

# Refocus, Revive & Restore

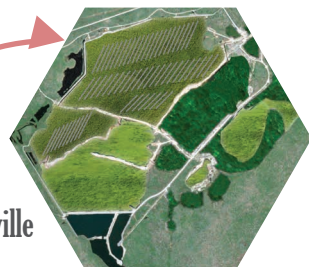


**AVALON**  
ADVANCED MATERIALS INC.

2018  
Sustainability  
Report

## Planned Restoration

[Sn-In]  
East Kemptville



## Revived Interest

[Nd-Pr]  
Nechalacho



[Cs]  
Lilypad



## Focus on Staged Development



# Forward Looking Statements

This Report contains "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 and applicable Canadian securities legislation. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as "potential", "scheduled", "anticipates", "continues", "expects", "is expected", "targeted", "planned", "believes", "will", "intends" or variations of such words and phrases or the negative thereof. Statements that are not based on historical fact contained in this Report, including through documents incorporated by reference herein, 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 reflect the Company's current views with respect to future events and include among other things, statements with respect to the Company integrating sustainability into all aspects of its business, that the Company pursues sustainability in all areas of its business and actively promotes improved mineral industry practice with investors, potential partners and government, that the Company will strive to ensure that our projects are energy efficient and protective of the environment, the existence of any significant potential for creating additional shareholder value through exceptional sustainability performance, remaining committed to doing Avalon's part to advocate for improved sustainability performance, the anticipation that it would proceed with certain plans, activities or achieve certain goals or efficiencies, assumptions related to future economic, market or other conditions that while considered reasonable by the Company, are inherently subject to risks and uncertainties, including significant business, economic, competitive, political and social uncertainties and contingencies. 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, the possibility of cost overruns or unanticipated costs and expenses, the impact of proposed optimizations at the Company's projects, actual results of exploration activities, mineral reserves and mineral resources and metallurgical recoveries, discrepancies between actual and estimated production rate, mining operational and development risks and delays, regulatory restrictions (including environmental), activities by governmental authorities, financing delays, joint venture or strategic alliances risks, or other risks in the mining industry; 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 filed with the securities regulatory authorities in all provinces and territories of Canada, other than Québec, and available at [www.sedar.com](http://www.sedar.com). Most of the foregoing factors are beyond Avalon's ability to control or predict. There can be no assurance that the plans, intentions or expectations upon which these forward-looking statements are based will occur. The forward-looking statements contained herein are qualified in their entirety by this cautionary statement. Readers should not place undue reliance on the forward-looking statements, which reflect management's plans, estimates, projections and views only as of the date hereof. The forward-looking statements contained herein are presented for the purpose of assisting readers in understanding the Company's expected sustainability performance, the Company's plans and objectives, and may not be appropriate for other purposes. Avalon does not undertake to update any forward-looking statements that are contained herein, except in accordance with applicable securities law. All currency in this Report is in Canadian dollars, unless otherwise noted.



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# Message from the President & CEO

**Once again**, on behalf of the Avalon team, I am pleased to present our annual report on sustainability to our Communities of Interest (COI). This year's theme is *Refocus, Revive and Restore* to reflect the repositioning of the Company and our accomplishments over the past year. An evolving business environment (both in terms of capital markets and market opportunities for our cleantech materials products) has forced us to update our growth strategy.

We continue to see benefit in providing leadership and promoting excellence in sustainable business practices.

## Avalon's Communities of Interest

- ◆ academia & industry associations
- ◆ employees & contractors
- ◆ end use customers & potential partners
- ◆ government
- ◆ Indigenous governments & organizations
- ◆ investors
- ◆ financial institutions
- ◆ local communities
- ◆ non-profit organizations
- ◆ regulators



I believe this is critical to our project development success, despite many still asserting such initiatives are “wasted time and resources” – quite the opposite. Acting sustainably gives Avalon a strategic advantage, aligning the Company with its stakeholders' values, including cleantech companies who audit their supply chains to ensure that their raw materials are sourced from environmentally and socially responsible operators.


Family-controlled investment groups and small-cap growth funds (which typically look for above-average economic returns) are now making social responsibility a significant investment criterion – even though their charters sometimes do not require this strong adherence to social responsibility. Consequently, Avalon's historic emphasis on social responsibility has become even more important, given the weight that many emerging investment groups and cleantech companies have placed on these values. A key component of Avalon's social responsibility mandate is its commitment to involving local Indigenous communities in the project development process at an early stage, assisting in building capacity and facilitating long term economic empowerment through equity partnerships.

On all three of our advanced projects, we have created new development models designed to initiate production at modest scales utilizing simplified process technology. This approach has economic benefits in terms of lower capital requirements and reduced investment risk, but also environmental benefits through a much smaller operational footprint that also facilitates progressive site remediation through the life of the operation. In addition, the lower initial capital requirements create real opportunities for local Indigenous COI to become significant equity partners in the projects, leading to development in the community.

## Critical materials must be sourced environmentally and using socially responsible methods

Avalon holds a unique, critical materials portfolio. Longtime followers of the Company are aware that many of these materials, such as rare earths and lithium, are not exchange-traded





commodities nor do they have well-established, reliable supply chains to serve the new technologies critical to clean energy, transport, defense and communications.

A 'critical mineral' is identified by the U.S. Department of the Interior to be a non-fuel mineral or mineral material essential for national security, the supply chain of which is vulnerable to disruption. Critical materials serve an essential function in the manufacturing of a product – the absence of which would have significant consequences for the economy and/or national security.

There are some 35 critical materials that are all in short supply, as recently identified by the U.S. Department of the Interior from a list prepared by the U.S. Geological Survey agency. These materials' sources have been limited to specific countries such as China and/or limited to a few individual producers. Limited availability of larger quantities at reasonable

prices has created uncertainty for developers of new technologies relying on these critical materials.

The risk of relying on supply from a single jurisdiction was first realized in 2010, when China halted rare earth exports to Japan as a result of a territorial dispute in the South China Sea. This brought immediate media, government and investor attention to the supply imbalance in a vital but under-appreciated market. At the time, it was estimated that over 90% of the world's rare earths were produced in China – often using an environmentally damaging methodology.

U.S. reliance on foreign sources of strategic raw materials has once again become a major topic of national concern. In December of last year, U.S. President Trump signed an executive order to reduce the country's dependence on foreign sources of critical minerals – notably rare earths, implicitly encouraging the creation of new domestic supply chains.

Many of these critical materials are enablers of clean technologies, such as electric vehicles and renewable energy. Rare earths are critical ingredients in high-strength permanent magnets (made with neodymium, praseodymium and dysprosium) that enable more efficient electric motor

technologies for electric vehicles. At Avalon, we are developing critical materials' supply chains to benefit end-users as well as local communities – offering a domestic solution to this global problem.

Avalon continues to develop key relationships within growth industry sectors, such as specialty glass, which require strategic materials inputs in their production process.



US Geological  
Survey compiled  
35 mineral

commodities critical to existing and emerging technologies, renewable energy and national security. Avalon's diverse project portfolio contains properties enriched with 13 of the 35 minerals identified, including:

- ◆ beryllium
- ◆ cesium
- ◆ gallium
- ◆ germanium
- ◆ hafnium
- ◆ indium
- ◆ lithium
- ◆ niobium
- ◆ rare earth elements
- ◆ rubidium
- ◆ tantalum
- ◆ tin
- ◆ zirconium

## East Kemptville Tin-Indium Project: Reviving and restoring the land

Avalon's East Kemptville Project in Yarmouth County, Nova Scotia, is a closed mine site with a perpetual environmental liability associated with acid mine drainage. Such sites can now be viewed as opportunities for entrepreneurial companies like Avalon to apply innovative models and new process technology to extract value out of waste materials and create an economic solution to fully remediate the site's long term environmental liability.

Avalon has conceived an environmental rehabilitation solution that will be financed through the sale of tin concentrates (and potentially other critical materials such as indium), recovered in large part from previously-mined material on the site. This will also incorporate new ore-sorting technology that will reduce the amount of new tailings material generated and creates a waste that will remain benign while used to fill in old pits.

From the first day of operations, Avalon's model provides for a reduction in the long term environmental liability and eventual full rehabilitation of this brownfields mine site. Due to the planned small scale of the operation, and the

## Laser Sensor Ore Sorter

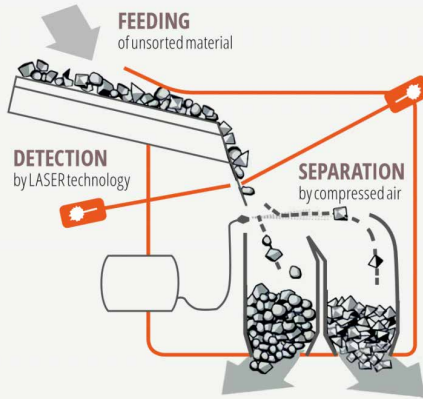


Diagram of a chute-type dual laser sensor-based ore particle sorter, from a paper originally published in the MetPlant 2017 Conference proceedings, sourced from AusIMM Bulletin online

fact that it will result in a net benefit to the environment, it is anticipated that the permitting and approvals process can be shorter than for a greenfields mine development. There is strong community support for the project, including First Nations and environmental NGOs. We are also in discussions with a number of local businesses regarding future land use opportunities, such as agriculture and solar power generation.

At East Kemptville, environmental responsibility can become a driver for innovation and value creation, while establishing a new critical materials supply chain – a precedent that can potentially be applied to many such closed and abandoned mine sites.

As someone who grew up in Nova Scotia, I am delighted to have the opportunity to realize Avalon's progressive vision for re-starting operations at East Kemptville, bringing new

jobs to the southwestern part of the province. I know Avalon's many loyal Nova Scotia shareholders are also excited to see this project finally realized in the next few years.

## Separation Rapids Lithium Project: Focus on innovation & collaboration

Avalon's Separation Rapids Lithium Project, located in northwestern Ontario, contains a rare lithium mineral called petalite that closely matches the technical requirements of specialty glass-ceramic manufacturers, while also meeting their criteria around sourcing critical raw materials from environmentally and socially responsible producers.

The global glass industry is valued at over \$100 billion, and continues to grow through the innovation of new products – many of which take advantage of the unique properties of lithium to create high strength, light weight glass. The glass industry represents 25-30% of global demand for lithium, as lithium additions can reduce GHG emissions by lowering batch melting temperatures (which reduces the energy consumed in the furnace).

## Super Petalite

Avalon has developed its own proprietary process technology to achieve exceptional purities in its petalite products. Avalon's Standard Petalite product (4.0-4.2%  $\text{Li}_2\text{O}$ ) is notable for its very low iron content and consistent  $\text{SiO}_2/\text{Al}_2\text{O}_3$  ratio. Avalon's Super Petalite product (>4.5%  $\text{Li}_2\text{O}$ ), in addition to a very low iron content, also achieves exceptionally low levels of sodium and potassium, as well as a higher lithium content.

## Vision & Mission

Establish a diversified clean technology metals business, built on strong environmental and social performance

Create shareholder value and long term growth through sustainable development of our lithium, tin and REE assets



The challenge for Avalon is to prove its ability to reliably produce a high-quality product before achieving initial production – a challenge that we have met through extensive process development work to prove the product and provide test samples. Avalon works hand in hand with end users to customize the material processing steps in order to meet the specifications of various industrial consumers.

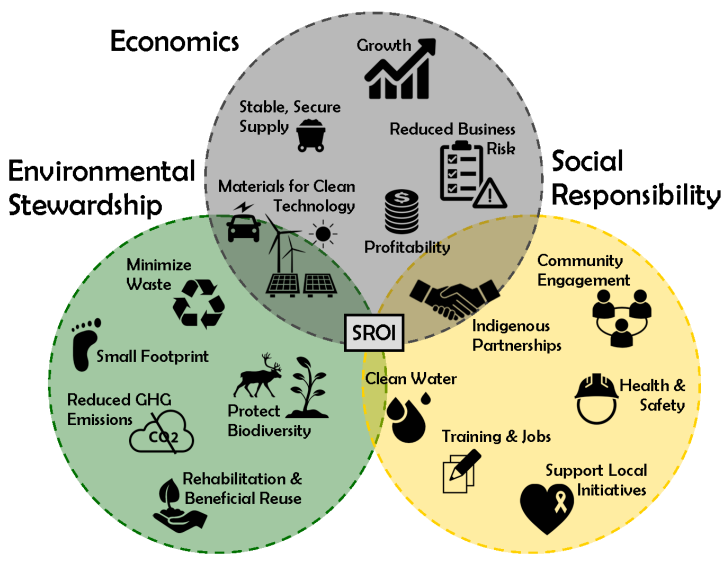
Once a long term off-take agreement is in place with the end-user, the business case will be confirmed to provide access to capital to build the operation. Discussions with several major end-users continue, and I am optimistic that we will soon have news on how project development will proceed.

While the initial focus is on the opportunity to serve the glass industry with Avalon's unique high purity Super Petalite product, we are not forgetting about the growing demand for lithium in rechargeable batteries. In future stages, Avalon is planning to scale up the operation over time to produce a battery material product, once an appropriate lithium product is defined for the rapidly-evolving lithium ion battery technology.

## Active Indigenous participation is the future of mineral development in Canada

Through the Prospectors and Developers Association of Canada (PDAC), as well as other industry and political organizations, I have championed active Indigenous participation in mineral development in their traditional territories. We are now seeing more and more successful

## Avalon's Socially Responsible Values



examples of this in natural resource development across Canada. I firmly believe that equity participation by Indigenous business is the key to economic reconciliation with northern First Nations communities. I further believe that Indigenous entrepreneurs will be the future leaders of the mineral exploration and development industry in Canada.

The leadership of the Acadia First Nation, whose traditional territory covers the East Kemptville Tin-Indium Project site, provides an inspirational example of Indigenous economic empowerment through direct participation in the local economy. We look forward to signing an MOU with the Acadia First Nation soon, and maximizing the local business opportunities for their community members.

## Thank you

Sustainability reports such as this one provide tangible evidence that the mineral development industry is evolving rapidly as it transitions to cleantech

materials production; embraces new, more efficient process technology; and reduces the scale of its initial operations – all resulting in a greatly reduced environmental footprint compared to that traditionally associated with the mining industry. This evolution can also facilitate the development of new materials through science and technology development leading to new downstream business opportunities and deriving more value from Canada's natural resource wealth than historically seen.

As always, Avalon remains committed to its leadership role within the junior resource sector in creating a more sustainable future for the Canadian mineral industry and our shareholders.

Sincerely,

Donald S. Bubar



## Avalon involvement at Resources for Future Generations 2018 Conference Vancouver, British Columbia June 16-21

Grounded in fundamental earth science, RFG2018 served as a forum for participants to discuss their research initiatives and activities, as well as the key issues and trends in interrelated areas such as minerals, energy and water.

Avalon's VP, Exploration, Dr. Bill Mercer, accepted a position as Vice Chair of the Steering Committee to develop RFG2018's scientific program, sponsorship, international relations, local activities, workshops and field trips. The community of volunteers and contributors growing RFG2018, of which Avalon is proud to be a part, includes diverse experts all focused on empowering a new generation to address the availability and management of natural resources in the future.

Avalon is pleased to have been involved with RFG2018, as many of the goals of the conference are aligned with Avalon's own sustainable vision, including:

- To improve understanding of the Earth and natural resources – energy, minerals and water – in terms of their origin, source, distribution, availability and constraints on extraction
- To engage young people in the conversation about natural resources, and to inspire them to solve the challenges of the future

In addition, the Canadian Rare Earth Elements Network (CREEN), of which Avalon is a founding member, organized and co-chaired the "Energy and Technology Metals: Rare Earth Elements, Lithium and Related Advanced Materials – from Deposit Formation to Mining and Processing" symposium at the RFG conference, in collaboration with the UK-sponsored SoS RARE Project leadership. CREEN also served in organizing Extraction 2018 in August 2018, where 54 additional papers were presented focused on the downstream processing of critical materials.

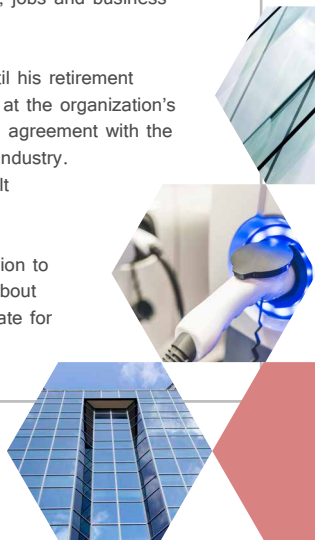
## Distinguished Service Award

Avalon is pleased to announce that its President and CEO, Don Bubar, has been recognized by the Prospectors and Developers Association (PDAC) with a Distinguished Service Award for "his contribution to building awareness of Indigenous issues among PDAC members, his support of geoscience education in Canada, and his exploration success."

During Don's 40-year career as a geoscientist, he has contributed to successful exploration in Canada and been a leading advocate for geoscience education. But his most enduring legacy may be his role in forging a better, more productive relationship between Indigenous groups and the minerals industry. As founder and head of the PDAC's Aboriginal Affairs Committee, Don recognized the urgent need to bring the two groups together in dialogue about how exploration and mine development could support local communities through training, jobs and business development.

Don was chair of the PDAC's Aboriginal Affairs Committee from its creation in 2004 until his retirement from the PDAC board in 2013. During his tenure, the number of Indigenous participants at the organization's annual convention grew exponentially and, in 2009, the PDAC signed a groundbreaking agreement with the Assembly of First Nations to promote participation of Indigenous people in the minerals industry. As a result of Don's work, the majority of PDAC members understand the duty to consult Indigenous groups at the earliest stages of exploration.

In 2016, Don joined the board of Mining Matters, a charitable organization with the mission to support geoscience education in the Canadian school system and increase awareness about the relevance of minerals and metals in modern society. In his latest role, he will advocate for Indigenous youth camps where the next generation of northerners will have the opportunity to explore career opportunities within the industry.





## University Outreach at Avalon

Avalon contributes to the development of university education in the mineral development industry through involvement with students from the undergraduate level, capstone projects in engineering, BSc theses in geology and graduate student research. The Company provides support primarily through financial sponsorship, in kind donations and access to Company data, project sites and Avalon staff expertise.

The research projects that students are involved in, with support from their professors who are experts in their fields of expertise, contribute directly towards tackling technical challenges at Avalon's projects. The research is focused on real world questions, where knowledge and innovation can be combined to reach practical, business-oriented solutions. Two students working on the Separation Rapids Lithium Project are featured this year's Report:

Garnet Ching is a professional geologist (P.Geo: APEGM, NAPEG) who has started his Master's degree research on the "Structural Geology of Rare Metal Pegmatites, Northwestern Ontario" with a focus on Avalon's Separation Rapids deposit. His supervisor is Professor Dr. Alfredo Camacho at the University of Manitoba.

Garnet's MSc goals are to increase knowledge of the timing of formation of pegmatites and parent granites and any geological rock deformation which should provide information to improve exploration targeting for further mineralization. The Separation Rapids deposit has been deformed in its two billion years of history; understanding that structural alteration will assist in recognizing other potential deposits.

Garnet explains why, after ten years of working in the industry, he decided to pursue his MSc: "Through my industry experience, I understand the importance of the timing of mineralization and rock deformation events and its direct impact on the mining cycle from exploration through to mining and eventual closure. By understanding and unraveling the geologic puzzle, we can optimize exploration targeting to provide insights into deposit morphology and minimize disturbance to the environment."

Sarah Bodeving has commenced her PhD in geology at McGill University in Montreal under the supervision of Professor Williams-Jones. Her doctoral studies are focused on the origin and formation of the lithium pegmatite dykes at the Separation Rapids deposit and their relationship to the Separation Rapids granite pluton, to ultimately gain a better understanding of the distribution of elements and minerals – which geologists refer to as zonation – and help create knowledge of directions for lithium exploration.

Sarah comments, "The field of mineral deposits combines wide areas of geological science and is thus extremely broad and diverse. Conducting research on the Separation Rapids deposit is especially interesting, as it touches the very prevailing topic of climate change and the protection of our environment." She continues, "Being supported by Avalon for my PhD research also gives me the opportunity to gain valuable work experience in the field, where I am exposed to the different responsibilities of a field geologist."



# 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/](http://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/](http://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.

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



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



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.

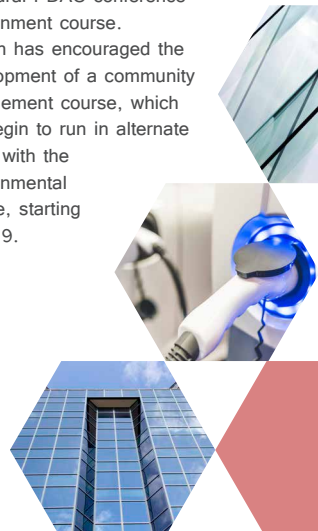
Avalon started the process to renew its exploration land use permit in FY2018, with the submission of the application, project description (five year plan) and engagement logs to the NWT government in FY2018. As well, we updated two management plans to meet new guidelines and completed an engagement 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'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



# FY2018 Goal Performance Summary

The following table summarizes Avalon's performance in reaching its FY2018 goals.

FY2018	Status	Comments
<b>Health and Safety</b>		
Zero fatalities	Achieved	<p>Risk assessments and advanced planning help mitigate potential fatalities, harm and accidents.</p> <p>The emergency response plans for the Nechalacho and Separation Rapids projects were updated in advance of the exploration programs planned for FY2019. Avalon also prepared an emergency response plan for the Species at Risk Act (SARA) Phase 1 study at the East Kemptville site in FY2018.</p>
Zero harm	Achieved	See above.
Zero lost time accidents	Achieved	See above.
Zero medical aid accidents	Achieved	See the Message from the VP, Sustainability on <a href="#">page 10</a> .
Establish formal recycling area(s) for office waste	Achieved	<p>Avalon works independently and with its building's management group to properly recycle electronic waste and batteries from its Toronto office. In FY2018, Avalon's health, safety and environment committee installed new signage to communicate recycling procedures.</p> <p>Avalon joined a coffee pod recycling program in FY2017: a service which recycles used coffee pods through a specialized recycling stream. Coffee grounds are composted and plastics are made into plastic lumber to be used for decking, benches and playgrounds. In FY2018, Avalon's Toronto office diverted 66 pounds of waste from the landfill and six trees were planted on the Company's behalf.</p>
Identify and train health, safety and environment committee person to replace member who has relocated	Not achieved	Due to reduced number of staff members working from Avalon's Toronto head office location, it was decided by the current health, safety and environment committee members that the committee size was satisfactory.



## Environment and Permitting

Complete the comparison of the spring and fall 2017 baseline data collection with the 2007 Separation Rapids Project Environmental and Social Impact Assessment (ESIA); determine if additional work is required in consultation with regulators and other interested stakeholders	Ongoing	<p>In August 2018, Avalon obtained all the data required to finalize the assessment of the 1999/2007 baseline work at the Separation Rapids Project. The report was 95% complete at year end.</p> <p>In addition, Avalon completed the biological re-assessment of the newly proposed tailings management area (TMA) and fish were identified in all areas of the basin. Given that both basins are considered fish habitat, Avalon recommends a trade-off study to assess the most cost effective location for the TMA and the development of a fish habitat compensation plan.</p> <p>An update of the surface layout was completed to take into considerations the changes to the business model that further decrease potential for environmental impacts.</p>
Complete initial packer testing and groundwater at Separation Rapids Project to provide baseline data for the ESIA	Ongoing	While groundwater sampling was completed in November 2017, issues with equipment prevented the completion of the packer test. Due to winter conditions and difficult access, the packer test and resampling of the ground water wells was completed subsequent to yearend.
Identify viable by-products from Separation Rapids lepidolite to decrease waste product and project environmental footprint; update the footprint for economic, environmental and engagement purposes (financing depending)	Achieved	<p>In FY2018, the process was modified to incorporate lepidolite concentrate production, in addition to producing petalite and feldspar concentrates. This created a reduction in waste rock quantity, due to the processing of the lepidolite that was not considered in the previous Separation Rapids business model.</p> <p>Avalon also modified the site layout to recognize the process changes and associated reduction in waste storage required. Overall, significant reduction in the project's energy requirements and associated GHG generation were realized.</p>
Complete additional leachate studies and initiate humidity cell studies for waste materials at Separation Rapids; advance or modify disposal strategies based on these results	Achieved	<p>Avalon initiated seven humidity cell tests for environmental testwork in the summer of 2018; however, final results were not received as of yearend.</p> <p>With Avalon's updated project model, tailings wastes will be filtered and trucked to the tailings management facility (TMF), rather than using the standard pumping of tails. To the extent practical, water from precipitation on the TMF will be recycled back to the plant. This will result in a significantly-reduced quantity of water requiring discharge (compared to Avalon's 2016 project model), and will reduce the size of the TMF and lower the environmental risk.</p>
Create waste rock lithochemistry block models for Separation Rapids and East Kemptville deposits that enable enhanced design of waste rock handling for mine planning (financing pending)	Not achieved	Due to multiple priorities and budget constraints, Avalon focused on other geological work during FY2018. This goal has been restated for FY2019.



FY2018	Status	Comments
Identify the optimal permitting strategy and time lines in discussion with regulators for the East Kemptville Project	Achieved	See the Message from the VP, Sustainability on <a href="#">page 8</a> .
In the event that a one year permitting timeline for the East Kemptville Project is identified, complete a formal site closure plan suitable for the approval of a Mining Lease (or Special Lease) to meet a key requirements for transfer of the surface rights to Avalon	Ongoing	<p>In FY2018, Avalon re-assessed its East Kemptville closure strategy using the new proposed mine plan from the engineering firm MICON, and was integrating the strategy into the final closure/rehabilitation plan submission at yearend.</p> <p>In October 2017, Avalon met with the Executive Director of the Nova Scotia Natural Resources to discuss information regarding the Mining Lease application requirements. In the same month, Avalon met with the Environmental Assessment Department of Nova Scotia Environment (NSE), based on an environment program summary document. The meeting with NSE revolved around the permitting requirements. Due to the East Kemptville Project perceived as being a significant change to the existing permitted closure plan (and potentially in part due to a lack of assessment work), the department appeared to be leaning toward requiring a Project Registration (Environmental Assessment) rather than a transfer of the existing Industrial Approval. Discussions are ongoing, and a strategy to support the Avalon preference for the Industrial Approval transfer is well advanced. In the meantime, Avalon will complete time-sensitive benthic and SARA studies in November 2018 to avoid the risk of delay for either option.</p>
Assess the potential to work cooperatively with the NWT Government, Lutsel K'e Dene First Nations and others to develop an access road to the Nechalacho Project; should there be support for this road, assess the economic benefits to the Nechalacho Project	Achieved	<p>See the Message from the VP, Sustainability on <a href="#">page 9</a>.</p> <p>In March 2018, an application for NWT government funding to investigate the potential for an energy corridor and associated road was approved. Avalon collected and provided the required extensive documentation in support of this study. As of yearend, the investigative report had not been completed.</p>
Monitor proposed and actual regulatory changes in all jurisdictions in which Avalon operates and respond to changes material to Avalon either independently or through industry associations, and adapt applicable environmental strategies as appropriate	Achieved	<p>Avalon provided industry support and submitted comments directly on proposed legislation throughout FY2018. Some examples include:</p> <ul style="list-style-type: none"> <li>• a comprehensive critique of the Caribou Range Plan submitted to the NWT Department of Environment and Natural Resources;</li> <li>• concerns regarding transition, cost recovery and redundancy in several regulations presently under review, with recommendations, presented in a meeting with Minister McKenna (Federal Environment and Climate Change);</li> <li>• supporting the submissions of the NWT and Nunavut Chamber of Mines in response to the first proposal for carbon management in the NWT;</li> <li>• concerns regarding the Fisheries Act and Impact Assessment Act have been refocused to the regulations that are being developed to support these Acts in an effort to minimize impacts; and</li> <li>• participating in a multi-stakeholder committee, representing the exploration industry, to prepare a guidance document for climate change risk assessment.</li> </ul>

## People and Community

Develop protocols for ongoing engagement and Agreement negotiation for all financed projects	N/A	Avalon formalized its procedure for identifying impacted COI. While no projects were fully financed in FY2018, engagement continued at all active projects.
Maintain and, where possible, increase local community engagement, especially in Northwestern Ontario	Ongoing	<p>In FY2018, Avalon initiated discussions with Lakehead University (Thunder Bay, Ontario) regarding research on utilizing wild rice for Separation Rapids' site rehabilitation, in partnership with the Wabaseemoong Independent Nations (WIN). Additional discussions are planned with Manitoba University (Winnipeg, Manitoba). Avalon attended the one day Métis Collaborative Forum and offered to present an update on the Separation Rapids Project at next year's forum. Avalon also participated in general discussions with the Ochiichagwe' Babigo' Ining Ojibway Nation to introduce the project to the Chief and Council and maintains regular contact with the Consultation Coordinator.</p> <p>See Disclosure 102-44 on <a href="#">page 32</a> for more information.</p>
Maximize utilization of existing workforce and talent pool to minimize external costs	Achieved	<p>With an experienced and diverse management team and support staff in house, Avalon continues to advance its projects with in house expertise wherever possible to save on time and costs.</p> <p>Professional-level staff are often trained in new areas to provide technical, geological or health and safety support for projects. During the year, Avalon's Manager, Government Relations left the Company to enter federal politics. His exit strategy included training for the transfer of his work portfolio among several staff members.</p>

## Outreach

Facilitate communication between MAC and PDAC; specifically, to provide updates to PDAC on applicable MAC and regulatory initiatives as they develop	Achieved	<p>Avalon was pleased to provide support to the Prospectors and Developers Association of Canada (PDAC) CSR Committee in FY2018; Avalon's VP, Sustainability, Mark Wiseman participated on an expert panel representing exploration and development at the Energy and Mines World Congress in November 2017.</p> <p>In February 2018, Avalon was requested by PDAC and the Mining Association of Canada (MAC) to represent the exploration and development industry on a number of panels and in meetings with senior regulators and ministers. Avalon directly participated in the PDAC submissions to the federal government on energy regulation, the Fisheries Act and the Environmental Assessment Act.</p>
Continue to run successful course on "Exploration Health and Safety" at PDAC Convention 2018	Achieved	Avalon successfully ran the "Exploration Health and Safety" course at the PDAC Convention 2018. Of the attendees, 80% rated the course "very valuable" and 15% "extremely valuable." 100% of the 2018 participants would recommend the course to a colleague. Avalon will continue to adjust the curriculum each year to address relevant topics and concerns.

FY2018	Status	Comments
Organize inaugural course on “Environmental Management in Exploration Safety” at PDAC Convention 2018	Achieved	Avalon successfully developed and ran the inaugural course on “Environmental Management in Exploration Safety” at the PDAC Convention 2018. 75% of the participants rated it “very” or “extremely” valuable. 92.5% of the participants would recommend the course to a colleague. Due to the success of the inaugural course, the PDAC suggests continuing the course every second year, alternated with a course focused on community engagement.

## Governance and Economics

Reach out to socially responsible financial community to promote Avalon’s sustainability performance	Achieved	Avalon continues to seek out socially responsible investors and green funds that may be attracted to the Company due to its focus on sustainability as a strategic advantage. Avalon’s President and CEO continues to make this a priority, although there continues to be little uptake by investors due to the Company’s market capitalization being too low to meet the investors’ criteria.
100% compliance with all applicable legal requirements	Achieved	No known instances of non-compliance with regulatory requirements.

## Sustainability Performance and Reporting

Produce FY2018 Sustainability Report	Achieved	Completed.
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## Marketing

Promote Avalon’s sustainability leadership and associated advantages in ongoing efforts to acquire strategic partners, investment or other support for Avalon’s projects	Achieved	Focus on sustainability continues to be a positively received story in discussions with governments whom have major policy focuses on cleantech supply chain development and resource efficiency in the production processes. See the Message from the President and CEO on <a href="#">page 1</a> for more information. Avalon’s investor relations directives continue to include promotion of the advantages of sustainability to socially responsible investors, including retaining several consultants with untapped networks.
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# FY2019 Goals

The following goals have been set by Avalon's management and the progress on reaching these goals will be reported in Avalon's FY2019 Sustainability Report.

## Health and Safety

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Zero fatalities

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Zero harm

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Zero lost time accidents

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Zero medical aid accidents

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Complete packer testing site work and ground water re-sampling without incident at Separation Rapids site

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Complete field program(s) without incident at Nechalacho site

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## Environment and Permitting

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Monitor proposed and actual regulatory changes in all jurisdictions in which Avalon operates and respond to changes material to Avalon either independently or through industry associations, and adapt applicable environmental strategies as appropriate; GHG emissions, climate change audits and risk assessments identified as priorities

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Initiate geology crews tracking wildlife through Citizen Science

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Conduct alternate preliminary route assessment, design and costing to decide on most effective hydro line route to the Separation Rapids site and installation method with Hydro One (pending financing)

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Finalize the report comparing the spring and fall 2017 baseline data collection with the 2007 Separation Rapids Project Environmental and Social Impact Assessment (ESIA); determine if additional work is required in consultation with regulators and other interested stakeholders

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Create waste rock lithochemistry block models for Separation Rapids and East Kemptville deposits that enable enhanced design of waste rock handling for mine planning (pending financing)

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Complete additional leachate studies and humidity cell studies for waste materials at East Kemptville; advance or modify disposal strategies based on these results (pending financing)

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Identify locally-available organic waste and initiate re-vegetation trials at East Kemptville site, in collaboration with Nova Scotia Agricultural University (pending financing)

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Complete a formal site closure plan for East Kemptville site to incorporate new reclamation project development model for the Mining and Crown Land Lease and Project Registration/ Environmental and Social Impact Assessment (pending financing and Company prioritization)

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Renew Land Use Permit and Water Use License for pre-construction work at Nechalacho Project

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Initiate re-vegetation trails at the Nechalacho Project: replace older trees at risk of falling with younger trees to avoid clear cutting or affecting bush composition

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## People and Community

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Maximize utilization of existing workforce and talent pool to minimize external costs

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Ensure Avalon's sustainability questionnaire is being utilized by all departments when seeking proposals for applicable site work

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Engage with local COI regarding potential power line route and access road to the Separation Rapids site, along with other sustainable energy generation options

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Continue to work with the Wabaseemoong Independent Nations (WIN) to encourage more formal economic development initiatives by the Chief and Council

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Encourage and help facilitate collaboration by the WIN with universities and other institutions with regard to issues affecting the community and other initiatives in which WIN has interest

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Continue to provide updates or more detailed communications with the WIN, Ochiichagwe' Babigo' Ining Ojibway Nation and the Métis Nation of Ontario regarding the Separation Rapids Project

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Complete an MOU with the Acadia First Nation in Nova Scotia, with the goal of signing a subsequent Agreement focused on economic partnership regarding the East Kemptville Project (pending financing)

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Establish a community engagement committee with local COI, including regulators and Indigenous groups, at the East Kemptville Project (pending financing)

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Assess the economic benefits to re-activating the Nechalacho Project utilizing ore-sorting technology to produce a rare earth concentrate for export

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Engage with the Eabametoong First Nation at Fort Hope, Ontario in order to discuss potential field work program at Lilypad Cesium property

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# Outreach

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Facilitate communication between MAC and PDAC; specifically, to provide updates to PDAC on applicable MAC and regulatory initiatives as they develop

Continue to successfully run the “Exploration Health and Safety” course at PDAC Convention 2019

Complete lithium and rare earth elements recycling projects with University of Toronto engineering capstone students; initiate similar recycling project at another Canadian university

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# Governance and Economics

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100% compliance with all applicable legal requirements

Promote Avalon's sustainability leadership and associated advantages in ongoing efforts to acquire strategic partners, investment or other support for Avalon's projects

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# Sustainability Performance and Reporting

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Conduct a company-wide assessment regarding the risks and opportunities posed by climate change that have the potential to generate substantive changes in future operations on all advancing projects

Communicate with local COI, relevant NGOs and government regulators as part of the 2019 Sustainability Report preparation process

Produce FY2019 Sustainability Report

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# Long term Goals

Avalon also tracks its progress towards achieving its long term or multi-year goals. Much of the progress towards these goals has been covered in other areas of this report.

## Long Term Goal

## FY2018 Progress

### Health and Safety

Complete the procedures and systems to support the Avalon Health, Safety and Environmental (HSE) management plan to achieve a TSM AAA rating prior to the start of construction

See FY2018 Health and Safety goals on [page 11](#).

### Environment and Permitting

Complete the procedures and systems to support the Avalon HSE management plan to achieve TSM AA rating for all environmental indicators prior to the start of construction

See FY2018 Environment and Permitting goals on [page 12](#).

Develop technologies that would improve performance and reduce costs at all Avalon projects providing a more sustainable future for the Company

In FY2018, Avalon collaborated with Cronimet Mining Processing to complete an ore-sorting testwork program conducted on samples of tin mineralization from the East Kemptville Project. The results provide encouragement that ore-sorting technology can be successfully implemented at East Kemptville to reduce both capital and operating costs and to reduce the volume of tailings generated from the proposed operation. See Avalon's news release "Avalon Receives Encouraging Ore-Sorting Test Results from East Kemptville Tin Project, Yarmouth Co., Nova Scotia" dated [September 17, 2018](#), for more information.



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# People and Community

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Engagement with Indigenous governments and organizations at projects appropriate to level of project activity, with the objective of achieving Agreements prior to operations	See the Message from the President and CEO on <a href="#">page 4</a> ; the Message from the VP, Sustainability on <a href="#">page 9</a> ; and FY2018 People and Community goals on <a href="#">page 14</a> .
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# Outreach

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Advocate for better industry sustainability practices and increase public awareness about the minerals/metals sector through industry associations	See the Message from the VP, Sustainability on <a href="#">page 10</a> and FY2018 Outreach goals on <a href="#">page 14</a> .
Support Canada's leadership by advancing materials research through collaboration with universities, government and industry	See <a href="#">page 5</a> , <a href="#">page 6</a> and the Message from the VP, Sustainability on <a href="#">page 10</a> .

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# Governance and Economics

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Create shareholder value through the development and operation of one or more projects in a sustainable and profitable manner	See Avalon's Annual Information Form available publicly on <a href="#">SEDAR</a> and <a href="#">EDGAR</a> , as well as Avalon's website at <a href="#">About - Governance</a> .
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# Sustainability Performance and Reporting

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Investigate options for electronically tracking sustainability performance (dependent on projects' advancement); develop and implement these systems prior to operations	In FY2017, Avalon commenced discussion with researchers regarding the potential to utilize DNA scans to economically and more comprehensively perform benthic studies for environmental monitoring. Scans could be used to electronically track data. Avalon continues to monitor and support development, as it is an excellent and cost effective identification tool.
Identify and engage local contractors who can provide services that contribute to the longer term sustainability of projects	See GRI Disclosure 201-01 on <a href="#">page 35</a> .
Develop or formalize HSE management systems and externally audit such systems during construction; integrate financial and sustainability reporting, once audits demonstrate compatibility with financial systems	See the Message from the VP, Sustainability on <a href="#">page 7</a> .
Showcase the value of sustainability-driven mineral development companies to the investment community	Avalon continues to seek out socially responsible investors (SRIs) and green funds that may be attracted to the Company due to its focus on sustainability as a strategic advantage. Avalon's President and CEO continues to make this a priority.

The feedback from SRIs has all been positive in terms of the responsible approach Avalon is taking to project development; however, many SRIs are restricted from investing in "micro-cap" companies, so Avalon will need to achieve a higher market capitalization to attract significant investment capital from SRIs.

# Towards Sustainable Mining FY2018 Self-Assessment

Avalon annually reports on the Mining Association of Canada (MAC)'s *Towards Sustainable Mining* (TSM) protocols. The guidance that is provided assists all mining companies in measuring and improving their performance in seven key areas of operational performance. The following is a self-assessment of Avalon's FY2018 performance in reaching its TSM's performance indicators, as well as FY2019 targets and action plans.

Avalon reports on five of the seven performance protocols, excluding Tailings Management and Preventing Child and Forced Labour. As a non-operating company, Avalon has been welcomed by MAC to provide non-verified self-assessments.

TSM Performance Indicator	FY2019 Target	FY2019 Action Plan	FY2018 Actual	FY2018 Target	FY2018 Action Taken	FY2017 Actual	FY2016 Actual
<b>Aboriginal and Community Outreach (2017 version)</b>							
Community of Interest (COI) Identification	AA	Identify COI at new drilling sites (pending budget and project decisions); actively seek confirmation and engagement with the identified COI.	AA	AA	Avalon updated its procedure for COI identification and initiated communications with the Eabametoong First Nation (EFN) at the Lilypad Cesium Project.	AA	AA
Effective COI Engagement and Dialogue	AA	Engage with the Wabaseemoong Independent Nations (WIN) and Métis Nation of Ontario (MNO) and communicate with the Ochiichagwe' Babigo' Ining Ojibway Nation (OBION) and Grassy Narrows First Nation (GNFN) at the Separation Rapids Project; engage with Acadia First Nation (AFN) at the East Kemptville Project; and with the EFN at the Lilypad Cesium Project (pending budget and project decisions); initiate discussions at new projects if appropriate	AA	AA	Avalon engaged with the WIN and MNO, and held discussions with the OBION and GNFN at the Separation Rapids Project. Significant engagement with the AFN continued, including initiation of an MOU regarding the East Kemptville Project. 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 Nechalacho Project exploration permit. Discussions were initiated with the EFN regarding the Lilypad Cesium Project.	AA	AA

TSM Performance Indicator	FY2019 Target	FY2019 Action Plan	FY2018 Actual	FY2018 Target	FY2018 Action Taken	FY2017 Actual	FY2016 Actual
COI Response Mechanism	AAA	Continue to develop formal engagement processes for COIs at approved projects; finalize an MOU with the Acadia First Nation, (subject to availability of funding); finalize Accommodation Agreements with identified COIs at projects that advance to construction; dialogue with Indigenous groups that have formal agreements at the Nechalacho Project regarding potential project modifications	AAA	AAA	Avalon has a formal engagement process developed for COIs associated with the Nechalacho Project. It has an MOU established with the WIN at the Separation Rapids Project. An MOU is under development with the AFN.	AAA	A
Reporting	AA	Complete 2019 Sustainability Report	AA	AA	Avalon completed its FY2018 Sustainability Report.	AA	AA

## Energy and GHG Emissions Management

Energy use and greenhouse gas emissions management systems	A	Continue to investigate options for reducing energy and GHG footprint at all active projects, pending financing	A	A	Avalon investigated both natural gas and hydro power line installation for the Separation Rapids Project. A Corridor Study was initiated in conjunction with the NWT government regarding the potential installation of a power and road corridor that would have significant benefits for reducing GHG emissions at the Nechalacho Project.	A	B
Energy use and greenhouse gas emissions reporting systems	A	Expand energy reporting to additional projects (pending financing); continue to support the Prospectors and Developers Association of Canada (PDAC) in energy initiatives; participate in the MAC Climate Change working group and comment on legislation as appropriate	A	A	Energy reporting continued at active projects. Avalon was the sole exploration company providing data and systems for the development of the PDAC energy reporting system and information protocols and provided information for PDAC meetings with regulators. Avalon continued to participate in the MAC Climate Change working group and participated in submissions related to NWT government energy initiatives.	A	B

TSM Performance Indicator	FY2019 Target	FY2019 Action Plan	FY2018 Actual	FY2018 Target	FY2018 Action Taken	FY2017 Actual	FY2016 Actual
Energy and greenhouse gas emissions performance targets	A	Continue to assess impact and cost of regulation on GHG and energy reporting; utilize efficiency targets when in production	A	A	Avalon continued to assess the impacts of GHG regulation in its project designs and commented on regulatory initiatives through MAC and PDAC, as well as directly to regulators. Re-opening of the East Kemptville Project waste management plan and other initiatives will make the project a low GHG producer when in production. Avalon has completed significant energy analysis historically to reduce energy use in exploration and applies or has applied them, including: optimization of transport GHG (flights), recycling of water, use of solar panels and installation of energy efficient tent heaters.	B	C

## Biodiversity Conservation Management

Corporate biodiversity conservation commitment, accountability and communications	A	Continue to advance environmental baseline studies for financed projects; develop biodiversity management plans for species of importance as required	A	A	Avalon completed a Species at Risk Act (SARA) study at the East Kemptville site, which will form the basis of a biodiversity management plan. Additional biological baseline data was collected at the Separation Rapids site for incorporation in project planning, permitting and design.	A	A
Facility-level biodiversity conservation planning and implementation	A	Continue to advance biodiversity management plans for financed projects in consultation with regulators, Indigenous peoples and other COI	A	A	Biodiversity policies have been prepared for use at operating sites, and SARA studies were completed or expanded at two sites. Avalon also held numerous meetings with COI.	A	A
Biodiversity conservation reporting	A	Communicate results of completed SARA studies to COI for advancing projects with funding; engage on biodiversity management plans that are developed	A	AA	While the 2018 reporting targets were met, there was no independent assessment of biodiversity reporting as required for an AA ranking.	AA	AA

## Safety & Health

Commitments and accountability	A	Continue to review and assign operational health, safety and environment responsibilities at active project sites	A	A	All exploration programs and offices had personnel responsible for health, safety and environment activities.	A	A
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TSM Performance Indicator	FY2019 Target	FY2019 Action Plan	FY2018 Actual	FY2018 Target	FY2018 Action Taken	FY2017 Actual	FY2016 Actual
Planning and implementation	A	Conduct risk assessments and prepare safety management plans for new projects and update old assessments as appropriate	A	A	Avalon completed risk assessments and emergency response plans for the Separation Rapids, East Kemptville and Nechalacho project field programs.	A	A
Training, behaviour and culture	AA	Train all personnel as appropriate for site work	AA	AA	All exploration and environment site personnel had site-specific health, safety and environment training completed. Avalon requires daily risk assessments at active sites.	AA	AA
Monitoring and reporting	A	Continue to report leading and lagging indicators at material projects	A	A	All drill companies were required to report leading indicators. Avalon consolidated and reported on lagging indicators.	A	A
Performance	AA	Target 0 recordable injuries	AA	AA	All accident targets were 0.0 for the fiscal year.	AA	AA

## Crisis Management and Communications Planning

Crisis management and communications preparedness	Comp.	Review and amend emergency response plans as required for potential new project areas; update existing emergency response plans as necessary	Comp.	Comp.	Avalon updated its emergency response plans for the Separation Rapids, East Kemptville and Nechalacho project field programs.	Comp.	Comp.
Review	Comp.	Create, review and update emergency response plans at all active and new sites	Comp.	Comp.	Avalon updated its emergency response plans at all active project sites in FY2018.	Comp.	Comp.
Training	Comp.	Complete a desktop crisis simulation, pending financing	N/A	Comp.	Avalon did not complete a desktop crisis simulation due to budget constraints and no significant field programs to warrant a crisis simulation in FY2018.	Comp.	Comp.



# Global Reporting Initiative Index

Please note that due to the Company not significantly changing its form, governance or approach to material topics, many of the Disclosures in the Index below contain repetitive text from Avalon's 2017 Sustainability Report, or link back to previous reports.

## GRI 102: General Disclosures 2016

### Organizational Profile

Name of organization	102-01	Avalon Advanced Materials Inc. (Avalon or the Company)
Activities, brands, products, and services	102-02	Avalon is a mineral resource exploration and development company that owns five projects across Canada, all potential sources of critical materials for sustainable technologies.
Location of headquarters	102-03	Toronto, Ontario, Canada.
Location of Operations	102-04	Canada.
Ownership and legal form	102-05	Avalon is a Canadian corporation continued under the Canadian Business Corporations Act. It is a publicly-traded company with common shares listed on the Toronto Stock Exchange, on the OTCQX Best Market (OTCQB subsequent to the reporting period) in New York and on the Frankfurt Stock Exchange in Germany. Avalon has three wholly-owned subsidiaries: Nolava Minerals Inc., 8110131 Canada Inc. and Avalon Rare Metals Ltd.

Markets Served	102-06	As none of Avalon's projects are currently in production, the Company does not yet serve any market with a product or service. Avalon is primarily targeting the cleantech sector, where new demand is being created for elements such as lithium.
Scale of the Organization	102-07	See Avalon's 2018 Year End Financial Statements available publicly on <a href="#">SEDAR</a> and <a href="#">EDGAR</a> .
Information on employees and other workers	102-08	At August 31, 2018, Avalon had 10 permanent, full time employees (three female, seven male) and two permanent, part time employees (two female). The permanent workforce is based in Toronto, Ontario, Canada. Avalon employs contracted individuals in some corporate roles, as well as project site roles as needed.
Supply Chain	102-09	Avalon purchases goods and services to develop the properties it owns. It does not currently sell any products or services.
Significant changes to the organization and its supply chain	102-10	<p>No significant changes during FY2018 in Avalon's ownership, scale or supply chain. All claims in New Brunswick were dropped during the year.</p> <p>Avalon's Lilypad Cesium Project is mentioned more frequently in this year's report due to increased investor interest in the property leading to plans to re-activate the project on global demand for cesium.</p>
Precautionary Principle or approach	102-11	Avalon applies the precautionary approach in its management of environmental risk. This approach reflects the need to take prudent action in the face of potentially serious risk without having to await the completion of further scientific research for confirmation. The precautionary approach incorporates a cost benefit analysis to ensure that the lack of full scientific certainty is not used as a reason for postponing cost effective measures to prevent environmental degradation.
External Initiatives	102-12	Avalon has publicly subscribed to the principles and practices of the Prospectors and Developers Association of Canada (PDAC)'s <a href="#">e3 Plus: A Framework for Responsible Exploration</a> and the Mining Association of Canada (MAC)'s <a href="#">Towards Sustainable Mining (TSM) framework</a> .



Association	Involvement/Membership Level
Association for Mineral Exploration British Columbia	Member Health and Safety Committee Member
Association of Professional Geoscientists of Nova Scotia	Member
Association of Professional Geoscientists of Ontario	Member
Canadian Rare Earth Elements Network	Founding Member Executive Committee Member
Canadian Rare Earth R&D Initiative	Environmental Committee Member Physical Separation Committee Member Leaching and Separation Committee Member Research & Development Initiative Steering Committee
Canadian Urban Transit Research & Innovation Consortium	Member
International Standards Organization TC298 Rare Earths Canadian Mirror Committee	Committee Member
International Tin Association	Member – Explorers and Developers Group
Metallurgical Society of Canada Extraction 2018 Symposium	Organizing Committee Member
Mining Association of Canada	Member of the Board Environmental Committee Member Science Committee Member Community of Interest Panel
NATO Advanced Vehicle Technology Panel-188 to organize Rare Earth Supply Chain Development Options	Member
Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists	Member
NWT & Nunavut Chamber of Mines	Member of the Board
Ontario Cleantech Materials Group	Lead and founding Member
Prospectors and Developers Association of Canada	Health and Safety Committee Chair Aboriginal Affairs Committee Member Convention Planning Member Sustainability Committee Member Geoscience Committee Member Awards Committee Member
Resources for Future Generations 2018 Critical Materials Symposium Organizing Committee	Member

Note this information refers to memberships maintained at the organizational level. In addition, Avalon supports Mr. Bubar's participation in the Advisory Board to the Faculty of Science of McGill University and as a Director of Mining Matters.

## Strategy

Statement from senior decision-maker	102-14	See Message from the President and CEO on <a href="#">page 1</a> .
Key impacts, risks and opportunities	102-15	See the Message from the VP, Sustainability on <a href="#">page 7</a> , FY2018 Goals on <a href="#">page 11</a> and Disclosures on Management Approach on page 46 of Avalon's <a href="#">2017 Sustainability Report</a> .

## Ethics and Integrity

Values, principles, standards and norms of behavior	102-16	See Avalon's website at <a href="#">About - Overview</a> and <a href="#">About - Governance</a> for more information.
Mechanisms for advice and concerns about ethics	102-17	The Whistleblower Protection Policy establishes procedures for managing complaints received regarding accounting, internal accounting controls, auditing matters or violations of the Company's Code of Business Conduct and Ethics. All good faith reports of suspected violations will be treated fairly and without reprisals. Investigations will be conducted into all allegations of inappropriate behaviour. The Whistleblower Protection Policy provides contact persons independent of management for those who wish to file a report. The Whistleblower Protection Policy is found on Avalon's website at <a href="#">About - Governance</a> . When an operating mine is in place, Avalon will look at employing appropriate external mechanisms for reporting concerns.

## Governance

Governance structure	102-18	Avalon is a widely held public company that is overseen by its Board of Directors and managed by its senior management team. For further information, see Avalon's website at <a href="#">About - Directors and Committees</a> .
Delegating authority	102-19	During Board meetings, the Board of Directors receives regular input from Avalon's management team with regard to economic, environmental, community and risk management concerns, both internal and external. These are held at least four times a year (five meetings in FY2018) or at such times as are necessary depending on the urgency of the concern. When required, the Directors take action on this input by providing direction to senior management or through amendments, if necessary, to the Company's policies. Current policies are found on Avalon's website at <a href="#">About - Governance</a> .

Executive-level responsibility for economic, environmental and social topics	102-20	The President and CEO, Don Bubar, is the primary contact for informing the Board of Directors of any concerns. Reporting to the President, Avalon has also appointed Jim Andersen, VP, Finance and CFO; Dave Marsh, Senior VP, Metallurgy and Technology Development; and Mark Wiseman, VP, Sustainability, to be responsible for the day to day management of economic, environmental, safety, process development, risk management programs and social topics and provide a quarterly update to the Board of Directors on these matters. Bill Mercer, VP, Exploration, also periodically reports to the President and Board of Directors on field project environment, health and safety, environmental geological operations and community relations matters raised during the course of field activities.
Consulting stakeholders on economic, environmental and social topics	102-21	Avalon's Board of Directors is updated by the management team on relevant developments. Avalon management regularly engages with its Communities of Interest (COI) in order to provide project updates and obtain feedback. As well, COI may contact the appropriate manager for consultation, most frequently through the VP, Exploration, VP, Sustainability, President or Manager, Investor Relations. The Chair of the Board is accessible to COI outreach on concerns.
Composition of the highest governance body and its committees	102-22	See Avalon's website at <a href="#">About – Directors and Committees</a> .
Chair of the highest governance body	102-23	Mr. Brian MacEachen is non-executive Chair of Avalon's Board of Directors.
Nominating and selecting the highest governance body	102-24	The responsibility of nominating an individual as a Director of the Company falls under the Compensation, Governance and Nominating (CGN) Committee. In making its recommendations, the CGN Committee will consider the candidates': competencies and skills (including experience in economic, environmental or social topics); ability to devote sufficient time and resources; diversity; and compliance with the requirements of the applicable securities regulatory authorities. The CGN Committee periodically reviews the size and composition of the Board and Board Committees and reviews recommendations from the President.
Conflicts of interest	102-25	The Board of Directors conducts periodic reviews of the Company's Code of Business Conduct and Ethics, which all Directors and employees are subject. Additionally, Directors are bound by the rules of the Canada Business Corporations Act. The Act obliges Directors to disclose material interest in any transaction or arrangement that the Board is contemplating. Directors who have divulged such an interest are prohibited from participating in the analysis or voting on the disclosed transaction.
Role of highest governance body in setting purpose, values and strategy	102-26	Avalon's Vision, Mission and Values statement received Board Approval in 2013. Material revisions to this and other corporate policies require Board approval. Each year, senior management and the Board review the Company's sustainability goals in the annual Sustainability Report.

Collective knowledge of highest governance body	102-27	See GRI Disclosure 102-19 on <a href="#">page 28</a> .
Evaluating the highest governance body's performance	102-28	The Board of Directors conducted a self-assessment, including sustainability, during FY2015 with respect to overall effectiveness and performance. The evaluation was conducted and reviewed internally. There were no specific actions that came or were identified from the self-assessment. Similar assessments that will include performance in respect to governance of economic, environmental and social topics are planned to be conducted in the future.
Identifying and managing economic, environmental and social impacts	102-29	<p>Avalon continuously works at embedding risk management practices throughout the organization, from periodic reporting of high level risks to the Board of Directors through to daily risk assessments with front line employees. Avalon's risk management practices include a formal process to identify, evaluate, rank, mitigate, monitor and assign responsibility for all types of risks facing the Company. High level and moderate risks must be regularly monitored and mitigated to within acceptable levels.</p> <p>Emergency preparedness is a component of risk management. Avalon has developed site specific emergency response plans to deal with emergencies that could impact its business, including a response and notification procedure to ensure action plans are put into place and information is disseminated in an efficient and reliable manner. These plans are updated at a minimum of every three years or whenever there is a significant change in scope of work at an active project.</p>
Effectiveness of risk management processes	102-30	VP, Sustainability, and VP, Finance, have day to day responsibility for management of economic, health and safety, environmental and social risks. Health and safety responsibility is assigned at all levels within the Company as part of the health, safety and environment management plan. Material, high level risks are periodically reported to the Board of Directors at their request, or on the recommendation of management to ensure that risk management systems are in place and operating to manage these risks to acceptable levels. Increased scrutiny occurs when there is a significant change in a project's status or phase.
Review of economic, environmental and social topics	102-31	See GRI Disclosure 102-19 on <a href="#">page 28</a> .
Highest governance body's role in sustainability reporting	102-32	The VP, Sustainability, and members of the Sustainability Advisory Committee (which includes a member of the Board of Directors) review the annual Sustainability Report.
Communicating critical concerns	102-33	See GRI Disclosure 102-19 on <a href="#">page 28</a> .

Nature and total number of critical concerns	<b>102-34</b>	Avalon did not experience any health and safety, environmental, community or financial critical concerns over the course of FY2018. Mechanism for addressing critical concerns is as described in Avalon's Whistleblower Protection Policy found on Avalon's website at <a href="#">About – Governance</a> .
Remuneration policies	<b>102-35</b>	Avalon's CGN Committee aims to evaluate and maintain fair and reasonable levels of compensation that are competitive to attract and retain experienced and talented management. Compensation to Avalon's executive officers, including the President and CEO, has three components: base salary, cash bonuses and long term incentive in the form of stock options. Bonus compensation is a cash component of management compensation in order to permit the recognition of outstanding individual efforts, performance (including health, safety, environmental and community), achievements and/or accomplishments by members of the Company's management team. The long term incentive plan uses stock options to align employees' performance with the continued growth of the Company. Employee options, in general, are vested at 25% per year over four years starting on their first anniversary date. Options are granted annually to reflect prevailing market conditions. The Board and affiliated Board committee members receive remuneration for acting as Directors and/or fees for attending meetings. See also Avalon's 2018 Year End Financial Statements with Management Discussion and Analysis publicly available on <a href="#">SEDAR</a> and <a href="#">EDGAR</a> , or Avalon's annual Information Circular available on Avalon's website at <a href="#">Investors – Regulatory Filings</a> .
Process for determining remuneration	<b>102-36</b>	Senior executive compensation is governed through the approval of the CGN Committee. Compensation of non-executive employees is determined by management and is based on market conditions, values and individual performance. Avalon currently does not rely on remuneration consultants to establish compensation levels, but has utilized external salary surveys to determine market values.
Stakeholders' involvement in remuneration	<b>102-37</b>	Remuneration at Avalon follows the prevailing conditions of the market. The issue of remuneration was not raised at the Company's Annual General Meeting in February 2018.

## Stakeholder Engagement

List of stakeholder groups	<b>102-40</b>	See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's <a href="#">2016 Sustainability Report</a> .
Collective bargaining agreements	<b>102-41</b>	None.
Identifying and selecting stakeholders	<b>102-42</b>	See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's <a href="#">2016 Sustainability Report</a> .

Approach to stakeholder engagement

**102-43** As reflected in the table below, Avalon regularly conducts COI engagement at a level commensurate with project activity.

Avalon welcomes comments and questions regarding its annual Sustainability Reports, and all sustainable initiatives undertaken by the Company throughout the year. Engagement is part of the way Avalon conducts business and is not undertaken specifically as part of the report preparation process.

	Separation Rapids			East Kemptville			Nechalacho			Lilypad	Multiple Project		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2018	2017	2016
<b>Total Non-Indigenous</b>	126	196	361	119	55	105	47	51	78	1	20	53	55
<b>Contacts</b>	98	138	259	48	46	88	28	39	62	1	4	29	46
<b>Engagements</b>	28	58	102	71	9	17	19	12	16	0	16	24	9
<b>Government/Regulators</b>	125	194	356	43	27	64	36	38	36	1	5	5	9
<b>Other</b>	1	1	1	21	27	35	11	13	34	0	15	42	44
<b>NGOs</b>	0	1	4	55	1	6	0	0	8	0	0	6	2
<b>Total Indigenous</b>	111	213	261	30	2	7	17	4	3	3	2	2	21
<b>Contacts</b>	105	192	193	4	1	6	16	4	3	3	2	2	20
<b>Engagements</b>	6	21	68	26	1	1	1	0	0	0	0	0	1
<b>Indigenous Governments and Organizations</b>	79	159	187	30	2	0	14	0	1	3	0	1	5
<b>Indigenous Business</b>	28	52	74	0	0	7	3	3	2	0	1	0	16
<b>Indigenous Other</b>	4	2	NA	0	0	NA	0	1	NA	0	1	1	NA
<b>Indigenous Rights Violations</b>	0	0	0	0	0	0	0	0	0	0	0	0	0

Key topics and concerns raised

**102-44** Avalon formalized its procedure for identifying impacted COI in FY2018, and engagement continued at all active projects, as described below.

**Separation Rapids Lithium Project (Ontario)**

Due to the rapid pace of development and the active participation of Avalon's Manager, Investor Relations, Ron Malashewski (who is local to the project), the largest proportion of engagement and communication activity during the reporting period was at the Separation Rapids Project.

Avalon initiated discussions with Lakehead University (Thunder Bay, Ontario) regarding research on utilizing wild rice for Separation Rapids' site rehabilitation, in partnership with the Wabaseemoong Independent Nations (WIN) and offered to support the WIN to become self-sufficient in mercury monitoring. While mercury is not found at the project, Avalon understands that the WIN has serious concerns about mercury exposures from their food supply from the English River and area. To date, they have not accepted this offer. Avalon has designed the Separation Rapids site infrastructure to allow wildlife corridors through the site, in response to concerns regarding moose harvesting in the area.

Avalon attended a one day Métis Collaborative Forum and offered to present an overview on the Separation Rapids Project at next year's forum. Avalon also participated in general discussions with the Ochiichagwe' Babigo' Ining Ojibway Nation (OBION) to introduce the project to the Chief and Council and held discussions with the Grassy Narrows First Nation (GNFN). Jobs and training from the project remain important issues for all Indigenous groups, as is the protection of water. Avalon reviewed previous water quality information and initiated humidity cell test work during the year in an effort to predict any potential impacts of the site to water quality. Future discussions will also revolve around options for the tailings management area and preferred location for the effluent discharge.

Finally, Avalon initiated investigations for both natural gas and hydro power line installation for Separation Rapids, including engagement with local COI.

#### East Kemptville Tin-Indium Project (Nova Scotia)

Avalon maintained positive engagement with regulators and NGOs regarding the East Kemptville Project; see the Message from the VP, Sustainability on [page 7](#) for more information.

Extensive work was ongoing at yearend to prepare applications for the Mineral Lease and Crown Land Lease. Discussions with local COI are planned in FY2019 to provide support to facilitate a more streamlined permitting process.

Significant engagement with the Acadia First Nation (AFN) continued throughout FY2018, including initiation of an MOU that is expected to be finalized and signed in FY2019. Concerns ranged from jobs and training to post closure productive reuse of the site. There were concerns about the protection of air, water and local species, but the AFN were generally pleased with the rehabilitation focus of the project.

At a presentation to the Tusket River Environmental Protection Association (TREPA), there was significant discussion on the rehabilitation components of the project. A particular concern regarding local bird migratory corridor led to the participation of their ornithologist in the design of the bird component of the Species at Risk Act (SARA) survey on the site.

#### Nechalacho Rare Earth Elements Project (Northwest Territories)

Avalon initiated a Corridor Study in conjunction with the NWT government regarding the potential installation of a power and road corridor that would have significant benefits for reducing GHG emissions at the Nechalacho Project. See the Message from the VP, Sustainability on [page 9](#) for more information.

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. No environmental concerns for this renewal were identified.

#### Lilypad Cesium Project (Ontario)

Avalon initiated communications with the Eabametoong First Nation at the Lilypad Cesium Project during the summer of 2018; however, other than some informal discussions and the provision of a multi-year exploration plan that included environmental protection measures, Avalon was unable to engage with local COI before year end.



### Engagement with Industry Associations and Regulators

Avalon conducted significant engagement with federal and provincial governments on a range of regulatory initiatives with the potential to impact Avalon projects. This included submissions directly from the Company or included with MAC responses.

See the VP, Sustainability's message on [page 7](#) and 2018 Goal Performance Summary on [page 11](#) for examples of engagement.

## Reporting Practice

Entities included in the consolidated financial statements	<b>102-45</b>	See Avalon's 2018 Year End Financial Statements available publicly on <a href="#">SEDAR</a> and <a href="#">EDGAR</a> . This Sustainability Report does not cover inactive or non-material entities that may be mentioned within the Company's Financial Statements.
Defining report content and topic Boundaries	<b>102-46</b>	See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's <a href="#">2016 Sustainability Report</a> .
List of material topics	<b>102-47</b>	See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's <a href="#">2016 Sustainability Report</a> .
Restatements of information	<b>102-48</b>	There have been no restatements of Avalon's previous Sustainability Reports.
Changes in reporting	<b>102-49</b>	See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's <a href="#">2016 Sustainability Report</a> .
Reporting period	<b>102-50</b>	September 1, 2017 to August 31, 2018 (Avalon's 2018 fiscal year).
Date of most recent report	<b>102-51</b>	November 29, 2017.
Reporting cycle	<b>102-52</b>	Annual.
Contact point for questions regarding the report	<b>102-53</b>	Avalon's VP, Sustainability, Mark Wiseman, can be reached at <a href="mailto:sustainability@AvalonAM.com">sustainability@AvalonAM.com</a> or +1-416-364-4938.

Claims of reporting in accordance with the GRI Standards	102-54	This Sustainability Report has been prepared in accordance with the GRI Standards: Core option.
GRI content index	102-55	This complete GRI Content Index begins on <a href="#">page 25</a> .
External assurance	102-56	This Sustainability Report has not been externally assured. At this time, there is a low level of risk in the information presented herein and the fundamental systems used to gather data. As Avalon's projects progress and the Company grows in size and resources, the formal reporting systems will be externally assured.

## GRI 103: Management Approach 2016

Explanation of the material topic and its Boundary; management approach and its components; evaluation of the management approach	103-01	See Disclosures on Management Approach starting on page 46 of Avalon's <a href="#">2017 Sustainability Report</a> .
	103-02	
	103-03	

## GRI 201: Economic Performance 2016

Direct economic value generated and distributed	201-01		FY2018	FY2017	FY2016	FY2015
		Revenue	-	-	-	-
		Interest	\$61,777	\$28,211	\$35,160	\$66,014
		Expenses	\$3,520,753	\$3,703,000	\$3,990,945	\$3,589,977
		Loss from Operations	-\$3,458,976	-\$3,674,789	-\$3,955,785	-\$3,523,963
		Deferred Income Tax Recoveries	\$218,232	\$317,468	\$416,140	\$347,589
		Net Loss for the Year	-\$3,240,744	-\$3,357,321	-\$3,539,645	-\$3,176,374

Defined benefit plan obligations and other retirement plans	201-03	Avalon has no defined benefits plan.
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Financial assistance received from government

**201-04** Avalon received two government grants in FY2018: \$45,069 from the Government of the NWT for an exploration program at Avalon's Nechalacho Project and \$7,123 from the Northern Ontario Heritage Fund to advance the Separation Rapids Project.

# GRI 203: Indirect Economic Impacts 2016

Infrastructure investments and services supported

**203-01** Other than educational institutional supports, there were no infrastructure developments, services or investments supported by Avalon during FY2018.

# GRI 204: Procurement Practices 2016

Proportion of spending on local suppliers

**204-01** Separation Rapids Expenditures by Vendor Group

	FY2018		FY2017		FY2016		FY2015	
Indigenous Vendors	1%	\$7,944	1%	\$18,710	0%	\$2,289	3%	\$12,277
Local Vendors	22%	\$258,679	24%	\$355,030	22%	\$296,919	43%	\$154,759
Other Vendors	77%	\$903,882	75%	\$1,106,089	78%	\$1,048,489	54%	\$193,096
TOTAL		\$1,170,505		\$1,479,829		\$1,347,697		\$360,132

East Kemptville Expenditures by Vendor Group

	FY2018		FY2017		FY2016		FY2015	
Indigenous Vendors	0%	\$0	0%	\$0	0%	\$0	2%	\$18,000
Local Vendors	13%	\$30,230	41%	\$35,966	22%	\$273,059	34%	\$321,700
Other Vendors	87%	\$206,689	59%	\$51,923	78%	\$995,275	64%	\$611,102
TOTAL		\$236,919		\$87,889		\$1,268,334		\$950,802

Nechalacho Expenditures by Vendor Group

	FY2018		FY2017		FY2016		FY2015	
Indigenous Vendors	23%	\$42,113	11%	\$14,413	0%	\$245	3%	\$36,628
Local Vendors	62%	\$114,556	41%	\$51,187	30%	\$58,883	20%	\$232,115
Other Vendors	15%	\$28,668	48%	\$60,086	70%	\$140,122	76%	\$868,488
TOTAL		\$185,337		\$125,686		\$199,250		\$1,137,231

# GRI 302: Energy 2016

Energy consumption within the organization

**302-01** Avalon consumed 715.94 gigajoules (GJ) internally over FY2018. See table below for year-over-year comparison.

Energy consumption outside of the organization

**302-02** Avalon consumed 359.86 GJ externally over FY2018. See table below for year-over-year comparison.

Energy Use (GJ)

	2018	2017	2016	2015	2014
Internal	1206.64	1368.77	788.10	730.00	4125.80
External	359.86	455.29	535.20	1248.30	1994.40

Reduction of energy consumption

**302-04** Avalon's energy consumption varies mainly due to the equipment used, length of and conditions during drill campaigns and changes in the frequency and destination of executive travel.

# GRI 303: Water and Effluents 2018

Interactions with water as a shared resource

**303-01** Protecting the environment by monitoring and managing the environmental impacts of its activities and potential activities are central to Avalon's core values and those of many of the Company's COIs.

The Company's Sustainability Policy outlines Avalon's environmental management approach. Potential risks to water are identified as part of a risk management program and appropriate management strategies identified. Avalon's VP, Sustainability has overall responsibility for managing Avalon's activities that may impact water.

Avalon conducts environmental impact assessments for its advanced projects, collecting and utilizing extensive baseline environmental data utilizing standard accepted methodologies, time lines and Quality Assurance/Quality Control protocols. Baseline water quality data normally spans in excess of two years. Avalon utilizes decades of locally-available climatic data for the design and management of water and wind and to design for critical storm events such as temperature extremes, the 1:100 year storm and Probably Maximum Storm events. Aquatic, terrestrial species and Species at Risk Act-compliant studies detail species local to project sites and management plans are developed as necessary to protect them. This includes engagement with local Indigenous groups, regulators and communities regarding a wide variety of water uses, discharges, short and long term water quality criteria and goals and including the cumulative impacts of other potential environmental impacts and climate change. Results of monitoring are regularly reported to government regulators, local communities and are also summarized in Avalon's annual Sustainability Report. Performance against identified metrics is reported and where necessary, additional actions are taken. Avalon also prepares rehabilitation plans for post closure land use that include the long term protection of water quality post closure.

Avalon is engineering its processing facilities to minimize water use and maximize recycling. Water is withdrawn from large local sources in a manner that will not have any significant impact on water flow and water levels and thus have no measurable impact on the biota. Pilot scale testing of water treatment systems ensures that the minimal water quantities discharged and returned to the local sources meet or improve upon effluent criteria, and where those are not available, Avalon has historically established its own criteria for the protection of receivers. In keeping with best practices, site specific and detailed management plans will be developed for each project location to monitor aquatic effects, site run off, spill contingency, waste management and other potential risks to water. These plans will require ongoing monitoring, reporting and continuous improvement.

Management  
of water  
discharge-  
related impacts

**303-02**

Avalon operations are all located in Canadian jurisdictions with well-developed water quality and biological performance criteria. However, occasionally there are data-poor materials with lesser known impacts on the environment for which effluent criteria or guidelines have not yet been established. In such cases, Avalon attempts to develop its own guidelines.

At the Nechalacho Project in the NWT, Avalon worked with academia and regulators to develop effluent guidelines for the rare earth elements using Canadian Council of Minister of Environment protocols to the extent practical to establish these guidelines which have subsequently been proposed as regulatory limits in Avalon's water permit.

Avalon has worked extensively with MAC and Ministry of the Environment, Conservation and Parks to establish the water quality and biological criteria that were incorporated into the new Metal and Diamond Mines regulation. The Company is also actively engaged with regulators in the establishment of regulations and guidelines associated with new acts at the provincial, territorial and federal levels. Avalon has selected non fish habitat for siting of its tailings management facilities and discharge locations where possible. Where not possible, Avalon engages with Indigenous peoples and regulators regarding their preferred water discharge location, which include considerations of the receiver water and biotic health, use(s) and how best to minimize potential for impacts. Site specific criteria have been developed at two sites where Avalon proposes to operate, both of which consider the background water quality. In some cases, the effluent water quality has improved on natural background conditions.

Water  
withdrawal

**303-03**

Avalon withdrew 0.31 megalitres at the Separation Rapids property during the course of the winter 2018 drill campaign. All water removed was from surface bodies, such as local streams and rivers. Environment Canada's Water Availability Indicator considers the area that encompasses the Separation Rapids site as having a low threat to water availability (less than 10% water withdrawn).

The figures for modeling water-withdrawn are on water consumption per drill operating hour basis, and were provided by Avalon's drilling contractor.

Water discharge

**303-04**

Avalon estimates that more than 80% (0.248 megalitres) of water withdrawn during the Separation Rapids Project drilling program returned to its source. The remaining < 20% (0.062 megalitres) is due to normal water loss during the drilling process. Net of evaporation, this water returns to the local ground water system via rock fractures.

Avalon's drilling contractor provided these estimates.

Water consumption	303-05	Avalon considers its water consumption due to corporate activities to be nil, as all withdrawn water returns to the natural environment, if not to the same source.
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# GRI 304: Biodiversity 2016

Operational sites in, or adjacent to, protected areas and areas of high biodiversity value	304-01	The East Kemptville Project is located adjacent to the Tobeatic Wilderness Area in Nova Scotia, on the northern boundary of the property. Avalon's other project sites are not located in or near protected or high biodiversity value areas.
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Significant impacts of activities, products, and services on biodiversity	304-02	At this time, Avalon has no material construction, manufacturing plants, mines or transportation infrastructure that have the potential to have significant impacts on biodiversity in protected areas or areas of high biodiversity outside protected areas. The East Kemptville Project is separated from the Tobeatic Wilderness Area by the provincial Highway 203 and the Tusket River. No impacts have been identified due to historic or existing operations.
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Habitats protected or restored	304-03	See Disclosure G4-MM01 on <a href="#">page 47</a> .
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IUCN Red List species and national conservation list species with habitats in areas affected by operations	304-04	At the Nechalacho Project, in addition to the potential for several rare plant species, the following International Union for Conservation of Nature (IUCN) Red List or simply "listed" animal species have been 'rarely' identified near the mine site: Rusty Blackbird, Horned Grebe (both Vulnerable); Olive-sided Flycatcher (Near Threatened); and Wolverine, Common Nighthawk, Short-Eared Owl and Peregrine Falcon (all Least Concern). Given the mobility of these species, the small project footprint and planned monitoring and mitigation measures, impact is assessed as "highly unlikely." Effort and participation is ongoing with respect to the Bathurst Caribou herd and associated Range Plan development.
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There have been no IUCN Red List species identified at Avalon's Separation Rapids Project.

No federally or provincially designated vascular plant species at risk were encountered at the East Kemptville Project, though four species of conservation interest were identified:

- A barn swallow nesting in the eve of the present office building that will not be disturbed (provincially considered as "threatened")
- Pairs of the Common Nighthawk may be nesting in the disturbed areas of the site (also considered as "threatened")
- Snapping turtles in areas that will not be disturbed by the project (a species of special concern under SARA and vulnerable under provincial regulation)
- One mainland moose was observed passing through the area in 2015 (considered endangered)

# GRI 305: Emissions 2016

Direct (Scope 1) GHG emissions	305-01	Avalon generated total Scope 1 Emissions of 52.36 tonnes of CO <sub>2</sub> e. See table below for year-over-year comparisons.
Energy indirect (Scope 2) emissions	305-02	Avalon generated total Scope 2 Emissions of 23.78 tonnes of CO <sub>2</sub> e. See table below for year-over-year comparisons. Scope 2 Emissions increased dramatically due to a change in the formula utilized by the Avalon office building's management group to calculate office steam power use.
Other indirect (Scope 3) emissions	305-03	Avalon generated total Scope 3 Emissions of 27.25 tonnes of CO <sub>2</sub> e. See table below for year-over-year comparisons.

GHG Emissions (Tonnes CO<sub>2</sub>e)

	2018	2017	2016	2015	2014
Scope 1	52.36	64.58	46.54	38.94	284.10
Scope 2	23.78	7.19	7.65	9.08	9.33
Scope 3	27.25	33.43	39.55	86.11	138.85

Nitrogen oxides (NOX), sulfur oxides (SOX) and other significant air emissions	305-07	NOX are included in the CO <sub>2</sub> e totals for Scope 1, 2 and 3 emissions. Due to the factors used to convert units of energy/distance to CO <sub>2</sub> e, only for some types of emissions are the NOX tonnes calculated separately, and then converted to CO <sub>2</sub> e. SOX is not a material component of the Company's emissions at this time.
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# GRI 306: Effluents and Waste 2016

Water discharge by quality and destination	306-01	All water discharged during the course of FY2018 drilling (0.31 megalitres) was naturally filtered using sumps and returned to its source or lost without treatment in fractures in the host rock.					
Waste by type and disposal method	306-02		2018	2017	2016	2015	2014
		Compost	0.01	0.01	0.46	0.01	0.01
		Reuse	0.00	0.00	0.00	14.03	0.55
		Incinerated	0.00	0.00	0.00	3.00	1.50
		Landfill	0.44	1.42	26.97	15.94	4.76
		Recycle	0.03	1.17	2.89	30.71	4.28
		On-Site Storage	0.00	11.40	0.00	0.00	0.0
		Total	0.48	14.00	30.32	63.69	11.10

Significant spills    **306-03**    Avalon had no significant spills during the course of FY2018.

Water bodies affected by water discharges and/or runoff    **306-05**    None, as Avalon has no operations at this time.

## GRI 307: Environmental Compliance 2016

Non-compliance with environmental laws and regulations    **307-01**    There have been no instances of any non-compliance with laws and regulations in FY2018.

## GRI 308: Supplier Environmental Assessment 2016

New suppliers that were screened using environmental criteria    **308-01**    In FY2017, Avalon modified its sustainability questionnaire used to evaluate contractors to make it less time consuming for contractors to complete while maintaining its comprehensiveness.  
  
Over the course of FY2018, the sustainability questionnaire was used for all major project work bids.

## GRI 401: Employment 2016

New employee hires and employee turnover    **401-01**    No full time employees were hired during the reporting period. Overall employee turnover rate was 8%.

Benefits provided to full-time employees that are not provided to temporary or part-time employees    **401-02**    All full time and permanent part time employees of Avalon receive full benefits from the Company. Fixed term, temporary employees do not.

Parental leave    **401-03**    All full time and permanent part time employees of Avalon are entitled to parental leave as lawful in the province in Ontario, where the workforce resides. In FY2018, one female employee took parental leave and is expected to return in FY2019.



# GRI 403: Occupational Health and Safety 2018

Occupational  
health  
and safety  
management  
system

**403-01** Health and safety is a core Company value. While safety is the responsibility of all employees and contractors, Avalon's VP, Sustainability has overall responsibility for health and safety management systems.

Avalon's corporate values state that "We will never cause harm to people in the pursuit of production and profits or in the conduct of our business."

Avalon ensures the workforce has the proper resources to work safely in full compliance with all health and safety regulations.

Avalon works in jurisdictions with well-developed health and safety regulations including the Ontario Health and Safety Act and associated applicable regulations; the Nova Scotia Occupational Health and Safety Act and applicable regulations; the NWT Safety Act and applicable regulations; and the Mine Health and Safety Act and applicable regulations. All jurisdictions have Worker Safety and Compensation systems for the management of injured workers. There are also a variety of different acts and regulations that apply in the various jurisdictions that relate to explosives management, emergency response, the Transportation of Dangerous Goods Act, etc.

In support of Avalon's Sustainability Policy, a health, safety and environment management plan and emergency response plans have been developed that detail health and safety requirements for all of Avalon's project sites as part of the Occupational Health and Safety Management System. Contractor health and safety systems and performance are assessed against Avalon's standards prior to engaging them. To date, Avalon has utilized the contractor health and safety procedures to enforce the management system requirements, but will be developing its own procedures to support the health, safety and environment management plan prior to the start of construction activities. Avalon is responsible for all employees and contractors working at its sites and the health and safety management system applies to all.

Avalon has a Risk Management Policy and Procedure that is utilized to identify and manage risk at all stages of its operations. Risk assessments are completed before all new site activities and management plans and procedures developed as required based on these assessments. In this fiscal year, risk assessments were completed for site exploration or drilling and environmental activities at all projects and the emergency response plans were updated for each site prior to this work. Risk assessments are completed daily by all field workers.

In addition to the strong focus on health and safety at project sites, an office health and safety committee performs inspections to meet safety requirements at Avalon's head office in Toronto.

Hazard  
identification,  
risk assessment  
and incident  
investigation

**403-02** Avalon recognizes the importance of strong leadership in health and safety; Avalon management provides the resources necessary to develop and implement its health and safety policies, programs and safe work procedures in the workplace. Regular occupational health, safety and environment meetings, inspections and risk assessments are completed at all sites and reported through the organization. While accident prevention is the priority, accident and incident management and emergency response are all components of the health and safety programs at all sites.

All workers are required to participate in daily risk assessment prior to the start of work and prior to any significant change in work activity during the shift. This is supported by near miss and accident reporting and associated actions to reduce future risks related to them.

All accidents and incidents are investigated and actions to reduce or eliminate the associated risks and potential for a repeat incident are taken.

Occupational  
health services

**403-03** Avalon's VP, Sustainability is responsible for the development of the health and safety and risk management system. All employees are responsible for their own safety and the safety of others around them in the workplace, and for the identification and management of risk. Risk assessments are completed from the workplace to the management team level as required.

Avalon provides training for all employees in the identification and management of risk, with an emphasis on supervisory training and root cause analysis. Accident and incident reports are regularly reviewed by the VP, Sustainability and the VP, Exploration. Where reports are inadequate, they become involved in the ongoing investigation to ensure that the risks have been properly identified and addressed. Retraining is provided as necessary.

Worker  
participation,  
consultation and  
communication  
on occupational  
health and  
safety

**403-04** Avalon is a small company with part time, occasional workers employed at sites. These workers have participated in site specific training, and have contributed to these training programs and the development of emergency response plans. They are also involved in the training of site contractors. Both the VP, Exploration and VP, Sustainability participate in the development of the health and safety training programs, risk assessment training, risk assessment and the preparation of emergency response plans.

In FY2018, Avalon's temporary workforce on site did not exceed five people; all personnel were involved daily with risk assessments and health and safety programs. All workers have the right to refuse unsafe work or work that they have not been adequately trained for.

Avalon has a joint health and safety committee located in the Toronto office, and monthly walk-throughs are conducted to assess first aid supplies and protective equipment. An Avalon employee attends the office building's management group's health and safety committee meetings, as well as fire warden training. All Toronto-based employees participate in an emergency fire drill and evacuation a minimum of once a year.

When the workforce is of sufficient size, joint management-worker health and safety committees will be implemented.

Worker training on occupational health and safety	403-05	All employees received site-specific induction training prior to any work activities. This includes the identification and management of site-specific risks. All drillers also received specific training on drilling hazard management and safety requirements prior to arrival on site from their employer.
Promotion of worker health	403-06	All employees at Avalon are covered under a benefits plan that includes health promotion and services. Employees are given multiple, confidential methods to receive medical and healthcare directly through the Company's insurance provider. The health issues and risks of each employee remain confidential from the Company.
Work-related injuries	403-09	

	Lost Time Injury Frequency	Medical Aid Injury Frequency	Total Recordable Frequency	Severity Frequency	Lost Time Injuries	Medical Aid Injuries	Total Recordable Injuries	Total Hours	Lost or Light Duty Days
FY2018	0	0	0	0	0	0	0	32,462	0
FY2017	0	5	5	18	0	1	1	43,268	4
FY2016	0	0	0	0	0	0	0	39,473	0
FY2015	0	5	5	0	0	1	1	43,072	0
FY2014	0	0	0	0	0	0	0	58,593	0
FY2013	0	3	3	22	0	1	1	72,839	8
FY2012	13	2	15	519	6	1	7	91,291	237

Work-related ill health	403-10	There were no fatalities or reportable work related health issues in FY2018. During the last fiscal year, the serious hazards to overall health were related to field risks including climate (freezing or heat stroke), animal (ticks and related disease, bears, etc.), vehicle accidents, aviation accidents and heavy equipment accidents (drill, bulldozer). The work related risks will be significantly greater in number when Avalon is in operations.
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## GRI 404: Training and Education 2016

Average hours of training per year per employee	404-01	<p>42.42 hours of training or professional development were recorded an average for each of Avalon's twelve employees in FY2018, or 509 hours company-wide.</p> <ul style="list-style-type: none"> <li>Five female employees completed a total of 50 hours, or an average of 10 hours per female employee.</li> <li>Seven male employees completed a total of 459 hours, or an average of 66 hours per male employee.</li> <li>Five professional level employees completed a total of 82 hours, or an average of 16 hours per professional level employee.</li> <li>Seven executive level employees completed 427 hours, or an average of 61 hours per executive level employee.</li> </ul> <p>One male, executive level employee completed 220 hours in FY2018, skewing the numbers seen above.</p> <p>Executive employees are defined as the President, VPs and the Controller. All other employees are Professional level.</p>
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Percentage of employees receiving regular performance and career development reviews

**404-03** 100% of permanent employees take part in an annual performance review, conducted by their direct supervisor or Board of Directors as determined by the employment category.

# GRI 405: Diversity and Equal Opportunity 2016

Diversity of governance bodies and employees

**405-01** Age and Gender of Avalon Board of Directors

	% of Board	Age
Male - 4	66.7	>50
Female - 2	33.3	>50

Age and Gender of Avalon Employees

	< 30 Female	< 30 Male	30 - 50 Female	30 - 50 Male	> 50 Female	> 50 Male
Professional	1	0	2	1	1	0
Executive	0	0	1	1	0	5
Total	1	0	3	2	1	5

Executive employees are defined as the President, VPs and the Controller. All other employees are Professional level.

# GRI 406: Non-Discrimination

Incidents of discrimination

**406-01** Avalon had no incidents of discrimination at any of its work sites over the course of FY2018.

# GRI 411: Rights of Indigenous Peoples 2016

Incidents of violations involving rights of Indigenous peoples

**411-01** Avalon had no incidents of violations involving the rights of Indigenous peoples at any of its work sites over the course of FY2018.

# GRI 412: Humans Rights Assessment 2016

Employee training on human rights policies or procedures	<b>412-02</b>	Each year, every employee is required to sign a Policy Compliance Certificate. This states that the employee has read and agrees to abide by the Company's policies and procedures, and includes Avalon's Anti-Harassment, Bullying and Violence Policy.
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# GRI 413: Local Communities 2016

Operations with local community engagement, impact assessments, and development programs	<b>413-01</b>	<p>Avalon's level of engagement with COI is commensurate with project activity. Community engagement and information exchanges occurred throughout FY2018 in respect to the Separation Rapids and East Kemptville projects, though no formalized programs have yet been developed for these projects given Avalon's present low impact activities.</p> <p>As discussed in previous years, Avalon has completed an impacts assessment for Nechalacho; developed draft community engagement plans for review and comment; and signed two formal Agreements. Read more at Avalon's website at Projects - <a href="#">Nechalacho - Community Engagement</a>.</p>
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Operations with significant actual and potential negative impacts on local communities	<b>413-02</b>	<p>Given that only low impact exploration activities have taken place at Avalon's projects, there have been no known negative significant impacts to local communities from Avalon's activities. Prior to development proceeding, each project undergoes a rigorous environmental assessment process to evaluate the potential environmental and social impacts and to identify mitigation measures where necessary. Engagement on this is sought from impacted local communities, including Indigenous communities and governments. To be approved, the assessment must determine that the project would result in no significant adverse effects. Avalon seeks out opportunities for both short and long term benefits to the local communities commensurate to project activity.</p>
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# GRI 414: Supplier Social Assessment 2016

New suppliers that were screened using social criteria	<b>414-01</b>	<p>In FY2017, Avalon modified its sustainability questionnaire used to evaluate contractors to make it less time consuming for contractors to complete while maintaining its comprehensiveness.</p> <p>Over the course of FY2018, the sustainability questionnaire was used for all major project work bids.</p>
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# GRI 419: Socioeconomic Compliance 2016

Non-compliance with laws and regulations in the social and economic area	419-01	Avalon had no significant fines nor any non-monetary sanctions levied against the organization in FY2018.
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# G4 Mining and Metals Sector Disclosures 2013

Amount Of Land (Owned Or Leased, And Managed For Production Activities Or Extractive Use) Disturbed Or Rehabilitated	G4-MM01	Total land disturbed at all of Avalon's work sites is 33.951 ha, less than 0.25% of lands claimed and leased.
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The Number And Percentage Of Sites Requiring Biodiversity Management Plans and Percentage Of Those Sites With Plans In Place	G4-MM02	<p>All three of Avalon's project sites with significant past or ongoing activities have financially assured rehabilitation plans in place to mitigate potential disturbance-related impacts to biodiversity. Given the low level of impact at all sites at their present stages of development, impacts to biodiversity are not significant.</p> <p>The Nechalacho Project is not adjacent to identified areas of high biodiversity value and does not have a formal biodiversity management plan in place. It does, however, have in place a number of lands, wildlife and aquatic and other management plans as required by regulation for future permits that effectively comprise a biodiversity management plan. These plans are available on the <a href="#">Mackenzie Valley Land and Water Board</a> public registry.</p>
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Total Amounts Of Overburden, Rock, Tailings, And Sludges And Their Associated Risks	G4-MM03	<p>Avalon only produced a small amount of waste at its Separation Rapids site. Drill cuttings were free of environmental contaminants and were not collected. The drill pads were not located next to streams or lakes and the waste water with cuttings was pumped into natural depressions away from any natural watercourse.</p> <p>Should the East Kemptville Project move ahead, Avalon will inherit a 5.9 million tonne low grade ore stockpile, a tailings management area with 18.8 million tonnes of acid generating tailings and additional waste dumps totaling another four million tonnes. The project design includes the full remediation of these historical liabilities. There are no material rock or tailings piles at Separation Rapids, Lilypad Cesium or Nechalacho. The Mount Douglas site has been returned to the original owner. Avalon does possess a dozen drums of flotation process water in Yellowknife awaiting disposal.</p>
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Number of Strikes and Lock-outs Exceeding One Week's Duration	<b>G4-MM04</b>	None.
Total Number Of Operations Taking Place In Or Adjacent To Indigenous Peoples' Territories, where there are formal Agreements	<b>G4-MM05</b>	<p>Avalon has no operations, but has three advanced projects near Indigenous communities. At the Nechalacho Project, Avalon has signed formal Agreements with the Deninu K'ue First Nation, the Northwest Territory Métis Nation, and advanced Agreements with others. See Avalon's website at Projects - <a href="#">Nechalacho - Community Engagement</a> for more information.</p> <p>Avalon has an MOU with the WIN and initiated discussions with the MNO and Ochiichagwe' Babigo' Ining Ojibway Nation at the Separation Rapids Project in Northwestern Ontario.</p> <p>Avalon is advancing with an MOU with the Acadia First Nation near the East Kemptville Project in Nova Scotia.</p>
Significant Disputes Relating To Land Use	<b>G4-MM06</b>	Avalon had no minor or significant disputes relating to land use, customary rights of local communities, or Indigenous people in FY2018.
Grievance Mechanisms To Resolve Land Use Disputes	<b>G4-MM07</b>	Avalon had no land use grievances reported in FY2018; therefore, grievance mechanisms were not used.
Number And Percentage Of Operations With Closure Plans	<b>G4-MM10</b>	<p>100% of Avalon's three advanced projects have closure plans appropriate for the level of activity at those sites, including exploration activity clean-up and financial assurance. Avalon's VP, Exploration must sign off on all closure cost for projects. Avalon is currently developing a walk-away closure strategy for the existing and future East Kemptville Project to replace the perpetual water treatment strategy for existing tailings and waste rock liabilities.</p> <p>Please see Avalon's 2018 Year End Financial statements, available publicly on <a href="#">SEDAR</a> and <a href="#">EDGAR</a>, for details of the financial provisions.</p>



**AVALON**  
**ADVANCED MATERIALS INC.**

*CRITICAL MATERIALS FOR A SUSTAINABLE FUTURE*