



AVALON
ADVANCED MATERIALS INC.



Critical minerals for a sustainable future



Sustainability Report 2019

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FORWARD LOOKING STATEMENT

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. 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.

FY2019 Sustainability Highlights

2 BROWNFIELD SITES
IN PORTFOLIO TO BE
RECLAIMED



**INDUSTRY SUPPORT:
CONTRIBUTED TO MAC
& PDAC REGULATORY
SUBMISSIONS &
EDUCATIONAL INITIATIVES**



0 HEALTH AND SAFETY,
ENVIRONMENTAL OR
HUMAN RIGHTS INCIDENTS



45% OF
AVALON'S EMPLOYEES ARE
FEMALE



40% OF
AVALON'S BOARD OF
DIRECTORS ARE FEMALE



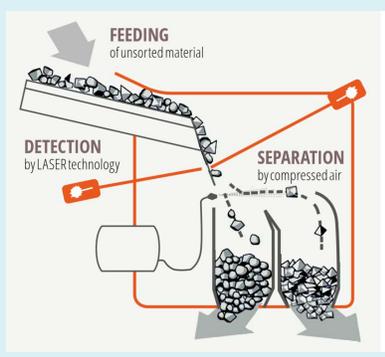
**GRASS SUCCESSFULLY
GROWN ON EAST
KEMPTVILLE PROPOSED
TAILINGS MATERIAL**



3 PROJECTS
INVESTIGATED FOR
ENVIRONMENTALLY
BENEFICIAL SENSOR-
BASED ORE-SORTING
EFFICIENCIES



17 UN SDGS
NOW INCORPORATED
INTO SUSTAINABILITY
REPORTING



28 TONNE BULK
SAMPLE COLLECTED AT
EAST KEMPTVILLE



241
CONTACTS &
ENGAGEMENTS
WITH INDIGENOUS
COMMUNITIES



3 TIMES PLACED
AMONG CORPORATE
KNIGHTS' 'FUTURE 40
RESPONSIBLE LEADERS IN
CANADA'



MARCH 2019: PRESIDENT
& CEO HONoured WITH
PDAC DISTINGUISHED
SERVICE AWARD

Corporate Knights 2018
FUTURE40
Responsible Corporate Leaders in Canada

Message from the President & CEO

Thank you for your continued interest in Avalon's annual Sustainability Report, where we share our progress as we sustainably advance our critical minerals projects.

Establishing new critical mineral supply chains outside of China has now become a priority for government policymakers. There is growing recognition that these minerals are essential in many clean technologies. Sustainable production of critical minerals is essential to realizing a lower-carbon future.

Consequently, we are seeing a substantial increase in demand for critical minerals, which is creating opportunities for producers like Avalon to emerge and satisfy looming supply deficits. Public awareness about mining of critical minerals is increasing and acknowledgment that they are essential to establishing these new supply chains. This became apparent earlier this year when the World Bank launched an initiative called *Minerals for Climate Action* at an event in Washington DC, where I was an invited speaker.

	Separation Rapids	Nechalacho	Will Scarlett	East Kemptville	Lilypad
	Petalite (Li)	HREE	REE	Tin	Cesium
Examples of end uses	 	 	 	 	 
Other metals/minerals present	Cs Rb	Be Li	Co Li	Cu In	Li Ta
	SiO ₂ Ta	Nb Nd	Ni Zn	Zn	
	Feldspar	Pr Ta	Manganese		
	Lepidolite (Li)	Zr			
FY2019	Planned extraction of 2,500 tonne petalite mineralization sample for pilot plant processing	Sold Upper Zone resources to Cheetah Resources for \$5 million; managed \$900,000 work program on Cheetah's behalf	Signed a binding Letter of Intent with Coal Strategy Advisors to earn up to 50% interest in project (subsequent to reporting period)	Received encouraging preliminary results from Cronimet Mining Processing ore-sorting testwork on 28 tonne bulk sample collected January 2019	Following the election of new leadership, communications resumed with the Eabametoong First Nation at the nearby community of Fort Hope
Upcoming news	Bulk sample program to produce petalite products for interested end-users	Finalize details of transaction with Cheetah	Testwork to confirm concentration levels of rare earths, and most efficient extraction process	Feasibility Study to incorporate ore-sorting results; finalize transfer agreement with surface rights holder	Exploration field work program planned



May 2019: Don Bubar sits (third from right) on a panel at the World Bank's launch of the Climate-Smart Mining Facility in Washington, DC

RARE EARTHS: HOW CAN NORTH AMERICA COMPETE?

As China still supplies over 80% of the world's rare earths, and the United States' defense industry relies heavily on Chinese sources of rare earths for military technology, concern is increasing about security of supply in the context of the United States/China "trade war." In December 2017, President Trump issued an Executive Order to encourage the creation of a North American rare earths supply chain, stating rare earths are "essential to national defense." The United States Department of Defense is now conducting an assessment of North America's critical infrastructure supply chains, including evaluating the main barriers to getting product to market experienced by domestic business. The President and Canadian Prime Minister Trudeau subsequently agreed that Canada and the United States would cooperate in creating these new supply chains in North America.

In Canada, Avalon has since been asked to participate in conversations with federal, provincial and territorial government officials on what government can do to assist. We are emphasizing the importance of developing more efficient extraction technologies for rare earths and are encouraging government to look at supporting establishing new pilot scale process plant facilities in Canada to support the necessary research work. We also point out that demonstrating an efficient and economically viable extraction process is essential in order to secure off-take commitments that will assist in accessing the venture capital needed to initiate production.

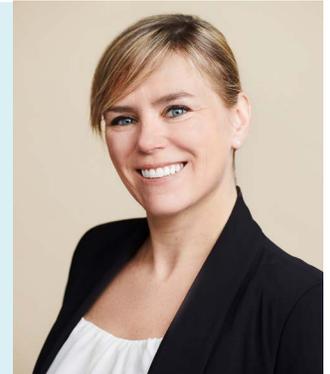
Most mineral development companies operating in North America are publicly-traded and rely on equity markets for raising venture capital. For non-exchange traded commodities that lack visibility on pricing, like rare earths, raising capital can be challenging for junior companies. Consequently, junior companies need to find strategic investors (including government) that understand the market and can provide confidence to other equity investors that the investment opportunity is real.

There is no doubt that rare earths are once again front and centre in the news cycle. In addition to the Nechalacho Rare Earth Elements Property in the Northwest Territories, we are also looking at other opportunities in North America to take advantage of renewed interest in the sector.

Subsequent to the reporting period of this report (Avalon's 2019 fiscal year (FY2019) – September 1, 2018 – August 31, 2019), Avalon signed a binding Letter of Intent with private American company Coal Strategy Advisors, LLC to earn up to a 50% interest in their Will Scarlett Rare Earths Recovery Project located near Marion, Illinois. Will Scarlett is a closed coal mine site where recent geochemical sampling has found

AVALON WELCOMES NEW DIRECTOR

Avalon welcomes Ms. Naomi Johnson, LL.B. to the Company's Board of Directors, to stand for election at the next Annual Meeting of Shareholders in February 2020. Naomi is a lawyer with over 12 years of experience working in the mineral industry as a global Corporate Social Responsibility executive, primarily in a community relations role both domestically and internationally. From 2008–2017, she worked for Barrick Gold Corporation, most recently serving as Partner and Senior Director, Community Relations.



Avalon has been a leader in Indigenous community engagement in Canada, and Naomi's broad experience will provide very useful perspective as Avalon continues to develop innovative new models for direct participation in clean technology material development by Indigenous business in Canada.

elevated levels of rare earths and other metallic elements such as cobalt, nickel, lithium, manganese and zinc in mine waste materials. Unlike most hardrock rare earth resources, no significant uranium or thorium has been detected.

The potential for economic recovery of rare earths from coal mine wastes and fly ash has been receiving a lot of study in the United States. These unusual occurrences represent an interesting opportunity to create a primary rare earth supply relatively quickly and at a low cost, compared to typical hardrock resources.

Like our East Kemptville Tin Project in Nova Scotia, Will Scarlett provides Avalon with an opportunity to extract value out of previously-mined waste materials at a relatively low cost, with the upside potential of fully remediating the site from the long term environmental liability associated with acid mine drainage.

SUSTAINABLE CRITICAL MINERAL SUPPLY CHAINS

While rare earths were in the headlines because of the United States/China trade war and the potential for China to restrict exports (as they did in 2010), the world now realizes that it is not just rare earths where there is risk of security: secure supply sources for all the critical minerals required in clean technologies are needed. This became apparent when I attended the World Bank’s launch of the *Minerals for Climate Action* initiative and Climate-Smart Mining Facility, in Washington, DC, in May of this year. The focus is on finding more support for the sustainable extraction and processing of the minerals needed for clean energy technologies by minimizing the social, environmental and climate footprint throughout the value chain of these minerals. The World Bank produced excellent visual material for the launch, and I often find myself using this infographic (right) to introduce critical mineral supply chains to new audiences! Readers are welcome to visit [Worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action](https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action) to view the full infographic.

At the launch, I sat on the “Leveraging Innovation to Create Market Opportunities for Critical Minerals” panel, which discussed how to de-risk mining investments; what roles innovation and new partnerships can play; and how public and private sectors can work together to maximize the impacts for sustainable development. My own remarks focused on the challenges that junior companies are having in accessing venture capital to fund the work needed to begin creating these critical mineral supply chains. Many in the audience were shocked to learn that access to the necessary venture capital is so challenging!

Minerals FOR CLIMATE ACTION

Source: WorldBank.org

The world is rapidly transitioning to **low-carbon technologies** to combat climate change.

However, these technologies require large amounts of minerals. To meet this demand, more mining and mineral recycling will be needed.

Why will a low-carbon future be **more** mineral intensive?

The Clean Energy Transition

Increasingly, the world is relying on **low-carbon technologies**, such as:

- WIND
- SOLAR
- BATTERIES

Each of these technologies are mineral intensive, requiring large amounts of base and niche minerals.

INDIGENOUS PARTNERS

Canada can best contribute to a cleaner environment by creating mineral supply chains that enable more clean technology manufacturing in Canada. Many of the best opportunities to develop these critical mineral resources are in remote, undeveloped parts of Northern Canada near Indigenous communities. Establishing nearby projects offers exciting economic and environmental remediation opportunities to historically-impooverished Indigenous communities in the mineral-rich regions of the Canadian Shield.

Indigenous outreach continues to be a passion of mine, and I am a frequent participant and speaker at conferences about Indigenous participation in the natural resource sector. Last March, I was honoured to receive the Prospectors and Developers Association of Canada (PDAC)'s Distinguished Service Award for my work in this area, including co-founding the Aboriginal Affairs committee at the PDAC annual convention.

Most Indigenous communities want economic development that can be done sustainably. Many critical minerals, such as lithium, do not create the same environmental risks typically associated with base or precious metals mining. Further, Avalon's staged-

development approach to its critical mineral resources is designed to reduce the environmental footprint of the operation and to offer opportunities for wealth creation through real equity participation by local Indigenous businesses.



March 2019: Don Bubar receives the Distinguished Service Award from the PDAC from Patricia Dillon, Director of Mining Matters.

THANK YOU

As always, thank you to our audience for continuing to support Avalon and the growth of sustainable supply chains for critical minerals in North America. Reports such as this keep us transparent and on track! I am looking forward to progressing our projects to production, and finally bringing a sustainable source of clean technology materials like lithium, rare earths, tin and cesium to the marketplace.

Sincerely,

Donald Bubar

UNIVERSITY OUTREACH AT AVALON

Avalon contributes to university education in the mining industry through involvement with students from the undergraduate level, capstone projects in engineering, BSc theses in geology and graduate student research. These research projects directly contribute to resolving technical challenges at each of Avalon's projects. In FY2019, Avalon continued to support the work of Garnet Ching and Sarah Bodeving.

Garnet Ching is a professional geologist (P.Geo: APEGM) conducting MSc research on the "age relations and intrusion dynamics of the Separation Rapids pegmatites in Northwestern Ontario." The project is supervised by Professor A. Camacho at the University of Manitoba. Garnet is studying the formation timing of pegmatites and parent granites in relation to rock deformation to refine exploration targeting. He explains, "by understanding and unraveling the geologic puzzle, we can optimize exploration by providing insights into deposit morphology, thus minimizing disturbance to the environment while providing important materials to the global market."

Sarah Bodeving continues her PhD in geology at McGill University under the supervision of Professor A. E. Williams-Jones. Her doctoral studies are focused on the origin and formation of the lithium pegmatite dykes at the Separation Rapids lithium deposit and their relationship to the Separation Rapids granite pluton. This detailed understanding of the distribution of elements and minerals - which geologists refer to as zonation - will assist in future lithium exploration. Sarah reflects, "I quickly understood how complex the geological process of formation of this type of pegmatites is and how special the Separation Rapids pegmatites are. With petalite constituting one of the main ore minerals, Separation Rapids is unlike the majority of lithium-bearing deposits (which host spodumene as their main lithium mineral). In the past two years, I have realized how tightly interconnected academic research is with the exploration industry. Conducting research on the Separation Rapids lithium site is especially interesting, as it touches the very prevailing topic of climate change and the protection of our environment provided by lithium technologies."



Sustainability Progress Report

Message from the Vice President, Sustainability

Welcome to Avalon's 2019 Sustainability Report, where we once again review our sustainability progress and goals. These initiatives make our projects more cost effective and decrease risk - adding to shareholder value while protecting the environment and generating benefits for our Communities of Interest.

Avalon has created development models designed to initiate production at modest scales utilizing simplified process technology. This staged-development 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 Communities of Interest to become significant equity partners in the projects.

Within this section, I am pleased to provide a progress report on some of the work accomplished at Avalon's three advanced projects throughout the fiscal year.

SEPARATION RAPIDS LITHIUM

The market for lithium minerals to serve the glass and ceramics industry is experiencing supply shortages, particularly for petalite: the principal lithium mineral contained in the Separation Rapids resource and in Avalon's nearby [Snowbank Pegmatite discovery](#). This has created new opportunities to attract development partners that are interested in Avalon's petalite product. Accordingly, Avalon began to make plans for the extraction of a 5,000 tonne bulk sample for trial processing in order to recover larger quantities of

petalite product for customer evaluation and process flowsheet optimization.

Accomplishments in the reporting period (September 1, 2018 - August 31, 2019) include:

- Avalon completed packer testing (a technique in which an inflatable bladder is used to isolate different regions of a borehole for measuring water flow through the rock) and ground water re-sampling at the Separation Rapids site, all without incident. The preliminary packer testing of the rock permeability between the English River and the proposed pit at Separation Rapids indicated that the rock was tight and little pit water inflow would be anticipated at this location. We will complete additional packer testing during the detailed pit geotechnical design process.
- We received the final report on the Environmental and Social Impact Assessment baseline validation report. The 2007 data has been validated and, other than environmental studies associated with the Fisheries Act, is now completed at the Separation Rapids site.
- Avalon met with Hydro One (electricity transmission and distribution utility serving Ontario) to review the initial hydro line route to site, and to discuss alternate hydro line route assessments. Throughout the process, Avalon discussed the power line route with local Indigenous groups to ensure they are aware of the proposed work.

NECHALACHO RARE EARTH ELEMENTS

This year, Avalon signed an Agreement Sheet with Cheetah Resources Pty Ltd. (Cheetah) under which Cheetah will acquire ownership of the near-surface rare earth resources at the Nechalacho property for a total cash consideration of \$5 million. Cheetah intends to pursue the small scale development model conceived for the T-Zone by Avalon. This involves the use of similar ore-sorting technology to that being tested at East Kemptville to recover a rare earth mineral concentrate without the use of water for shipping elsewhere for final treatment.

Avalon managed the FY2019 work programs financed by Cheetah to our usual high levels of health and safety standards. Work included:

- Updating the Nechalacho emergency response plan;
- Restoring various communication modes for the Thor Lake camp, including a satellite internet system that had the merit of ease of installation by non-expert operators;
- Completing a risk assessment on the bulk sample extraction; and
- Completing a field program with no incidents at site, with the objectives of sampling for lithium and high grade rare earths in the T-Zone and for high grade, near surface rare earths in the Tardiff Lakes area.

Given that the Nechalacho camp had not been used in several years, Avalon made significant effort to rehabilitate the existing facilities. There were two positive inspections by the GNWT Land Use Inspector,



Avalon completed a field program with no incidents at the Nechalacho site, with the objectives of sampling for lithium and high grade rare earths in the T-Zone and for high grade, near surface rare earths in the Tardiff Lakes area.

and Avalon completed minor recommendations for improvements in a timely manner.

Following engagement with key Communities of Interest, Avalon obtained two year extensions of the early works Land Use Permit and Water License issued by the Mackenzie Valley Land and Water Board in February 2019. These are valid until April 2021 and May 2021 respectively. Avalon also obtained a new Exploration Land Use Permit in June (that will remain valid until June 2023) that among other things, allows for the extension of the existing airport to improve safety.

Finally, Avalon initiated work with the Yellowknives Dene First Nation (YKDFN) to access the National Trades Corridors Fund for a road and energy corridor from the Ingram trail to near the Nechalacho site. Avalon supported the YKDFN's Expression of Interest submission; however, the rest of the matching funds were unavailable. Avalon did have positive discussions with the government, who assured Avalon that a road and energy corridor along a similar route is still under consideration. Though this submission was ultimately unsuccessful, Avalon is pleased to have worked collaboratively with the YKDFN and the YKDFN-affiliated Det'on Cho Corporation. A road and energy corridor would result in significant reductions in Nechalacho capital and operating costs. It would improve safety and reduce energy and GHG production, as well as open up the area along the corridor for other potential mining, tourism, forestry and fishing. Road access also improves the safety of travel to the community by the people of Lutsel K'e and allows for shift scheduling, which is more flexible for workers with family obligations in their communities.

LILYPAD CESIUM

The Lilypad Project is another critical mineral resource with unusual enrichment in the rare cesium mineral pollucite. Cesium demand is growing, but with very limited global supplies. Located near the well-known Ring-of-Fire district in Ontario, Avalon's Lilypad Project may soon benefit from improved access into the area and growing interest among local First Nations in supporting more economic development in the area.

Following the election of new leadership there in 2019, communications resumed with the Eabametoong First Nation at the nearby community of Fort Hope. All claims are in good standing and Avalon plans to resume field work there in 2020.



Core samples from Avalon's Lilypad Project. These pegmatites are host to cesium-tantalum mineralization, seen in the light grey/purple lepidolite and also the pink tourmaline and sky-blue albite.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

This year, Avalon has integrated the United Nations 17 Sustainable Development Goals (SDGs) into our sustainability reporting. 17 SDGs were set by the UN in 2015 and are the world's shared plan to end extreme poverty, reduce inequality and protect the planet by 2030. You can read more about the UN SDGs at: www.UNFoundation.org.

Governments worldwide have already agreed to the SDG goals, now businesses also need to step up. Avalon used the SDG Compass, developed by the Global Reporting Initiative, UN Global Compact and World Business Council for Sustainable Development, to align our sustainability progress and goals with the SDGs. This will measure and manage our own small contribution towards these lofty global goals. Please see this Report's United Nations SDG section starting on [page 25](#) for more information.

THANK YOU

As always, thank you to our audience for continuing to support Avalon as we strive to lead the mineral exploration and development industry to higher standards of health and safety, sustainability and environmental stewardship. As well, my personal thanks 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 critical mineral production.

Sincerely,



Mark Wiseman

HEALTH & SAFETY

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 morale and productivity. I am pleased to report that Avalon had no accidents in FY2019 and that all accident and injury rates remained at 0.0 for the year.

ENERGY & CLIMATE CHANGE

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. In FY2019, Avalon participated in a multi-stakeholder committee, representing the exploration industry, which is preparing a guidance document for climate change risk assessment. Evaluating such risks is becoming increasingly important in the investment and insurance industry and is anticipated to represent industry best practice.

Avalon is leading the development of an education program regarding exploration, including environmental impacts, financing and engagement, which will potentially have a wide range of applications including schools, regulators, NGOs and MAC's Community of Interest Panel. The information demonstrates the small scale and low impact of exploration; educates on exploration financing; and discusses sustainability best practice and benefits.

FY2019 Goal Performance

The following table summarizes Avalon's performance in reaching its FY2019 sustainability goals. Status of goals is designated as either:

Achieved  Partially Achieved  Not Achieved 

FY2019 Goal	Status	Comments
HEALTH AND SAFETY		
Zero fatalities		There were no accidents in FY2019. Fatality, accident and injury rates for the year were 0.0.
Zero harm		Several risk assessments, health and safety procedures, contractor assessments, updates to emergency response plans and training were completed in FY2019, which contributed to meeting Avalon's health and safety goals. See page 9 for more information.
Zero lost time accidents		
Zero medical aid accidents		
Complete packer testing site work and ground water re-sampling without incident at Separation Rapids site		See page 7 .
Complete field program(s) without incident at Nechalacho site		See page 9 .

ENVIRONMENT AND PERMITTING

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



Avalon continued to monitor and respond to federal and provincial regulations throughout FY2019, including:

- Collaborating to improve the Ontario permitting process and investigate the potential for a new, separate permitting process for low risk critical mineral extraction and processing;
- Participating in the responses of the NWT & Nunavut Chamber of Mines to the proposed Thaidene Nene park in the Northwest Territories;
- Participating in amendments to the Mackenzie Valley Resource Management Act and NWT Mineral Resources Act;
- Monitoring and participation in the Mining Association of Canada (MAC) lobbying efforts for Bill C-68 (Fisheries Act), Bill C-69 (Impact Assessment Act and the Navigable Water Act) and other complex and evolving federal GHG regulations;
- Commenting on the Monetary Penalties regulations being developed by the Nunavut government (recognizing that they are very similar to those proposed by the Northwest Territories government);
- Meeting with senior bureaucrats responsible for proposed changes in the Navigation Protection Act under Bill C69 (subsequent legal review completed by MAC negated this risk); and
- Commenting on the draft guidelines for permits and management plans for a range of NWT regulations.

Note: Bill C-68 to amend the Fisheries Act was passed by the Senate of Canada in June 2019. The present lack of regulatory resources to implement the amended Fisheries Act is a concern for Avalon's timely approvals. These amendments will make the use of a small swamp for tailings management at Avalon's Separation Rapid Project more challenging; however, the use of dry stack tailings will delay the need for the swamp in the short term. One option being considered to compensate for this loss of fish habitat is to utilize the excavation planned for producing aggregate for the road maintenance.

Initiate geology crews tracking wildlife through Citizen Science



This project was not initiated in FY2019, due to time and costs being prioritized in other areas.

Avalon's Senior Project Geologist tracks wildlife at the Nechalacho camp as part of daily logging.

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



See [page 7](#).

FY2019 Goal	Status	Comments
Finalize the report comparing the spring and fall 2017 baseline data collection with the 2007 Separation Rapids Project Environmental and Social Impact Assessment; determine if additional work is required in consultation with regulators and other interested stakeholders		See page 7 .
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)	N/A	There was not enough geochemical data for Separation Rapids and East Kemptville waste rocks to interpolate a block model in FY2019. The data is more suitable for calculating average, until it is deemed necessary to collect and analyze more samples of the waste rocks at both sites.
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)	N/A	<p>Avalon's planned tailings cover (with compaction) met all sulfur and permeability design criteria and the cover will not be acid generating, based on acid base accounting.</p> <p>Additional testing may be required by the Nova Scotia Energy and Mines to further validate the sample's representativeness and the low permeability clean tailings cover. Material for humidity cell testwork and reclamation testing is available, but work was on hold at Avalon's fiscal year end, pending financing.</p> <p>Avalon successfully grew grass in the clean tailings cover material to demonstrate that component's feasibility of the closure strategy.</p>
Identify locally-available organic waste and initiate re-vegetation trials at East Kemptville site, in collaboration with Nova Scotia Agricultural University (pending financing)		Avalon received a funding proposal from the Nova Scotia Agricultural University for reclamation research; however, Avalon decided it was not material to pursue this collaboration at the time.
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)		Nova Scotia Energy and Mines provided an excellent review of Avalon's closure plan in preparation for its submission in February 2019. With the exception of clarification of some of the geological administrative information, Avalon completed addressing the Nova Scotia Energy and Mines closure plan comments in June. However, the external closure plan certification, completion of the Environmental and Social Impact Assessment (ESIA), water balance and final dam stability studies with outside engineering support remained on hold at yearend, pending financing. Avalon is currently investigating opportunities for potential funding to support the ESIA, closure plan and reclamation research.
Renew Land Use Permit and Water Use License for pre-construction work at Nechalacho Project		See page 9 .

FY2019 Goal	Status	Comments
<p>Initiate re-vegetation at the Nechalacho Project: replace older trees at risk of falling with younger trees to avoid clear cutting or affecting bush composition</p>		<p>At Avalon's Nechalacho camp site, older trees are at risk of falling and causing injury or property damage. Avalon suggests re-vegetating the area through a phased approach: cutting down the old trees and replacing with young trees. This would eliminate the hazard of older, falling trees without clear cutting the camp area. Avalon discussed this with the GNWT land use inspector and it was agreed upon in principle. This information has been shared with Cheetah Resources, who are now on site initiating the development of the property's Upper Zones.</p>

PEOPLE AND COMMUNITY

<p>Maximize utilization of existing workforce and talent pool to minimize external costs</p>		<p>Avalon conducted DataShed training at its Toronto headquarters with two objectives: (i.) have a senior geologist become more familiar with the software and (ii.) develop mineralogical tables to enable mineralogy to be documented similar to assays. Eventually, this should lead to in-house mineralogy able to be included in resource estimation.</p>
<p>Ensure Avalon's sustainability questionnaire is being utilized by all departments when seeking proposals for applicable site work</p>		<p>Avalon includes its sustainability questionnaire on Requests for Proposals; however, it has been brought to Avalon's attention that its sustainability questionnaire asks for high level information, beyond what local contractors (i.e. drilling companies) are addressing. The questionnaire is more relevant to large companies, such as Avalon's potential customers or partners. Avalon considers the size and capacity of the bidding company when interpreting their responses.</p> <p>The contractors' health, safety and environmental record, including sustainability questionnaire responses, are factored into Avalon's ultimate choice of contractor.</p> <p>Avalon believes that including its sustainability questionnaire in all Requests for Proposals with health, safety or environmental risk is still useful to contribute to raising the bar in the exploration industry - even if the effect is slow.</p>
<p>Engage with local Communities of Interest regarding potential power line route and access road to the Separation Rapids site, along with other sustainable energy generation options</p>		<p>See page 7.</p>
<p>Continue to work with the Wabaseemoong Independent Nations to encourage more formal economic development initiatives by the Chief and Council</p>		<p>Avalon met with the newly-elected chief of the Wabaseemoong Independent Nations (WIN), Chief Waylon Scott, in June 2019. No concerns were identified at that time.</p>

FY2019 Goal	Status	Comments
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		Avalon continues to support economic development, academic and research initiatives for the WIN. Whenever Avalon meets suitable institutions or consultants who may be able to develop collaborative and productive relationships with WIN, their contact information is exchanged with the goal that both groups will engage in mutually beneficial dialogue and initiatives. The process of initiating introductions between WIN and prospective collaborators is ongoing. Avalon will continue to support and encourage that relationship building.
Continue to provide updates to the WIN, Ochiichagwe' Babigo' Ining Ojibway Nation and the Métis Nation of Ontario (MNO) regarding Separation Rapids		See page 8 .
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)	N/A	See page 8 .
Establish a community engagement committee with local Communities of Interest, including regulators and Indigenous groups, at the East Kemptville Project (pending financing)	N/A	Financing and project planning were not advanced enough to warrant establishing a community engagement committee in FY2019.
Assess the economic benefits to re-activating the Nechalacho Project utilizing ore-sorting technology to produce a rare earth concentrate for export		See page 9 .
Engage with the Eabametoong First Nation at Fort Hope, Ontario in order to discuss potential field work program at Lilypad property		See page 9 .

OUTREACH

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



An Avalon representative continues to sit on the MAC Environment and Science Committees and the PDAC CSR Committee. Through this participation, Avalon helps facilitate communication and action associated with a wide range of ongoing federal regulatory (i.e. C-68, C-69, Migratory Bird Act Regulations) initiatives and participates in submissions from both organizations.

FY2019 Goal	Status	Comments
Continue to successfully run the “Exploration Health and Safety” course at PDAC Convention 2019		Avalon updated its PDAC Health and Safety course in advance of March 2019. Feedback from the attendees ranged from “extremely valuable” and “very valuable,” with only 6% of the responders said they found the course “somewhat valuable.”
Complete lithium and rare earth elements recycling projects with University of Toronto engineering capstone students; initiate similar recycling project at another Canadian university		<p>Avalon completed its “Urban Mining” project with University of Toronto engineering students in November 2018. One team researched the recycling of rare earths from permanent magnets, while the other investigated extracting lithium from batteries at Avalon’s operations. The students presented their final plant designs to Avalon’s operations team.</p> <p>Avalon did not initiate a similar recycling project at another Canadian university in FY2019 due to time and financial constraints.</p>

GOVERNANCE AND ECONOMICS

100% compliance with all applicable legal requirements		No known instances of non-compliance with regulatory requirements. Please see Avalon’s FY2019 Financial Statements and Management Discussion and Analysis, available publicly on SEDAR and EDGAR , for more information
Promote Avalon’s sustainability leadership and associated advantages in ongoing efforts to acquire strategic partners, investment or other support for Avalon’s projects		<p>The focus on sustainability continues to be a positively received story in discussions with governments whom have major policy focuses on clean technology supply chain development and resource efficiency in the production processes.</p> <p>Avalon’s investor relations directives continue to include promotion of the advantages of sustainability to socially responsible investors, including retaining several consultants with previously untapped networks.</p>

SUSTAINABILITY PERFORMANCE AND REPORTING

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		Avalon continues to sit on the MAC-sponsored effort to establish climate change auditing protocols. While many aspects of the potential effects of climate change are already considered in project design (i.e. water management activities and structures), when this protocol is complete and available it will be utilized by Avalon to further assess its projects.
Communicate with local Communities of Interest, relevant NGOs and government regulators as part of the 2019 Sustainability Report preparation process		Financing and project planning were not advanced enough in FY2019 to warrant communication specifically regarding the Sustainability Report preparation process with local Communities of Interest.
Produce FY2019 Sustainability Report		Completed.

FY2020 Goals



The following goals have been set by Avalon's management team for the Company's fiscal year 2020 (September 1, 2019 – August 31, 2020). Progress towards these goals will be reported in Avalon's FY2020 Sustainability Report.

HEALTH AND SAFETY

Zero fatalities

Zero harm

Zero lost time accidents

Zero medical aid accidents

Zero reportable environmental incidents in field work

Continue to develop sustainability awareness and improve sustainability performance of those working in the field (employees and contractors)

Evaluate the transportation requirements of xenotime and prepare a Material Safety Data Sheet

ENVIRONMENT AND PERMITTING

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

Complete alternate preliminary route assessment, design and costing to decide on most effective hydro line route to the Separation Rapids site and installation method; complete Species at Risk study on preferred route, including access roads (pending financing)

Conduct studies to complete fishery compensation plan at Separation Rapids Project in respect of full time mine development (pending financing)

Complete closure plan and associated engagement to receive all permits required for Separation Rapids bulk sample program from the Ontario Ministry of Energy, Northern Development and Mines

Determine if additional work is required in consultation with regulators and other Communities of Interest regarding Separation Rapids Project Environmental and Social Impact Assessment (pending financing)

Complete drill program and environmental program on potential wastes and products from Separation Rapids site; collect additional baseline water samples without incident (pending financing)

Complete additional leachate studies and humidity cell studies for clean tailings cover material at East Kemptville Project; advance or modify disposal strategies based on these results (pending financing and transfer of surface rights)

Complete application for acquisition of East Kemptville Mineral Lease; support regulators to facilitate timely approvals (pending financing and transfer of surface rights)

Complete application for East Kemptville closure plan; support regulators to facilitate timely approvals (pending financing and transfer of surface rights)

Complete East Kemptville Crown Land Transfer Application; support regulators to facilitate timely approvals (pending financing)

Initiate Industrial Approval application at East Kemptville Project (pending financing and approval of Environmental and Social Impact Assessment, closure plan, and Mineral Lease acquisition)

PEOPLE AND COMMUNITY

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

Ensure Avalon's sustainability questionnaire is an effective tool in determining suitability of contractors for applicable site work

Engage with and advance the development of an MOU with the Métis Nation of Ontario (MNO) at the Separation Rapids Project

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

Encourage and help facilitate collaboration by the WIN with universities and other institutions with regard to issues affecting the community and initiatives in which WIN has interest (pending availability and priorities of WIN)

Continue to regularly engage with the WIN, Ochiichagwe' Babigo' Ining Ojibway Nation, Grassy Narrows First Nation and MNO regarding the Separation Rapids Project

Establish a community engagement committee with local Communities of Interest, including regulators and Indigenous groups, at the Separation Rapids Project (pending financing)

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)

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

Initiate engagement with the Eabametoong First Nation at Fort Hope, Ontario in order to discuss their support of and participation in potential field work and rehabilitation program at the Lilypad Cesium Project

OUTREACH

Facilitate communication between the Mining Association of Canada (MAC) and the Prospectors and Developers Association of Canada (PDAC); specifically, to provide updates to PDAC on applicable MAC and regulatory initiatives as they develop

Complete “Exploration 101” one day course program, including background, financing, biodiversity, best practice and land access; present to MAC Communities of Interest Panel and obtain input for exploration activities

Continue to successfully run the “Environmental Management in Exploration Safety” course (held every second year) at PDAC Convention 2020

Continue to successfully run the “Exploration Health and Safety” course at PDAC Convention 2020

GOVERNANCE AND ECONOMICS

100% compliance with all applicable legal and regulatory requirements

Initiate external whistleblower/complaint management system for local Communities of Interest to utilize in case of concerns

Update Avalon corporate policies for Board of Directors review and approval

Update Avalon’s Sustainability Policy to incorporate project construction and production phases (pending project advancement to construction)

Formalize procedure to onboard site workers to include better communication of Avalon policy information, while maintaining legal requirements (i.e. plain language explanation)

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

SUSTAINABILITY PERFORMANCE AND REPORTING

Conduct a company-wide assessment based on the Climate Change Audit currently being generated by MAC regarding the risks and opportunities posed by climate change that have the potential to generate substantive changes in future operations on all advancing projects

Include preferred communication methods and priorities regarding sustainability activities, including Sustainability Report content, in MOU discussions with Communities of Interest local to Avalon’s projects (pending advancement of MOU and Agreement discussions)

Map MAC’s *Towards Sustainable Mining* (TSM) performance protocols to corresponding United Nations Sustainable Development Goals for Avalon’s FY2020 Sustainability Report

If construction initiated on a project, conduct sustainability reporting protocol review to identify and initiate implementation of required management of systems that will permit TSM reporting on specific projects

Produce FY2020 Sustainability Report

Long Term Goals

Avalon annually shows its progress towards its long term goals. This information can be reviewed through the links provided.

HEALTH AND SAFETY

Complete the procedures and systems to support the Avalon Health, Safety and Environmental (HSE) management plan to achieve a Mining Association of Canada (MAC)'s *Towards Sustainable Mining* (TSM) AAA rating prior to the start of construction

[Page 11](#)

[Page 24](#)

AvalonAM.com/sustainability/health_safety

Develop technologies that would improve performance and reduce costs at all Avalon projects

AvalonAM.com/_resources/presentations/Corporate_Presentation.pdf

PEOPLE AND COMMUNITY

Engagement with Indigenous governments and organizations at projects appropriate to level of project activity, with the objective of achieving Agreements prior to operations

[Page 14](#)

[Page 22](#)

AvalonAM.com/sustainability/people

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

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[Page 24](#)

AvalonAM.com/sustainability/environment

OUTREACH

Advocate for better industry sustainability practices and increase public awareness about the minerals/metals sector through industry associations

Page 12

AvalonAM.com/_resources/presentations/Corporate_Presentation.pdf

Support Canada's leadership by advancing materials research through collaboration with universities, government and industry

Financial Statements and Management Discussion and Analysis on [SEDAR](#) and [EDGAR](#)

GOVERNANCE AND ECONOMICS

Create shareholder value through the development and operation of one or more projects in a sustainable and profitable manner

Financial Statements and Management Discussion and Analysis on [SEDAR](#) and [EDGAR](#)

SUSTAINABILITY PERFORMANCE AND REPORTING

Investigate options for electronically tracking sustainability performance; develop and implement these systems prior to operations

Page 24

Identify and engage local contractors who can provide services that contribute to the longer term sustainability of projects

Page 14

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AvalonAM.com/_resources/presentations/Corporate_Presentation.pdf

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

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AvalonAM.com/sustainability/health_safety

Showcase the value of sustainability-driven mineral development companies to the investment community

AvalonAM.com/_resources/presentations/Corporate_Presentation.pdf

TSM 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 eight areas of operational performance. MAC introduced the eighth protocol, Water Stewardship, in 2018.

Avalon reports on six of the eight 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. The following is a summary of Avalon's FY2019 performance in reaching its TSM performance indicators, as well as FY2020 targets and action plans.

TSM Performance Indicator	FY2020 Target	FY2020 Action Plan	FY2019 Actual	FY2019 Action Taken	FY2019 Target
ABORIGINAL AND COMMUNITY OUTREACH					
Communities of Interest Identification	AA	Continue to advance MOUs or Benefits Agreements at all projects that receive funding to advance to the next phase of development. Continue to engage with the Eabametoong First Nation at Fort Hope with respect to the Lilypad Cesium Project exploration program.	AA	Avalon had preliminary discussion with the Eabametoong First Nation at Fort Hope with respect to the Lilypad Cesium Project. Drilling remains on hold pending more detailed discussions.	AA
Effective Communities of Interest Engagement and Dialogue	AA	Meaningfully engage with all Communities of Interest on all projects that advance to the next stage of development. At a minimum (pending financing and Communities of Interest willingness to engage): <ul style="list-style-type: none"> • Agreement to drill at Lilypad Cesium • MOU with Acadia First Nation • MOU with the Métis Nation of Ontario (MNO) and advance agreements with the Wabaseemoong Independent Nations (WIN) 	AA	Successful discussions were held with all Communities of Interest at Avalon's Separation Rapids Project. An engagement plan was formally approved by the regulator and successfully implemented during closure plan update discussions. Avalon also held initial discussions with Acadia First Nation environmental experts on East Kemptville. Multi-stakeholder engagement was completed on the successful renewal of the Nechalacho Water License and Land Use Permit.	AA

TSM Performance Indicator	FY2020 Target	FY2020 Action Plan	FY2019 Actual	FY2019 Action Taken	FY2019 Target
Communities of Interest Response Mechanism	AAA	In addition to incorporating Communities of Interest input into advancing projects, develop a more formal process for complaints management that would be applicable to all projects.	AAA	An engagement plan was developed in consultation with Indigenous groups and approved by regulators at Separation Rapids. Discussions were held with WIN in support of communities' concerns unrelated to the project. An MOU is under development at East Kemptville, but is on hold pending project advancement. All Communities of Interest at Nechalacho were engaged on the renewal of the Water License and Land Use Permit for early construction activities. Avalon supported Cheetah in their work programs at Nechalacho. In addition, Avalon supported the Yellowknives Dene First Nation in an unsuccessful attempt to obtain funding for an energy and road corridor across their territory.	AAA
Reporting	AA	Complete 2020 Sustainability Report. Promote the new complaints process with Communities of Interest.	AA	2019 Sustainability Report completed. Management received regular updates on engagement activities throughout the year.	AA

ENERGY AND GREENHOUSE GAS EMISSIONS

Energy use and greenhouse gas emissions management systems	A	Continue to develop sensor-based ore-sorting projects. Monitor technology development in the mining industry through industry associations and conferences.	A	Extensive effort was initiated and ongoing with respect to the development of new sensor-based ore-sorting to reduce water, waste and energy use at Nechalacho, Separation Rapids and East Kemptville projects.	A
Energy use and greenhouse gas emissions reporting systems	A	Expand energy reporting to additional projects (pending financing); continue to participate in industry associations with respect to climate change initiatives.	A	Avalon's energy measurement and monitoring system was adapted and provided to the exploration industry and is available on the PDAC web site, along with Avalon case studies. Avalon participated in a multi-disciplined climate change group, looking at developing a Climate Change Risk Management system.	A
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	Avalon participated in industry association efforts to lobby for practical and achievable regulation and mitigate cost risks.	A

BIODIVERSITY CONVERSATION

Corporate biodiversity conservation commitment, accountability and communications	A	Continue to advance environmental baseline studies for financed projects as necessary; develop biodiversity management plans for species of importance as required for advancing projects.	A	Avalon advanced the clean tailings cover design for the East Kemptville project, including plant growth experiments. No projects advanced to the stage that management plans were required. Additional baseline work was completed at Nechalacho in support of Cheetah. Avalon participated in PDAC and MAC submissions on the new draft Migratory Birds Act.	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 Communities of Interest. Participate in the MAC Biodiversity Protocol update, if completed in the next fiscal year.	A	Avalon continued to promote the rehabilitation strategy for the East Kemptville Project with all Communities of Interest. There were no known impacts on biodiversity values as a result of activities in the reporting period.	A

TSM Performance Indicator	FY2020 Target	FY2020 Action Plan	FY2019 Actual	FY2019 Action Taken	FY2019 Target
Biodiversity conservation reporting	A	In addition to annual Sustainability Report, engage on biodiversity management with Communities of Interest for projects that move to next phase. Assist Cheetah to update biodiversity data if requested for their project.	A	A biodiversity overview for East Kemptville was included in closure plan that was drafted. Commitment was made for further discussion with the Acadia First Nation, pending project financing.	A

SAFETY AND HEALTH

Commitments and accountability	A	Continue to review and assign operational health, safety and environment responsibilities at active project sites. Advance safety programs for projects that advance to next stage of development.	A	Safety systems implemented for all active drilling projects.	A
Planning and implementation	A	Conduct risk assessments and prepare safety management plans for new projects and update old assessments as appropriate.	A	Avalon developed risk assessments for all drill projects. A new safety procedure was generated for new risk (large sample bag loading and transport).	A
Training, behaviour and culture	AA	Train all personnel as appropriate for site work.	AA	Training was carried out for new procedures and emergency response plans.	AA
Monitoring and reporting	A	Continue to report leading and lagging indicators at material projects.	A	Avalon drill contractors reported leading and lagging indicators.	A
Performance	AA	Set and work toward safety targets appropriate for the work. Target recordable injuries for drilling programs.	AA	Met all safety targets.	AA

CRISIS MANAGEMENT AND COMMUNICATIONS

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 and train appropriate employees.	Comp.	Emergency response plans were updated at sites where work took place.	Comp.
Review	Comp.	Install new computers and assess need to replace servers. Update emergency response plans at active sites.	Comp.	Emergency response plans were updated at sites where work took place.	Comp.
Training	Comp.	Complete a desktop crisis simulation, pending financing for an advancing project.	N/A	No simulations were carried out due to lack of financing and project advancement to required stage.	Comp.

WATER STEWARDSHIP (NEW PROTOCOL FOR 2019)

Water governance	A	Drillers to be made aware of responsibilities for water management at all drill programs. Spill and emergency response plans will be in place, equipped and training at all active sites.			
Operational water management	A	Collect additional baseline data for Nechalacho T-Zone area; acquire approval to dewater the adit in 2019; assess need for upgrade of domestic and sewage water treatment at Nechalacho for Cheetah camp upgrades, including need for additional effluent monitoring.			
Watershed-scale planning	A	Continue to engage with the Tuskent River Environmental Protection Association at East Kemptville and discussions with WIN regarding potential support for mercury monitoring near Separation Rapids.			
Water reporting and performance	A	Evaluate need for or opportunities to augment site water quality monitoring at sites with active water discharges. Report performance in annual Sustainability Reports where collected.			

United Nations SDGs



FY2019 is the first year Avalon has integrated the United Nations 17 Sustainable Development Goals (SDGs) into its sustainability reporting.

In 2014, Avalon undertook a detailed and inclusive process to develop its Sustainability Report content using the Global Reporting Initiative (GRI)'s framework. A multidisciplinary team composed of management and non-management level employees led the initiative, compiled relevant information and conducted the materiality assessment. The output of this process identified which topics have the highest priority and materiality to the Company's objectives and to its Communities of Interest. The topics and Communities of Interest list have been reviewed annually since 2014, and have guided what Avalon chooses to include in the GRI Index in each of its annual Sustainability Reports.

This year, Avalon has mapped the SDGs onto its current GRI disclosure to assess which UN goals are most relevant to Avalon's sustainability journey. The chart on [page 26](#) summarizes this data. Note that most GRI Disclosures correspond to more than one SDG.

The top three SDGs that emerged as most material to Avalon's business are: Life on Land; Decent Work and Economic Growth; and Clean Water and Sanitation. These goals are summarized below.

SDG 15: PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Business and ecosystems are linked. To retain the integrity and vitality of natural resources today and for future generations and to ensure long-term socio-economic growth and prosperity, sustainable management of land is key. Business can directly contribute to this SDG by measuring, managing, mitigating and reporting on its impact and dependence on land and ecosystems, such as through Avalon's annual Sustainability Reports.

SDG 8: PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

Businesses are engines for job creation and economic growth. Quality work opportunities are good for business and society. Companies that uphold labour standards across their own operations and value chains face lower risk of reputational damage and legal liability. Instituting non-discriminatory practices and embracing diversity and inclusion will also lead to greater access to skilled, productive talent.

Avalon hires local employees and contractors wherever possible to stimulate economic activity in areas local to the Company’s projects. Once projects are in construction and production stages, hundreds of well-paying, quality jobs will be available in the regions.

SDG 6: ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Access to water and sanitation are basic human rights and are critical sustainable development challenges. Business can contribute to the alleviation of these water challenges by adopting a water stewardship strategy that addresses the economic, environment and social dimensions of water.

Avalon adopts high water standards in all levels of project design. At the Nechalacho Project in the Northwest Territories, 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 guidelines in Avalon’s water permit.

Avalon chose to incorporate the SDGs into its sustainability reporting due to several comments from Communities of Interest asking about the initiative. In this year’s report, look for the corresponding icon in the GRI Index ([page 27](#)) to indicate where each SDG is associated with Avalon’s GRI disclosures.

UN Sustainable Development Goal	# of Avalon’s GRI Disclosures pertaining to theme	Icon in text
Life on Land	27	
Decent work and economic growth	24	
Clean water and sanitation	19	
Peace, justice and strong institutions	18	
Gender equality	15	
Responsible consumption and production	15	
Good health and well being	14	
Life below water	13	
Affordable and clean energy	8	
Zero hunger	7	
Industry, innovation and infrastructure	7	
Climate action	6	
No poverty	5	
Quality education	5	
Reduced inequalities	4	
Sustainable cities and communities	1	

Global Reporting Initiative Index

Please note that, due to Avalon not significantly changing its form, governance or approach to material topics during the fiscal year, many of the Disclosures in the Index below contain repetitive text from Avalon's previous reports.

As discussed on [page 26](#), the Index below contains a column with icons to indicate which United Nations Sustainable Development Goal(s) the GRI Disclosure corresponds with.

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 minerals for sustainable technologies.

Location of headquarters 102-03

Toronto, Ontario, Canada.

Location of operations 102-04

Canada. See Avalon's website at [Projects](#) for specific project locations.

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 OTCQB 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 clean technology sector, where new demand is being created for elements such as lithium and the rare earths.

Scale of the Organization
102-07

See Avalon’s 2019 Year End Financial Statements available publicly on [SEDAR](#) and [EDGAR](#).

Information on employees and other workers
102-08

As at August 31, 2019, Avalon had nine permanent, full time employees (four female, five male) and two permanent, part time employees (one female, one male). 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

No significant changes during FY2019 in Avalon’s ownership, scale or supply chain. In June 2019, Avalon and Cheetah Resources Pty Ltd. signed a purchase and sale agreement under which Cheetah will acquire ownership of the near-surface T-Zone and Tardiff Zone resources for C\$5 million. Avalon retains its ownership of the mineral resources below a depth of 150 metres above sea level (including the Basal Zone deposit) and will continue to have access to the property for exploration, development and mining purposes. Avalon will also continue to assist Cheetah where needed in executing its planned work programs and retain its 3% NSR type royalty.

Avalon has included the work programs it managed for Cheetah within its health and safety statistics. However, Cheetah’s programs’ GHG emissions, wastes and water usage are not calculated as part of Avalon’s overall data.

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 e3 Plus: A Framework for Responsible Exploration and the Mining Association of Canada (MAC)’s *Towards Sustainable Mining* (TSM) framework.

**Membership of associations
102-13**

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 Leaching and Separation Committee Member Physical Separation Committee Member Research & Development Initiative Steering Committee
International Standards Organization TC298 Rare Earths Canadian Mirror Committee	Committee Member
International Tin Association	Member - Explorers and Developers Group
Metallurgical Society of Canada's COM2020 Critical Materials Symposium	Organizing Committee Member
Mining Association of Canada	Member of the Board Environmental Committee Member Science Committee Member Community of Interest Panel
Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists	Member
NWT & Nunavut Chamber of Mines	Member of the Board
Prospectors and Developers Association of Canada	Aboriginal Affairs Committee Member Awards Committee Member Convention Planning Member Geoscience Committee Member Health and Safety Committee Chair Sustainability Committee Member

This information refers to memberships maintained at the organizational level. In addition, Avalon supports Don 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 [page 3](#).

**Key impacts, risks and opportunities
102-15**

See Message from the VP, Sustainability on [page 7](#), FY2019 Goals on [page 11](#) and Disclosures on Management Approach on page 46 of Avalon's [2017 Sustainability Report](#).

ETHICS AND INTEGRITY

**Values, principles, standards and norms of behavior
102-16**

See Avalon's website at [About - Governance](#) 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 [About - Governance](#). 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 [About - Directors and Committees](#).

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 FY2019) or at necessary times 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, to the Company's policies. Current policies are found on Avalon's website at [About - Governance](#).

Executive-level responsibility for economic, environmental and social topics
102-20

Avalon's 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 in order to provide project updates and obtain feedback. As well, Communities of Interest may contact the appropriate manager for consultation, most frequently through the VP, Exploration; VP, Sustainability; President and CEO; or Manager, Investor Relations. The Chair of the Board is accessible to Communities of Interest outreach on concerns.



Composition of the highest governance body and its committees
102-22

See Avalon's website at [About - Directors and Committees](#).



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 accepts recommendations from the President and CEO. As a publicly-traded company, all members of Avalon's Board of Directors are re-elected by shareholders' votes at the Company's Annual General Meeting.



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. Avalon is currently reviewing all its corporate policies, and expects all documents, including the Company's Code of Business Conduct and Ethics, to be updated in early 2020.



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 [page 30](#).



Evaluating the highest governance body's performance
102-28

The Board of Directors conducted a self-assessment, 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 are planned to be conducted in the future.

Identifying and managing economic, environmental and social impacts
102-29

Avalon continuously works at embedding risk management practices throughout the organization, from periodic reporting of high level risks to the Board of Directors through 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.



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 in 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.

Effectiveness of risk management processes
102-30

Avalon's 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 [page 30](#).

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 [page 30](#).

Nature and total number of critical concerns
102-34

Avalon did not experience any health and safety, environmental, community or financial critical concerns over the course of FY2019. Mechanism for addressing critical concerns is as described in Avalon's Whistleblower Protection Policy found on Avalon's website at [About - Governance](#).

Remuneration policies
102-35

Avalon's CGN Committee aims to evaluate and maintain fair and reasonable levels of compensation. 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 Avalon's 2019 Year End Financial Statements with Management Discussion and Analysis publicly available on [SEDAR](#) and [EDGAR](#), or Avalon's annual Information Circular available on its website at [Investors - Regulatory Filings](#).

Process for determining remuneration
102-36

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
102-37

Remuneration at Avalon follows the prevailing conditions of the market. The Company's methodology and practices with respect to remuneration are described in detail in the Company's 2019 [Information Circular](#). No issues were raised by the shareholders with respect to remuneration at the Company's Annual General Meeting in February 2019.



STAKEHOLDER ENGAGEMENT

List of stakeholder groups
102-40

See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's [2016 Sustainability Report](#).

Collective bargaining agreements
102-41

None.



Identifying and selecting stakeholders
102-42

See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's [2016 Sustainability Report](#).

Approach to stakeholder engagement
102-43

As reflected in the table below, Avalon regularly conducts Communities of Interest 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		
	2019	2018	2017	2019	2018	2017	2019	2018	2017	2019	2018	2019	2018	2017
Total Non-Indigenous	124	126	196	54	119	55	58	47	51	0	1	40	20	53
Contacts	108	98	138	42	48	46	42	28	39	0	1	21	4	29
Engagements	16	28	58	12	71	9	16	19	12	0	0	19	16	24
Government/Regulators	245	125	194	66	43	27	122	36	38	0	1	31	5	5
Other	0	1	1	0	21	27	5	11	13	0	0	481	15	42
NGOs	0	0	1	0	55	1	48	0	0	0	0	0	0	6
Surface Rights Holder	-	-	-	43	-	-	-	-	-	-	-	-	-	-
Total Indigenous	162	111	213	19	30	2	58	17	4	1	3	1	2	2
Contacts	159	105	192	14	4	1	47	16	4	1	3	1	2	2
Engagements	3	6	21	5	26	1	11	1	0	0	0	0	0	0
Indigenous Governments and Organizations	159	79	159	62	30	2	106	14	0	5	3	0	0	1
Indigenous Business	68	28	52	0	0	0	21	3	3	0	0	2	1	0
Indigenous Other	12	4	2	43	0	0	2	0	1	0	0	0	1	1
Indigenous Rights Violations	0	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 Communities of Interest in FY2018, and engagement continued at all active projects in FY2019. The Company also engaged with industry associations, regulators and federal and provincial governments throughout FY2019, 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 Message from the VP, Sustainability on [page 7](#) and FY2019 Goal Performance on [page 11](#) for examples of engagement.

REPORTING PRACTICE

Entities included in the consolidated financial statements
102-45

See Avalon's 2019 Year End Financial Statements available publicly on [SEDAR](#) and [EDGAR](#). 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
102-46

See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's [2016 Sustainability Report](#).

List of material topics
102-47

See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's [2016 Sustainability Report](#).

Restatements of information
102-48

There have been no restatements of Avalon's previous Sustainability Reports.

Changes in reporting
102-49

See 'Defining Report Content, Materiality, and Boundaries' on page 49 of Avalon's [2016 Sustainability Report](#).

Reporting period
102-50

September 1, 2018 to August 31, 2019 (Avalon's 2019 fiscal year).

Date of most recent report
102-51

December 3, 2018.

Reporting cycle
102-52

Annual.

Contact point for questions regarding the report
102-53

Avalon's VP, Sustainability, Mark Wiseman, can be reached at sustainability@AvalonAM.com 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 [page 27](#).

**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
103-01/02/03**

See Disclosures on Management Approach starting on page 46 of Avalon's [2017 Sustainability Report](#).



GRI 201: ECONOMIC PERFORMANCE 2016

**Direct economic value generated and distributed
201-01**

	FY2019	FY2018	FY2017	FY2016
Revenue	-	-	-	-
Interest	\$42,819	\$61,777	\$28,211	\$35,160
Management fees	\$10,204	-	-	-
Expenses	\$3,594,034	\$3,520,753	\$3,703,000	\$3,990,945
Loss from Operations	-\$3,541,011	-\$3,458,976	-\$3,674,789	-\$3,955,785
Deferred Income Tax Recoveries	\$154,676	\$218,232	\$317,468	\$416,140
Net Loss for the Year	-\$3,386,335	-\$3,240,744	-\$3,357,321	-\$3,539,645



**Defined benefit plan obligations and other retirement plans
201-03**

Avalon has no defined benefits plan.

**Financial assistance received from government
201-04**

None.

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 FY2019.



GRI 204: PROCUREMENT PRACTICES 2016

Proportion of spending on local suppliers 204-01

	FY2019		FY2018		FY2017		FY2016	
Indigenous Vendors	1%	\$2,000	1%	\$7,944	1%	\$18,710	0%	\$2,289
Local Vendors	28%	\$100,864	22%	\$258,679	24%	\$355,030	22%	\$296,919
Other Vendors	71%	\$251,980	77%	\$903,882	75%	\$1,106,089	78%	\$1,048,489
TOTAL		\$354,844		\$1,170,505		\$1,479,829		\$1,347,697

	FY2019		FY2018		FY2017		FY2016	
Indigenous Vendors	0%	-	0%	\$0	0%	\$0	0%	\$0
Local Vendors	48%	\$82,713	13%	\$30,230	41%	\$35,966	22%	\$273,059
Other Vendors	52%	\$90,252	87%	\$206,689	59%	\$51,923	78%	\$995,275
TOTAL		\$172,965		\$236,919		\$87,889		\$1,268,334

	FY2019		FY2018		FY2017		FY2016	
Indigenous Vendors	13%	\$10,982	23%	\$42,113	11%	\$14,413	0%	\$245
Local Vendors	51%	\$43,787	62%	\$114,556	41%	\$51,187	30%	\$58,883
Other Vendors	36%	\$31,600	15%	\$28,668	48%	\$60,086	70%	\$140,122
TOTAL		\$86,369		\$185,337		\$125,686		\$199,250



GRI 302: ENERGY 2016

Energy consumption within the organization 302-01

Avalon consumed 389.29 gigajoules (GJ) internally over FY2019. See table below for year-over-year comparison.



**Energy consumption outside of the organization
302-02**

Avalon consumed 313.24 GJ externally over FY2019. See table below for year-over-year comparison.

Energy Use (GJ)					
	FY2019	FY2018	FY2017	FY2016	FY2015
Internal	389.29	1206.64	1368.77	788.1	730
External	313.24	359.86	455.29	535.2	1248.3

**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. External energy use decreased in FY2019 primarily due to reduced executive travel, while internal energy use primarily decreased due to lack of drill activity at Company’s sites, as well as a reduced footprint at the head office.

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 Communities of Interest.



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 Probable Maximum Storm events. Aquatic, terrestrial species and Species at Risk Act (SARA)-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. 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.

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 minerals 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 Property in the Northwest Territories, Avalon worked with academia and regulators to develop effluent guidelines for the rare earth elements using protocols similar to the Canadian Council of Minister of Environment protocols. These guidelines have subsequently been proposed as regulatory guidelines 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 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 used 250 metres³ of water during FY2019 at its office headquarters in Toronto.



Water discharge
303-04

Virtually all of the 250 metres³ of water was returned to the municipal system for treatment and eventual release into the natural environment.

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.

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.



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.



Habitats protected or restored
304-03

See Disclosure G4-MM01 on [page 46](#).

IUCN Red List species and national conservation list species with habitats in areas affected by operations
304-04

At Nechalacho, 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.”

The only IUCN Red List species identified at Avalon’s Separation Rapids site—specifically was some occurrences of the Little Brown Bat (Endangered) in 2013. Avalon plans to assess power line route options and access roads, and conduct a SARA study on the chosen route to determine if there are any concerns in the areas surrounding the project site.

No federally or provincially designated vascular plant species at risk were encountered at the East Kemptville Project. A wetland survey was completed and no new concerns were identified in FY2019, though four species of conservation interest (all IUCN listed as Least Concern) were identified: a barn swallow (provincially considered as Endangered); pairs of Common Nighthawk (Threatened); snapping turtles (Vulnerable); and mainland moose (Endangered).



GRI 305: EMISSIONS 2016

Direct (Scope 1) GHG emissions
305-01

Avalon generated total Scope 1 Emissions of 3.77 tonnes of CO₂e. See table below for year-over-year comparisons.

Energy indirect (Scope 2) emissions
305-02

Avalon generated total Scope 2 Emissions of 15.46 tonnes of CO₂e. See table below for year-over-year comparisons. Scope 1 and 2 emissions primarily decreased due to lack of drill activity at Company’s sites, as well as a reduced footprint at the head office.

Other indirect (Scope 3) emissions
305-03

Avalon generated total Scope 3 Emissions of 13.98 tonnes of CO₂e. See table below for year-over-year comparisons. Scope 3 Emissions decreased primarily due to reduced executive travel.



GHG Emissions (Tonnes CO2e)					
	2019	2018	2017	2016	2015
Scope 1	3.77	52.36	64.58	46.54	38.94
Scope 2	15.46	23.78	7.19	7.65	9.08
Scope 3	13.98	27.25	33.43	39.55	86.11

Nitrogen oxides (NOX), sulfur oxides (SOX) and other significant air emissions
305-07

NOX are included in the CO₂e totals for Scope 1, 2 and 3 emissions. Due to the factors used to convert units of energy/distance to CO₂e, only for some types of emissions are the NOX tonnes calculated separately, and then converted to CO₂e. SOX is not a material component of the Company's emissions at this time.



GRI 306: EFFLUENTS AND WASTE 2016

Water discharge by quality and destination
306-01

Avalon used 250 metres³ of water during FY2019 at its office headquarters in Toronto. Virtually all of the 250 metres³ of water was returned to the municipal system for treatment and eventual release into the natural environment. 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.



Waste by type and disposal method
306-02

Avalon did not create or dispose of any wastes at its project sites in FY2019.



Significant spills
306-03

Avalon had no reportable spills during the course of FY2019.

Given that the Nechalacho camp had not been used in several years, Avalon made significant effort to rehabilitate the existing facilities. There were two positive inspections by the GNWT Land Use Inspector, and Avalon completed minor recommendations for improvements in a timely manner. For example, a diesel drum was found to have a small drip. The drum had been disconnected from the lines, but not correctly stood up to avoid leakage. Avalon collected all contaminated soil and removed it for treatment.



Transport of hazardous waste
306-04

None.

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 FY2019.



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.

Avalon includes its sustainability questionnaire on Requests for Proposals. The contractors' health and safety record, including sustainability questionnaire responses, are factored into Avalon's ultimate choice of contractor.

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 FY2019, one female employee returned from parental leave.



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.

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.

Hazard identification, risk assessment and incident investigation 403-02

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.

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.





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.

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
FY2019	0	0	0	0	0	0	0	27,207	0
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 FY2019. 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.

GRI 404: TRAINING AND EDUCATION 2016

Average hours of training per year per employee 404-01

50.46 hours of training or professional development were recorded on average for each of Avalon's eleven employees in FY2019, or 555 hours company-wide.

- Five female employees completed a total of 310 hours, or an average of 62 hours per female employee.
- Six male employees completed a total of 245 hours, or an average of 40.84 hours per male employee.
- Five professional level employees completed a total of 280 hours, or an average of 56 hours per professional level employee.
- Six executive level employees completed 275 hours, or an average of 45.84 hours per executive level employee.

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



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

	% of Board	Over 50
Male - 3	75	3
Female - 1*	25	1

	<30 Female	<30 Male	30-50 Female	30-50 Male	>50 Female	>50 Male
Professional	0	0	3	1	1	0
Executive	0	0	0	1	1	4
Total	0	0	3	2	2	4

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

*Naomi Johnson is not included here, as her appointment was slightly subsequent to the reporting period.



GRI 406: NON-DISCRIMINATION

Incidents of discrimination 406-01

Avalon had no incidents of discrimination at any of its work sites in FY2019.



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 in FY2019.



GRI 412: HUMANS RIGHTS ASSESSMENT 2016

Employee training on human rights policies or procedures 412-02

Each year, every Avalon 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, including Avalon's Anti-Harassment, Bullying and Violence Policy.

GRI 413: LOCAL COMMUNITIES 2016

Operations with local community engagement, impact assessments, and development programs 413-01

Avalon's level of engagement with Communities of Interest is commensurate with project activity.

Community engagement and information exchanges occurred throughout FY2019 in respect to Avalon's Nechalacho, Separation Rapids and East Kemptville projects, though no formalized programs have yet been developed for these projects given Avalon's present low impact activities.

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 - Nechalacho - Community Engagement](#).

Operations with significant actual and potential negative impacts on local communities 413-02

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. Avalon seeks out opportunities for both short and long term benefits to the local communities commensurate to project activity.



GRI 414: SUPPLIER SOCIAL ASSESSMENT 2016

New suppliers that were screened using social criteria
414-01

See 308-01 on [page 41](#).



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 FY2019.

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.



The Number And Percentage Of Sites Requiring Biodiversity Management Plans and Percentage Of Those Sites With Plans In Place
G4-MM02

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.

The Nechalacho Property 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 Mackenzie Valley Land and Water Board public registry.



**Total Amounts Of Overburden, Rock, Tailings, And Sludges And Their Associated Risks
G4-MM03**

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 or Nechalacho.

Avalon possesses 94 drums of flotation process water in Yellowknife awaiting disposal. An analysis conducted in 2017 confirmed that the average concentrations of elements are well within the Metal Mining Effluent Regulation limits and below to marginally above the Canadian Council of Ministers of the Environment guidelines and as such are unlikely to be a concern for reputable water management facilities.



**Number of Strikes and Lock-outs Exceeding One Week's Duration
G4-MM04**

None.



**Total Number Of Operations Taking Place In Or Adjacent To Indigenous Peoples' Territories, where there are formal Agreements
G4-MM05**

Avalon has no operations, but has three advanced projects near Indigenous communities. At the Nechalacho Property, 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 - Nechalacho - Community Engagement](#) for more information.

Avalon has an MOU with the WIN and initiated discussions with the MNO at the Separation Rapids Project in Northwestern Ontario.

Avalon is advancing with an MOU with the Acadia First Nation near the East Kemptville Project in Nova Scotia.



**Significant Disputes Relating To Land Use
G4-MM06**

Avalon had no minor or significant disputes relating to land use, customary rights of local communities, or Indigenous people in FY2019.



**Grievance Mechanisms To Resolve Land Use Disputes
G4-MM07**

Avalon had no land use grievances reported in FY2019; therefore, grievance mechanisms were not used.



**Number And Percentage Of Operations With Closure Plans
G4-MM10**

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. Please see Avalon's 2019 Year End Financial statements, available publicly on [SEDAR](#) and [EDGAR](#), for details.



AVALON
ADVANCED MATERIALS INC.

CRITICAL MINERALS FOR A SUSTAINABLE FUTURE