

Avalon announces completion of updated PEA for the Separation Rapids Lithium Project, Kenora, ON

August 21, 2018

Toronto, Ontario--(Newsfile Corp. - August 21, 2018) - [Avalon Advanced Materials Inc.](#) (TSX: AVL) (OTCQX: AVLNF) ("Avalon" or the "Company") is pleased to report that it has completed an updated Preliminary Economic Assessment ("PEA") for the Separation Rapids Lithium Project near Kenora, Ontario, Canada (the "Project"). The updated PEA reflects a simplified business model that focuses on initial production of lithium mineral concentrates, with potential for future expansion into production of the battery materials lithium carbonate and lithium hydroxide. This smaller scale development model reduces capital expenditure requirements substantially from the original model completed in [September 2016](#), while generating attractive returns and reducing overall business risk. The PEA has been prepared by independent consultant Micon International Limited under the direction of David Marsh, SVP, Metallurgy and Technology Development and will be filed online (SEDAR) within the next few weeks.

The updated PEA utilizes a plant throughput rate of 475,000 tonnes per annum ("tpa") compared to the 950,000 tpa rate used in the 2016 PEA. This will result in a 20 year operating life, based on the present [known mineral resources](#), with annual production of 71,500 tonnes of petalite concentrate; 11,800 tonnes of lepidolite concentrate (both for 18.5 years); and, commencing in Year 6, 100,000 tonnes of feldspar (through to Year 20). The upfront capital expenditure requirement is C\$77.7 million with a further C\$13.7 million planned for the feldspar circuit in Years 5/6 (or once payback of the initial capital is complete). Average annual revenue is estimated at C\$90 million versus average annual costs of C\$60 million, resulting in a pre-tax Net Present Value ("NPV") (at 8% discount rate) of C\$156 million and a pre-tax Internal Rate of Return ("IRR") of 27.1%. The post-tax NPV is calculated at C\$102 million and the IRR at 22.7%.

While much of the new demand and long term growth prospects for lithium supply are centred on the rechargeable battery industry, lithium remains a critical ingredient in many other applications such as glass and ceramics, which now must compete for supply with battery makers. Petalite is ideally suited in many of these applications as an industrial mineral due to its high purity and unique crystal structure. Petalite is the primary lithium mineral at Separation Rapids and the results of recent process testwork, disclosed in the Company's news release dated [November 16, 2017](#), demonstrated that a high purity petalite product can be produced from the Separation Rapids resource. This product, called "Super Petalite," has attracted considerable interest from consumers in the glass and ceramics industry, leading to the conclusion that petalite concentrates should be the initial focus of production from Separation Rapids. Discussions toward concluding off-take agreements with major consumers of this product in the glass industry are now at an advanced stage.

Petalite production will be supplemented with the production of a second lithium mineral concentrate: lepidolite. Lepidolite is a lithium mineral which is in growing demand for conversion to lithium carbonate. Avalon already has a preliminary off-take agreement in place with Lepidico Ltd., of Perth, Australia (ASX:LPD, "Lepidico"). Lepidico is currently planning to develop a lithium carbonate demonstration production facility in Sudbury, Ontario.

Avalon's 2016 PEA presented a model focused on the conversion of petalite concentrate into lithium hydroxide for the battery and energy storage industries. This remains an opportunity for a future expansion of the operation as additional mineral resources are delineated. Development into these markets would start with the addition of a pilot scale lithium hydroxide production circuit at the mine site to produce trial quantities of the battery material product and prove the innovative, new process flowsheet developed by the Company in 2016. This process offers a number of advantages over the traditional flowsheet, mainly through lower chemical consumption and less waste products for disposal.

Future Plans

The next step in the Project's development is to proceed with a short pilot program to finalize reagent recycling and water treatment processes, after which a comprehensive Feasibility Study will be completed. This work is expected to proceed later in 2018 once off-take agreements are concluded and additional Project financing is in place. Some additional drilling will be undertaken to bring more of the Inferred resources into the Measured and Indicated categories. In addition, Avalon continues to explore for new lithium pegmatites, particularly on the western extension of the property, where a number of new petalite occurrences have been identified, but never previously drilled, including the Glitter pegmatite. A detailed mapping and sampling program on the western extension area is currently in progress.

Sustainability and Permitting

The development model designed for the PEA results in a small environmental footprint, including low GHG emissions and almost non-existent air emissions. There are no anticipated environmental impacts of concern at the Project, with the mineral deposit and waste rock being non-toxic and non-acid generating and minimal water discharge being anticipated. Avalon will continue to update and validate its 2007 environmental baseline study and the tailing management system design in the context of the new development model. The Company is already studying the potential for beneficial new uses of the site as part of its closure strategy, including re-purposing the waste areas for agricultural use such as wild rice habitat.

Avalon is planning to start the formal permitting process later this year, once sufficient engineering data and Project financing are in place. Avalon is also currently working with Hydro One to determine the optimal route to deliver clean hydro-electric power to the site from one of the nearby dams on the English River.

The Project is located in the traditional Territory of the Wabaseemoong Independent Nations of Whitedog, Ontario. Engagement is ongoing with local Indigenous communities, regulators and local government who continue to be supportive of the Project.

The technical information included in this news release has been reviewed and approved by David Marsh, FAusIMM (CP), Senior Vice President, Metallurgy and Technology Development.

About Avalon Advanced Materials Inc.

Avalon Advanced Materials Inc. is a Canadian mineral development company specializing in niche market metals and minerals with growing demand in new technology. The Company has three

advanced stage projects, all 100%-owned, providing investors with exposure to lithium, tin and indium, as well as rare earth elements, tantalum, niobium, and zirconium. Avalon is currently focusing on its Separation Rapids Lithium Project, Kenora, ON and its East Kemptville Tin-Indium Project, Yarmouth, NS. Social responsibility and environmental stewardship are corporate cornerstones.

For questions and feedback, please e-mail the Company at ir@AvalonAM.com, or phone Don Bubar, President & CEO, at 416-364-4938.

This news release contains "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 and applicable Canadian securities legislation. Forward-looking statements include, but are not limited to statements about the PEA economics, optimization opportunities and development model, statements related to the potential permitting timeline, statements related to the project financing plans, statements that Lepidico is planning to develop a lithium carbonate demonstration production facility in Sudbury, Ontario, that there is an opportunity for a future expansion of the operation as additional mineral resources are delineated, that this process offers a number of advantages over the traditional flowsheet, that certain piloting work is expected to proceed later in 2018 after which a comprehensive Feasibility Study will be completed once off-take agreements are concluded and additional project financing is in place, that some additional drilling will be undertaken to bring more of the inferred resources into the measured and indicated categories, that the Company continues to explore for new lithium pegmatites, that there are no anticipated environmental impacts of concern at the Project, and that the Company is planning to start the formal permitting process later this year. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as "potential", "scheduled", "anticipates", "continues", "expects" or "does not expect", "is expected", "scheduled", "targeted", "planned", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will be" or "will not be" taken, reached or result, "will occur" or "be achieved". Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of Avalon to be materially different from those expressed or implied by such forward-looking statements. Forward-looking statements are based on assumptions management believes to be reasonable at the time such statements are made. Although Avalon has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking statements, there may be other factors that cause results not to be as anticipated, estimated or intended. Factors that may cause actual results to differ materially from expected results described in forward-looking statements include, but are not limited to market conditions, and the possibility of cost overruns or unanticipated costs and expenses as well as those risk factors set out in the Company's current Annual Information Form, Management's Discussion and Analysis and other disclosure documents available under the Company's profile at www.SEDAR.com. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Such forward-looking statements have been provided for the purpose of assisting investors in understanding the Company's plans and objectives and may not be appropriate for other purposes. Accordingly, readers should not place undue reliance on

forward-looking statements. Avalon does not undertake to update any forward-looking statements that are contained herein, except in accordance with applicable securities laws.