

Message from the Vice President, Sustainability

Thank you for reading Avalon's 2018 Sustainability Report, where we once again review our sustainability progress and goals. Avalon integrates its sustainability objectives into business planning, work activities and assessments in all stages of project development. These initiatives have the potential to make our projects more cost effective, decrease risk and contribute to a more streamlined permitting process - all contributing to shareholder value.

In its 2018 fiscal year (September 1, 2017 to August 31, 2018 or 'FY2018'), Avalon once again

placed among Corporate Knights' 2018 Future 40 Responsible Corporate Leaders in Canada from a shortlist of eligible small and mid-size organizations. Avalon has been ranked as a Future 40 Responsible Corporate Leader three times in the last four years. This is well-earned recognition for everyone at Avalon and the sustainability culture we have developed!

I am pleased to provide a progress report on the work accomplished at Avalon's three advanced projects throughout the fiscal year:

East Kemptville Tin- Indium Project

The East Kemptville Project is essentially a rehabilitation project funded by the recovery of tin. This site has in excess of 18 million tonnes of acid generating tailings and another nine million tonnes of acid generating low grade ore on surface. The site has been closed, subject to ongoing treatment of this environmental legacy, for 25 years now, and in the absence of Avalon developing this project, treatment will be required for at least another 40 more years. We have re-focused our attention on site remediation; through the innovative use of existing infrastructure, careful management of future wastes and by generating a clean tailings cover during processing, Avalon has developed a cost effective strategy to completely revive the site. This will make it more stable, while generating revenue in order to fund the work that will ultimately allow us to fully restore the site. This has the additional benefit of generating jobs and investment in the community. Beneficial long term uses for the site post closure such as solar power generation are also part of the project concept. We are pleased and thankful to have the support of the Tusket River Environmental Protection Association and Acadia First

Corporate Knights

Corporate Knights is a specialized media and investment research firm that, amongst other things, annually publishes *Corporate Knights Magazine*: the self-proclaimed largest globally circulating magazine focused on sustainability and responsible business, with a strong track record of providing informed research and analysis to the market.

The methodology for the 2018 Future 40 Responsible Corporate Leaders in Canada ranking is based on 16 key performance indicators covering resource, employee and financial management. The full methodology for this year's ranking is available from Corporate Knights here: www.corporateknights.com/reports/future-40/2018-future-40-methodology-15085128/. Private or publicly-listed companies headquartered in Canada with revenue of under \$1 billion and evidence of ESG reporting are eligible. Ranking is based on publicly-disclosed data, verified by the companies prior to project completion.

The full ranking can be viewed online at www.corporateknights.com/reports/2018-future-40/2018-future-40-results-15241106/.

Corporate Knights 2018
FUTURE 40
Responsible Corporate Leaders in Canada



Nation for this initiative.

Avalon maintained positive engagement with regulators and NGOs in FY2018, including:

- meeting with the Nova Scotia Minister of Environment in February 2018;
- presentations to the Tusket

- River Environmental Protection Association Annual General Meeting, Provincial Ministry of Natural Resources and the Ministry of the Environment in April 2018;
- meeting with the Acadia First Nation to review the project, discuss opportunities for

- employment, training and post closure beneficial use and to formally initiate the engagement process;
- completing a renewed Access Agreement with the surface rights holder;
- completing a Species at Risk Act (SARA) study;
- hosting a site visit for regulators associated with the Crown Land and Mining Leases and Industrial Approval (environmental); and
- completing all baseline information for permitting, updated and largely completed the innovative project design.



The current East Kemptville site (above). An artist rendering of the site post closure, according to the current redevelopment model (below).



Avalon's meeting with the Federal Ministry of Environment and Climate Change confirmed that (pending verification of planned production rates), the Federal Canadian Environmental Assessment Act (now Impact Assessment Act) process will not apply to the East Kemptville Project, due in part to its small size and the low risk restoration aspect of the project

Our discussions with Nova Scotia Ministry of Natural Resources officials were successful in getting the Special License validated in a timely manner in FY2018, and extensive work was ongoing at yearend to prepare applications for the required Mineral Lease and Crown Land Lease to

secure full tenure to the site. We are planning discussions with local Communities of Interest (COI) to support a more streamlined permitting process. Avalon is excited about the near term potential for this site, as well as the long term benefits post-closure, long after we are gone.

Separation Rapids Lithium Project

Avalon continues to advance the Separation Rapids Project by focusing on the opportunity to produce lithium minerals primarily for the glass industry. We completed a significant amount of work to permit the project throughout the year; for example, Avalon:

- continued discussions with the local Indigenous groups, regulators, politicians and other COI regarding the project;
- collected additional biological baseline data at site for incorporation in project planning, permitting and design;
- updated the emergency response plan in advance of exploration programs;
- obtained all the data required to validate the assessment of the 1999/2007 baseline work;
- completed the biological assessment of the newly proposed tailings management area;
- redesigned the site layout for the small scale, lower impact project;
- investigated power line routes to the site along with other sustainable energy generation options, to largely eliminate the need for diesel or propane power supply in favour of locally available hydro power to minimize GHG emissions; and
- initiated humidity cell tests for environmental testwork on all the waste materials,

and groundwater monitoring tests to evaluate the potential for water to seep into the pit from the English River (subsequently found to be very low).

Nechalacho Rare Earth Elements Project

Given that the Northwest Territories (NWT) is preparing its 2030 Energy Strategy, FY2018 was an opportune time for Avalon to revisit the development of a nearby energy corridor and associated access road to the Nechalacho site. The benefits to Avalon would include lower construction risk; lower capital and operating cost (due to reduced need to construct and purchase facilities to store operating materials and products for a year); lower manpower and supplies transportation cost to site (road vs. airplane); and overall lower operating risks. The hydro power corridor would also add significant benefits that include the opportunity for lower power costs and significantly lower GHG emissions.

Avalon started the process to renew its exploration land use permit in FY2018, with the submission of the application, project description (five year plan) and engagement logs to the NWT government in FY2018. As well, we updated two management plans to meet new guidelines and completed an engagement plan. Avalon engaged with the Lutsel K'e Dene First Nation, Yellowknives Dene First Nation, Deninu K'ue First Nation, North Slave Métis Alliance, Fort Resolution Métis Council, Tlicho Government and K'at'l'odeeche First Nation, government and community organizations with respect to the renewal of the exploration permit. This was needed in advance of the preliminary geological work that will potentially allow

for significantly lower impact processing without reagent use and generating early revenues, while allowing for scalability to accommodate growing demand for rare earth elements and lithium in clean technology.

Avalon continued to monitor and engage with the NWT government on a range of regulatory initiatives with potential impacts on the project and in particular the Caribou Management Plan. Avalon will encourage additional research to establish the root causes of the serious caribou population decline so that effective remedies can be designed and implemented.

Health & Safety

Strong health and safety performance is a critical part of operating sustainably. Company representatives continue to lead the one day health and safety course at the Prospectors and Developers Association of Canada (PDAC) conference in Toronto since Avalon initiated the course in 2012. Strong health and safety performance contributes to efficient work sites, less down time due to accidents and improved employee productivity. In FY2018, we built upon the success of this course by developing and running the very successful inaugural PDAC conference environment course. Avalon has encouraged the development of a community engagement course, which will begin to run in alternate years with the environmental course, starting in 2019.



I am pleased to report that Avalon had no accidents in FY2018 and that all accident and injury rate remains at 0.0 for the year. However, there was one road incident at the Separation Rapids drill program, where a contractor's half-tonne truck slid off the road. There were no injuries or material damage to the truck and speed was not reportedly a factor. Avalon reviewed road maintenance and completed additional plowing. In addition to safer travel, this maintenance and plowing significantly reduced overall travel time.

Research & Innovation

Avalon continues to support its long term objective of creating a sustainable, cleantech materials business by seeking candidates for our workforce and scientists of the future. In August 2018, Avalon developed a capstone project with the University of Toronto for fourth year chemical engineering students in their plant design course. Two teams of students will be involved with joint supervision by professors in the engineering faculty and Avalon engineers. One team is focused on recycling used scrap rare earth permanent magnets through Avalon's planned hydrometallurgical process for the Nechalacho Project.

The other team will investigate how used scrap lithium batteries could be processed through Avalon's planned hydrometallurgical process at the Separation Rapids Project. In both cases, there is potential for the expansion of neodymium or lithium

production by adding scrap materials to the planned minerals process.

We are also looking to conduct wetland rehabilitation research for the East Kemptville Project's tailings management area and to look at locally-available organic wastes to help amend our clean tailings cover to grow agricultural crops for a productive site use post closure.

Energy & Climate Change

Avalon is a leader among junior mineral development companies in adopting best practices to reduce its environmental footprint, protect water resources and engage with local communities. While much of the mining industry had already turned its attention to energy, the exploration and development industry has been lagging behind. Avalon has been measuring our energy use for seven years now, and in doing so, found areas to reduce our energy requirements and diesel use. This has resulted in significant reductions in our GHG production and reduced our energy costs. This year, Avalon worked with the PDAC, utilizing the Avalon reporting system, to provide the industry with the tools to be able to do the same thing. This included examples of where energy is used at remote and non-remote locations and opportunities to reduce energy use, including the use of renewable energy. It will also inform larger exploration projects to ensure they remain in compliance with legal reporting requirements.

As a member of the Mining Association of Canada (MAC)'s Science and Environmental Committees and Community of Interest Panel, Avalon is kept informed about tailings management best practices, ongoing regulatory initiatives (including those associated with

climate change) and NGOs' concerns. Avalon participated in a multi-stakeholder committee, representing the exploration industry, which is preparing a guidance document for climate change risk assessment. These are becoming increasingly important in the investment and insurance industry, as well as the world in general.

Avalon has historically included climate change risk assessment with long term physical plant protection, such as tailings dam protection or flooding risk. However, one of the goals I have set for myself is to broaden the climate change risk analysis of Avalon's future operations to include things such as site access and our supply chain. We can then develop strategies for managing these risks and the associated costs, in order to build best-practices of the future into our project models now.

Thank you

Finally, thank you to Avalon's Board of Directors, members of the Sustainability Advisory Committee and the sustainability reporting team for continuing to produce and support this quality documentation of the path to cleantech materials production.

Sincerely,



Mark Wiseman

