\$31.50
Sustaining	\$0	\$489.50	\$489.50
Closure	\$20.00	\$52.50	\$72.50
<b>Contingency</b>			
Process Plant (30% of Direct costs)	\$157.10	\$0	\$157.10
Non Process Plant (25% of Direct costs)	\$32.80	\$0	\$32.80

Total (millions USD)	\$1,233.70	\$777.30	\$2,010.90
----------------------	------------	----------	------------

Life of mine average operating costs are presented in the table below:

Item	Operating Cost \$/tonne Shale
Mining	\$2.43/t
Shale Processing	\$5.65/t
Washed Shale from Heaps, and Water Treatment	\$2.05/t
General and Administration	\$1.11/t
Total	\$11.24/t

P&E recommends that the Company advance the project with extended and advanced technical studies for metallurgical, geotechnical, social and environmental matters with the intention to continue the project to a Pre-Feasibility stage. P&E also recommends in-fill drilling be carried out in order to convert additional Inferred mineral resources to the Indicated mineral resource category.

## Mining

The PEA is based on mining shale mineral resources from two adjacent open pit operations (separated by less than one kilometre), namely the South pit and the larger North pit. Conventional truck and shovel mining operations are envisaged for the open pits. Waste rock, primarily limestone, will be drilled and blasted using industry standard procedures. The mineralized shale will not require blasting as it is relatively soft and friable, which will reduce operating costs. Bench heights of 10 metres have been designed. A maximum of twelve 177 tonne haul trucks and two large hydraulic excavators supported by a large wheel loader are contemplated for this operation, with annual material movements as high as 40 million tonnes of mineralized shale and waste rock combined.

The mine plan contemplates transporting the mineralized shale by truck to heap leach pads near the processing plant. These will be 'on-off' heap leach pads with a total cycle time of approximately 270 days. A portion of the open pit waste rock will be used to construct the washed shale storage facility. The remainder of the waste rock will be deposited in a rock storage pile, and will also be deposited in the South pit once it is mined out.

## Metallurgy

An on-off heap leach pad design was adopted incorporating eight heaps: six active leach stages and two in the process of being stacked or reclaimed. The six active stages operate utilizing counter-current irrigation: acid consuming (one heap); leaching (four heaps); and water wash (one heap). After a period of 45 days, each heap cycles forward, such that the heap having just been stacked becomes the new acid consuming heap, the old acid consuming heap becomes the new first leach heap, etc. Each active heap has a dedicated pond where solution is re-circulated to increase metal concentration in the Pregnant Leach Solution ("PLS"). The PLS is advanced counter-currently to the heap pad stages.

Metallurgical test work supervised by Hatch indicated that relatively high Uranium, Nickel, Copper and Zinc extractions could be obtained in an acidic environment using bio-heap leaching. Predicted extractions of Uranium Oxide, plus Nickel, Copper and Zinc sulphides are considered to be reasonably assured based on the results of this testwork. However, due to the limited scale of the bio-heap leach column tests, the results and predictions will require confirmation in a larger scale test.

Metallurgical recoveries were estimated by LCL and are provided in the following table, along with estimated smelter/refining recoveries:

Metal	Bioleach Recovery	Smelting & Refining Recovery
U	76.9%	100%
Ni	67.6%	85%
Cu	60.0%	97%
Zn	76.9%	90%

## Social and Environmental

Estimated closure and rehabilitation costs following the completion of the mining operation have been included in the PEA. During operation, health and safety and environmental protection costs, including effluent treatment, have been provided for. Due to the preliminary nature of this evaluation, local socio-political factors for the project area have not been considered. Further technical, environmental and socio-economic studies may result in some minor adjustments to the pit design and land usage strategy.

### **Qualified Persons and Report**

The PEA study was completed under the supervision of Eugene Puritch, P.Eng. of P&E. Rick Lawrence, P.Eng. of LCL is responsible for final metallurgical testing review and mineral processing. David Salari, P.Eng. of DENM is responsible for process capital and operating costs.

Fred Brown CPG, P.Geo. of P&E is responsible for the mineral resource estimate on which the PEA is based.

Each of the individuals named above is a qualified person, as defined in National Instrument 43-101; is independent of the Company; and is responsible for the technical disclosure contained in this news release.

### **About Continental Precious Minerals**

[Continental Precious Minerals Inc.](#) is a multi-mineral exploration company with multiple interests and exploration licences in Sweden. Since March 2005, Continental's primary goal has been to advance its Swedish assets. The Company is also evaluating other opportunities as they emerge in current market conditions.

### **Cautionary Statement Regarding Forward-Looking Statements**

This news release contains forward-looking statements including statements relating to mineral resource estimates, capital and operating cost estimates, production and economic return estimates. The PEA, and the estimates contained therein, are preliminary in nature and there is no assurance that the Company will be successful in extracting metals from the Company's mineral exploration licences in Sweden on a commercial scale owing to a number of factors. The PEA is based on a number of assumptions, any one of which, if incorrect, could materially change the projected outcome. Factors that could affect the outcome include, without limitation, uncertainty of production and cost estimates, permitting to construct and operate a mine (which permits have not been obtained or applied for, and are not assured), environmental, social and political factors, as well as metal prices and unanticipated technical difficulties, and the other risk factors described in the Company's annual information form for the year ended May 31, 2013 available on SEDAR. The forward-looking statements contained in this news release represent the Company's views and expectations as of the date of this release and should not be relied upon as representing its views and expectations at any subsequent date.

### **Contact**

[Continental Precious Minerals Inc.](#)

Rana Vig  
Chairman and CEO  
(604) 218-4766  
rana@czqminerals.com

Dieser Artikel stammt von [Rohstoff-Welt.de](https://www.rohstoff-welt.de)

Die URL für diesen Artikel lautet:

<https://www.rohstoff-welt.de/news/165977--Updated-Resource-Estimate-and-Preliminary-Economic-Assessment-Estimates---Viken-Project-NPV-at-US1-billion>

Für den Inhalt des Beitrages ist allein der Autor verantwortlich bzw. die aufgeführte Quelle. Bild- oder Filmrechte liegen beim Autor/Quelle bzw. bei der vom ihm benannten Quelle. Bei Übersetzungen können Fehler nicht ausgeschlossen werden. Der vertretene Standpunkt eines Autors spiegelt generell nicht die Meinung des Webseiten-Betreibers wieder. Mittels der Veröffentlichung will dieser lediglich ein pluralistisches Meinungsbild darstellen. Direkte oder indirekte Aussagen in einem Beitrag stellen keinerlei Aufforderung zum Kauf-/Verkauf von Wertpapieren dar. Wir wehren uns gegen jede Form von Hass, Diskriminierung und Verletzung der Menschenwürde. Beachten Sie bitte auch unsere [AGB/Disclaimer](#)!

---

Die Reproduktion, Modifikation oder Verwendung der Inhalte ganz oder teilweise ohne schriftliche Genehmigung ist untersagt!  
Alle Angaben ohne Gewähr! Copyright © by Rohstoff-Welt.de -1999-2026. Es gelten unsere [AGB](#) und [Datenschutzrichtlinen](#).