



ASX Release

26 November 2013

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**Issued Capital:**  
1,736.4 million shares  
50.7 million unlisted options

**PERFORMANCE OF LARGER-SCALE ABLATION UNIT EXCEEDS EXPECTATIONS DURING FIRST TESTWORK**

- Initial tests with ore from the October stockpile in the 5tph Ablation Unit have commenced
- Performance of the 5tph Unit has exceeded expectations:
  - Process times considerably faster than anticipated; and
  - Only one of the three available Ablation modules has been required to achieve target recoveries of >90% into the finest size fractions
- Probable that throughputs in excess of the nominal target of 5tph can be achieved with the "5tph Unit"
- Further confirmation that it should be possible to commercialise Ablation in the near-term
- Further vindicates the Company's recent decision to acquire Uranium One's conventional uranium mining assets in the USA, including the licenced Shootaring Mill

Black Range Minerals Limited ("**Black Range**" or the "**Company**") is very pleased to provide a further update on its progress with the commercialisation of the proprietary Ablation technology ("**Ablation**"). Black Range holds a 50% interest in the application of Ablation at mineral deposits, globally, through a 50:50 joint venture with Ablation Technologies LLC (the "**Ablation JV**").

It is anticipated that Ablation will have a very positive effect on the economics of developing not only the Company's 100% controlled 90.9 million pound mineral resource Hansen/Taylor Ranch Uranium Project in the USA, but also many other sandstone-hosted uranium deposits around the world (see below).

**Initial tests with ore in the 5tph Unit**

During the past week the Ablation JV has, for the first time, initiated testwork with ore in the semi-commercial scale Ablation Unit it has been constructing in Casper, Wyoming, which has nominal capacity of 5tph ("**5tph Unit**").

Ore from the October stockpile in western Colorado (see below) has been mixed with water to prepare slurries that comprise 15-20% solids – the optimal slurry density for the 5tph Unit.

Batches of slurry have been used to run tests in the 5tph Unit; each time modifying specific parameters of the operating system slightly to facilitate performance optimisation.

In all cases preliminary analytical results indicate that greater than 90% (and up to 94.5%) of the uranium in the ore has been separated into the finest size fractions following Ablation. Initial tests suggest that recoveries can be further improved, potentially to 97-98%, with secondary separation. This bodes extremely well for commercial scale Ablation operations.

Furthermore, this achievement is even more encouraging because the residence time to achieve these results is considerably less than anticipated. Indeed, the Ablation process is taking place so effectively in the 5tph Unit that only one of the three available Ablation modules has

been needed to achieve >90% recoveries (the other two Ablation modules are being bypassed). This indicates that, as expected, the higher energy of the 5tph Unit (compared to that available in the pilot plant) is dramatically improving the efficiencies of the Ablation process. As such it is probable that throughputs in excess of the nominal target of 5 tonnes per hour can be achieved with the "5tph Unit". Furthermore it provides the Ablation JV further confidence that it should be possible to commercialise Ablation in the near-term.

These results also further vindicate the Company's recent decision to acquire Uranium One Inc.'s conventional uranium mining assets in the USA, including the licenced Shootaring Mill, as the results reinforce that it should be economically viable to utilise Ablation at mine sites, including at the Hansen Deposit and at the Company's ore stockpiles, to reduce the amount of ore that needs to be transported to conventional processing facilities for recovery of yellowcake, and in doing so reducing both capital and operating costs.

The Ablation JV intends continuing to refine the design and operation of the 5tph Unit and undertaking further tests on October ore in the near term. It will also undertake detailed analysis of recoveries and probable metallurgical properties.



The 5tph Unit during tests in Casper, Wyoming, USA. The slurry mix tank, being fed by a conveyor, is in the foreground. Three interconnected ablation modules are positioned immediately behind the mix tank. Three water storage tanks are evident in the background.

### **Background on Ablation**

Ablation was patented by Ablation Technologies LLC ("**ABT**"), a company based in Wyoming, USA. It is a low cost method of separating uranium mineralisation by applying a physical, grain-size separation process, to ore slurries. No chemicals are added in the process, yet very high mineral recoveries can be achieved with considerable mass reduction, using grain-size classification to separate a high-value, high-grade ore product from a coarse-grained barren "clean sand" product. Application of Ablation is expected to have a

very positive effect on the development of many uranium deposits, globally, because it is expected to significantly reduce both the capital and operating costs for many projects; while timelines to obtain mine permits may also be reduced.

Extensive testwork has shown that, from amenable sandstone-hosted uranium ore types, typically more than 90% of the uranium mineralisation can be separated into 10-20% of the initial sample mass. Recent development work on a secondary upgrade circuit has seen recoveries in test work exceed 99%.

In April 2012 Black Range released the results of a scoping study that indicated the best way to develop its Hansen/Taylor Ranch Uranium Project is to utilise underground borehole mining and Ablation. The scoping study demonstrated the robust nature of the chosen development scenario, with estimated operating costs of approximately US\$30/lb U<sub>3</sub>O<sub>8</sub> and capital costs, based on off-site uranium milling, estimated to be less than US\$80 million.

Shortly thereafter, in light of the substantial benefits of utilising Ablation at the Project, while also recognising the potential to apply this process elsewhere, the Company reached agreement with ABT to jointly commercialise the Ablation process. Black Range and ABT agreed to establish the Ablation JV, with Black Range agreeing to fund commercialisation. The Ablation JV holds the rights to utilise Ablation at all mineral deposits (not just for uranium), globally. Applications of Ablation other than for uranium are yet to be assessed, but it is anticipated that additional opportunities could arise.

Abundant testwork, on samples from numerous sandstone-hosted uranium deposits around the world, has confirmed that Ablation will have widespread applications. The Ablation JV is advancing negotiations with numerous parties that have successfully commissioned first-pass test work on samples from their deposits, whom are now interested in undertaking more extensive field trials. These opportunities provide the Ablation JV potential near-term revenue streams.

### **The October Ore Stockpile**

The October stockpile comprises circa 10,000 tons of uranium ore in western Colorado that was mined prior to 1972 but never transported to a processing facility. Results from a recent systematic sampling program indicate that the average grade of the October stockpile is ~0.10% U<sub>3</sub>O<sub>8</sub> and ~0.19% V<sub>2</sub>O<sub>5</sub>.

The Company has entered into an agreement with the owner of the stockpile, providing Black Range the right to Ablate the entire ore stockpile at any time during the next 3 years. Black Range will receive a 70% share of the revenue from sales of fine-grained, high-grade ore recovered during Ablation (see ASX announcement on 4 July 2013).

### **Competent Person's Statement**

*The information in this announcement that relates to Mineral Resources at BLR's Hansen/Taylor Ranch Uranium Project is based on information compiled by Mr Rex Bryan who is a member of the American Institute of Professional Geologists. Mr Rex Bryan compiled this information in his capacity as a Principal Geologist of Tetra Tech. Mr Rex Bryan has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Rex Bryan consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

### **Caution Regarding Forward Looking Statements**

*This announcement contains forward looking statements which involve a number of risks and uncertainties. These forward looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. The forward looking statements are made as at the date of this announcement and the Company disclaims any intent or obligation to update publicly such forward looking statements, whether as the result of new information, future events or results or otherwise.*