



**Avalon Advanced Materials Inc.**

**Annual Information Form**  
**For the Year Ended August 31, 2024**

**Dated as of November 28, 2024**

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## 1. Preliminary Information

In this Annual Information Form (the "AIF"), except as otherwise indicated or as the context otherwise requires, the "Company", "we", "our" or "us" or "Avalon" refers to Avalon Advanced Materials Inc. All information contained herein is as at November 28, 2024 and all monetary amounts are stated in Canadian dollars, unless otherwise stated.

### *Land Acknowledgement*

Avalon Advanced Materials Inc. acknowledges that our work takes place within the ancestral and traditional territories of First Nations and Métis people. We respect Indigenous rights and are committed to deepening our existing relationships while forging new and lasting ties which will ensure we and future generations benefit from the positive social and economic opportunities related to our operations.

### 1.1. Financial Statements

This AIF should be read in conjunction with the Company's consolidated financial statements and management's discussion and analysis for the 12 months ended August 31, 2024 (the "Fiscal Year" or "Fiscal 2024"). The consolidated financial statements and management's discussion and analysis are available on the Company's website at [www.avalonadvancedmaterials.com](http://www.avalonadvancedmaterials.com) and under the Company's profile on the SEDAR website at [www.sedarplus.ca](http://www.sedarplus.ca). All financial statements are prepared in accordance with International Financial Reporting Standards and are reported in Canadian dollars.

### 1.2. National Instrument 43-101 - Qualified Persons

The technical information included in this AIF, unless otherwise stated, has been reviewed and approved by Rickardo Welyhorsky, P. Eng., Vice-President, Operations of the Company. Mr. Welyhorsky is a Qualified Person under National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("NI 43-101").

### 1.3. Cautionary Note to U.S. Persons

This AIF was prepared in accordance with Canadian standards for reporting of mineral resource estimates, which differ in some respects from United States standards. In particular, and without limiting the generality of the foregoing, the terms "mineral resources," "inferred mineral resources," "indicated mineral resources," "measured mineral resources," "mineral reserves," "proven mineral reserves," and "probable mineral reserves" used or referenced in this AIF are Canadian mineral disclosure terms as defined in accordance with NI 43-101 under the guidelines set out in the CIM Standards. These definitions differ from the definitions in Subpart 1300 of Regulation S-K ("Subpart 1300"), based on the Committee for Mineral Reserves International Reporting Standards ("CRIRSCO"), which replaced the United States Securities and Exchange Commission's (the "SEC") Industry Guide 7 as part of the SEC's amendments to its disclosure rules to modernize the mineral property disclosure requirements. These amendments became effective February 25, 2019 and registrants were required to comply with the Subpart 1300 provisions by their first fiscal year beginning on or after January 1, 2021. Readers are cautioned not to assume that all or any part of mineral reserves and mineral resources determined in accordance with NI 43-101 and CIM Standards will qualify as, or be identical to, mineral reserves and mineral resources estimated under the standards of the SEC applicable to U.S. companies under Subpart 1300. While the definitions in Subpart 1300 are more similar to the definitions in NI 43-101 and the definitions in the CIM Standards than were the Industry Guide 7 provisions due to the adoption in Subpart 1300

of terms describing mineral reserves and mineral resources that are “substantially similar” to the corresponding terms under the definitions in the CIM Standards, including the SEC now recognizing estimates of “measured mineral resources”, “indicated mineral resources” and “inferred mineral resources” and amending its definitions of “proven mineral reserves” and “probable mineral reserves” to be “substantially similar” to the corresponding definitions under the CIM Standards that are required under NI 43-101, the definitions in Subpart 1300 still differ from the requirements of, and the definitions in, NI 43-101 and the CIM Standards. Investors are cautioned that while the above terms are “substantially similar” to the corresponding definitions in the CIM Standards, there are differences in the definitions in Subpart 1300 and the CIM Standards. Accordingly, there is no assurance any mineral resources or mineral reserves that the Company may report as “inferred mineral resources,” “indicated mineral resources,” “measured mineral resources,” “proven mineral reserves,” and “probable mineral reserves” under NI 43-101 would be the same had the Company prepared the mineral resource or mineral reserve estimates under the standards adopted under the standards of the SEC applicable to U.S. domestic companies under Subpart 1300. Investors are also cautioned that while the SEC recognizes “inferred mineral resources,” “indicated mineral resources,” and “measured mineral resources” under Subpart 1300, investors should not assume that any part or all of the mineralization in these categories will ever be converted into a higher category of mineral resources or into mineral reserves. Mineralization described using these terms has a great amount of uncertainty as to its existence, and great uncertainty as to its economic feasibility than mineralization that has been characterized as reserves. Accordingly, investors are cautioned not to assume that any measured mineral resources, indicated mineral resources, or inferred mineral resources that the Company reports are or will be economically or legally mineable. Under Canadian rules, estimates of “inferred mineral resources” may not form the basis of feasibility or other economic studies, except in limited circumstances. Readers are also cautioned not to assume that all or any part of an inferred mineral resource exists. The term “resource” does not equate to the term “reserves”. Accordingly, information contained herein containing descriptions of the Company’s mineral deposits may not be comparable to similar information made public by United States companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations thereunder.

## **2. Disclosure Regarding Forward-Looking Information**

Certain of the statements that are not historical facts contained in this AIF are forward-looking information and forward-looking statements that involve risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in the forward-looking statements. Such forward-looking statements reflect the Company’s current views with respect to future events and include, among other things, statements regarding targets, estimates and/or assumptions in respect of reserves and/or resources, and are based on estimates and/or assumptions related to future economic, market and other conditions that, while considered reasonable by management, are inherently subject to risks and uncertainties, including significant business, economic, competitive, political and social uncertainties and contingencies. These estimates and/or assumptions include, but are not limited to:

- grade of ore;
- mineral product and commodity prices;
- metallurgical recoveries;
- operating costs;
- achievement of current timetables for development;
- strength of the global economy;
- availability of additional capital;

- availability of supplies, equipment and labour; and
- market and sector trends.

Factors that could cause the Company's actual results, performance, achievements, developments or events to differ materially from those expressed or implied by forward-looking statements include, among others, the factors described or referred to under "Risk Factors" in this AIF, and:

- risks related to the Company's history of losses, lack of operating history, ability to generate material revenues and continue as a going concern;
- risks related to the Company's joint venture with Sibelco, including dilution and control risks;
- risks related to establishing new operations in the event that the Company elects to proceed with the development of one of its projects;
- risks related to the Company's need for additional financing;
- risks related to any joint venture or strategic alliances that may be entered into by the Company;
- risks related to either Avalon's or Cheetah Resources Pty Ltd. ("Cheetah")'s development plans of the Nechalacho Rare Earth Elements Project ("Nechalacho" or the "Nechalacho Project") negatively impacting the other's development plans;
- risks related to securing product offtake agreements on a timely basis;
- risks related to the unique ore type at the Nechalacho Project for which known metallurgical processes have not previously been applied;
- uncertainty related to title to the Company's properties as well as the risk of delays in obtaining licenses and permits as a result of local opposition, including uncertainty related to any challenges in connection with Indigenous land title claims and Indigenous rights;
- risks related to the possible existence of rights and interests of Indigenous groups, which may limit the Company's ability to develop its properties;
- risks related to the need to acquire properties for the hydrometallurgical plant and potentially a rare earth refinery for the Nechalacho Project;
- risks that actual capital costs, production schedules and economic returns for the Nechalacho Project may differ significantly from those anticipated by the Company;
- risks related to the demand for technology metals and minerals and fluctuations in their pricing;
- risks related to the demand for lithium and fluctuations in its pricing;
- risks related to competition and the actions of competitors;
- risks related to costs or delays in the commercialization of rare earth products;
- uncertainties related to the fact that the Company's mineral resources and mineral reserves are only estimates;
- risks related to obtaining, maintaining and renewing licenses and permits, and the material costs, liabilities and obligations in connection therewith;
- risks that the Company will be subject to material costs, liabilities and obligations in connection with environmental laws, regulations and approvals and that approvals will not be available;
- uncertainties involving uninsured risks;
- risks related to possible shortages of supplies, equipment and labour;
- risks related to the Company's ability to attract and retain qualified management and technical personnel;
- uncertainty whether the Company will acquire commercially mineable ore deposits or whether the current mineral deposits identified by the Company can be developed as commercially viable ore bodies;
- risks inherent to the competitive nature of the mineral industry;

- risks related to the extensive federal, state, provincial, territorial and local laws and regulations to which the Company's activities are subject;
- risks related to the availability and reliability of adequate infrastructure;
- risks and hazards inherent to the mining industry;
- risks related to any changes in critical accounting estimates that adversely affect the Company's financial results;
- risks related to potential conflicts of interest of the Company's directors and officers who may have involvement with other resource companies;
- risks related to cybersecurity;
- risks due to being a "passive foreign investment company" for U.S. purposes;
- risks related to fluctuations of currency exchange rates;
- risks related to share price volatility;
- risks related to dilution of existing shareholders;
- risks related to not paying cash dividends;
- risks related to international conflicts;
- risks related to global financial conditions; and
- risks related to there being no market for the Company's warrants.

Most of the foregoing factors are beyond the Company's ability to control or predict. Although the Company has attempted to identify important factors that could cause actual results, performance, achievements, developments or events to differ materially from those described in forward-looking statements, there may be other factors that cause actual results, performance, achievements, developments or events not to be as anticipated, estimated or intended. There can be no assurance that the estimates and/or assumptions upon which these forward-looking statements are based will occur.

Readers can identify many of these statements by looking for words such as "believe", "expects", "will", "intends", "projects", "anticipates", "estimates", "continues" or similar words or the negative thereof. 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 made as of the date of this AIF and are expressly 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 Company undertakes no obligation to publicly revise these forward-looking statements to reflect subsequent events or circumstances, except as required by applicable law.

### 3. Corporate Structure

The Company was amalgamated on July 24, 1991 under the *Company Act* (British Columbia) (now the *Business Corporations Act* (British Columbia) ("BCA")) under the name Keith Resources Ltd. pursuant to the amalgamation of Rockridge Mining Company and Meadfield Mining Corp.

On September 29, 1994, the Company consolidated its share capital on a five-for-one basis and changed its name to Avalon Ventures Ltd.

On July 18, 2005, the Company carried out a transition under the BCA by filing Notice of Articles and at the same time adopted new Articles to bring them in line with the requirements and alternatives available under the BCA, including increasing its authorized share structure to an unlimited number of common shares without par value and 25,000,000 preferred shares without par value. The new Articles also reduced the

percentage of votes required from 75% to 66 2/3% to pass special and separate resolutions and gave authority to the Board of Directors to make capital alterations and changes to the Company's name as permitted under the BCA.

On February 17, 2009, the Company changed its name to Avalon Rare Metals Inc.

On February 9, 2011, the Company continued under the *Canada Business Corporations Act* ("CBCA").

On February 24, 2016, the Company changed its name to Avalon Advanced Materials Inc.

On March 15, 2021, the Company completed a share capital amendment, which involved amending the Company's articles to reflect a 500:1 consolidation of the Company's common shares, immediately followed by a 1:500 split of the Company's post-consolidated common shares on March 15, 2021 (the "Share Capital Amendment").

The Company's head and registered office is located at Suite 2060, 130 Adelaide Street West, Toronto, Ontario, M5H 3P5, (416) 364-4938.

The Company is a reporting issuer in all of the provinces (except for the Province of Quebec) and territories of Canada. The Company's shares are listed and posted for trading on the Toronto Stock Exchange in Canada (the "TSX" or the "Exchange") under the symbol "AVL", on the OTCQB® Venture Market (the "OTCQB") in the United States under the symbol "AVLNF" and on the Frankfurt Stock Exchange in Germany under the symbol "OU5".

The Company operates principally in Canada and is currently extra-provincially registered to carry on business in Ontario, the Northwest Territories and Nova Scotia.

The Company has six directly wholly-owned subsidiaries – 1000560170 Ontario Inc. (an Ontario corporation), Avalon Lithium Inc. (a Canadian federal corporation), Nolava Minerals Inc. ("Nolava") (a Delaware corporation), Avalon Rare Metals Ltd. (a Delaware corporation), 8110131 Canada Inc. ("8110131") (a Canadian federal corporation) and Lake Superior Lithium Inc. (an Ontario corporation). 1000560170 Ontario Inc. is the owner of the Company's industrial land in Thunder Bay, Ontario. None of the other subsidiaries has carried on any significant operations since their incorporation except for the staking and exploration of certain mining claims in Utah, USA by Nolava and the acquisition of certain royalties by 8110131.

In addition, the Company has (i) a 50% interest in NWT Rare Earths Ltd., with Cheetah Resources Corp. owning the other 50%, which was created during the year ended August 31, 2020 to hold the exploration permits and related authorizations pertaining to the Nechalacho Project, in order to assist each party's development of their respective projects, and (ii) a 40% interest in Separation Rapids Ltd., with SCR-Sibelco NV ("Sibelco") owning the other 60%, which was created during the year ended August 31, 2023 as the entity to own and operate the Avalon-Sibelco joint venture assets.

## **4. General Development of the Business**

### **4.1 Three Year History**

Avalon is a mineral exploration and development company with a focus on critical minerals for new technologies and environmentally beneficial applications. Avalon operates primarily



in Canada with a focus on “Technology Metals” or “Cleantech Materials”, including lithium, tantalum, cesium, indium, gallium, germanium, tin, rare earth elements (“REE”), yttrium and zirconium.

For at least the last three fiscal years the Company has expended substantially all of its efforts on the development of its proposed lithium processing facility in Thunder Bay, Ontario, its Separation Rapids Lithium Project, the Lilypad Tantalum-Cesium Property and the East Kemptville Tin-Indium Project, while supporting Cheetah’s development of the Nechalacho T-Zone Project.

In May, 2022, the Company issued a convertible note payable in the amount of \$3,000,000 to an entity managed by the Lind Partners (“Lind”) (the “2022 Note”). The 2022 Note has a term of two years with a maturity date of May 9, 2024 and accrued an interest amount of \$600,000 on the date of issuance, resulting in the 2022 Note to bear a face value of \$3,600,000 at issuance. Lind is entitled to convert any outstanding amount of the face value of the 2022 Note into common shares commencing on September 10, 2022 at a conversion price equal to 85% of the five day trailing value weighted average price (“VWAP”) of the common shares prior to the date of conversion. The Company has the right to repurchase the 2022 Note at the outstanding face value at any time after September 10, 2022, subject to the holder’s option to convert up to one third of the original value into common shares prior to the Company’s repurchase. As at the date of this AIF, the balance on the 2022 Note was \$nil.

In September, 2022, the Company entered into a non-binding memorandum of understanding (the “MOU”) with LG Energy Solution (“LGES”) to supply LGES with a battery-grade lithium hydroxide from its planned processing facility starting in 2025. Under the terms of the MOU, Avalon would commit, for five years initially, to provide LGES with at least 50% of its planned initial lithium hydroxide production from its Thunder Bay facility, with the potential to increase production as demand grows. LGES would also provide 50% of initial feed for the years 2025-2030.

In June, 2023, the Company signed a binding term sheet to create a new joint venture with SCR-Sibelco NV (“Sibelco”), a global leader in materials solutions. Avalon issued to Sibelco, on a non-brokered private placement basis, (i) 109,692,764 common shares of Avalon (“Common Shares”) for aggregate proceeds of \$10,000,000, (ii) 1,793,722 Common Shares for aggregate proceeds of \$197,309.42 in a subsequent “top-up” financing which resulted in Sibelco owning 19.9% of the issued and outstanding Common Shares of Avalon after the top-up financing, and (iii) a secured convertible debenture in the principal amount of \$3,000,000 (the “2023 Debenture”) (collectively, the “Private Placement”). Subsequent to the end of the Fiscal Year, Avalon and Sibelco closed the joint venture transaction by transferring its Separation Rapids Lithium Project and Lilypad Project into a new joint venture company, Separation Rapids Ltd. (“SRL”).

Pursuant to the terms of the Private Placement, Sibelco (i) purchased 109,692,764 Common Shares at a price of approximately \$0.091164 per Common Share (the “Per Share Price”) for gross proceeds of \$10,000,000; (ii) purchased 1,793,722 Common Shares for aggregate proceeds of \$197,309.42 in a subsequent “top-up” financing which resulted in Sibelco owning approximately 19.9% of the issued and outstanding Common Shares of Avalon after the top-up financing; and (iii) advanced Avalon \$3,000,000 for the 2023 Debenture. The 2023 Debenture bears interest at 7.115% per annum and the principal and interest are payable on maturity, being June 14, 2025 (the “Maturity”). To the extent not repaid at Maturity by Avalon, Sibelco will have the right to convert the outstanding principal amount of the 2023 Debenture and all accrued and unpaid interest thereon into either additional Common Shares

at a conversion price equal to the Per Share Price, or an additional 5% interest in the joint venture corporation (the "JV Election"), as more particularly described below. The 2023 Debenture is a secured obligation, secured by a pledge of the shares of Avalon's shares of SRL.

Avalon also granted to Sibelco, for so long as Sibelco holds not less than 10% of the issued and outstanding Common Shares on a non-diluted basis, the right to nominate one member to the board of directors of Avalon ("Board") (or up to two nominees if the size of the Board is increased to nine directors or more), and the right to participate in future equity offerings so that it can maintain its pro rata percentage ownership in Avalon. Sibelco also agreed to a 12-month standstill and certain resale restrictions placed on its holdings in Avalon.

The proceeds from the Private Placement were used by Avalon to fund the acquisition of industrial land for a lithium-hydroxide processing facility in Thunder Bay, Ontario, and repayment of up to C\$1.9 million of existing debt, and for working capital and general corporate purposes. As described below, Avalon subsequently completed the acquisition of the Thunder Bay property for cash consideration of \$8.3 million, and repaid the balance of its note payable, after the permitted conversions into common shares, at its face value of \$1,200,000 in cash.

Subsequent to strategic Private Placement, Avalon acquired an industrial site in Thunder Bay, Ontario (965 Strathcona Avenue) (the "Thunder Bay Property") for the purchase price of \$8,300,000, for use in its planned Lake Superior Lithium Project. The Thunder Bay Property is approximately 380 acres, of which approximately 126 acres are in Lake Superior, a 38,000 square feet office building and a 50,000 square feet warehouse. It has existing road, rail, deep-water port and utilities services for its planned midstream lithium-hydroxide (LiOH) processing facility.

In October, 2023, the Company expanded a strategic partnership with Metso to advance the development of the Thunder Bay facility. Metso agreed to provide testing and engineering equipment procurement and related services, as well as co-develop a laboratory for research and development on lithium and clean technology solutions. Avalon and Metso also agreed to cooperate on the recycling of used batteries and the refining of battery chemicals for recycle use. The expanded partnership agreement followed a memorandum of understanding entered into in July 2023 that enabled Metso and Avalon to develop an innovative, sustainable methodology to produce commercial lithium hydroxide from petalite mineral feeds with good economics.

In November, 2023, Avalon and Sibelco completed the establishment of their joint venture with respect to Avalon's lithium projects, including Separation Rapids and Lilypad in northwestern Ontario, with the execution of a Tripartite Purchase and Sale Agreement (the "Purchase and Sale Agreement") and a Joint Venture Company Shareholders Agreement (the "JV Agreement") with Sibelco and the joint venture company, Separation Rapids Ltd. ("SRL"), SRL is jointly owned by Sibelco (60%) and Avalon (40%).

Sibelco, which acts as operator of SRL, and has committed to invest €34.8 million (approximately C\$51.3 million) into the joint venture. Of this amount, €4.8 million was advanced concurrently with the contribution by Avalon of its interests in the Separation Rapids and Lilypad projects, with an additional €30 million to be advanced in tranches to fund the development of the joint venture mineral projects, including facilities and related infrastructure. After total cash contributions of €34.8 million by Sibelco, each of the parties will make any further cash contributions on a pro-rata basis (with dilution to a non-contributing party's interest).

While the initial participating interests to be held on the formation date of the joint venture by Sibelco and Avalon are 60% and 40%, respectively, such participating interests may change to 65% and 35%, respectively, if on the Maturity date of the 2023 Debenture Avalon fails to pay the full principal and accrued interest and Sibelco elects to exercise the JV Election.

Pursuant to the terms of the Purchase and Sale Agreement, Avalon agreed to transfer the Separation Rapids and Lilypad properties to SRL, including all personal property, assumed contracts, permits, books and records in consideration for approximately €23.2 million (approximately C\$34.1 million), representing a 40% interest in SRL together with reimbursements of approximately C\$903,000 plus HST in funds expended by Avalon on the joint venture properties since the signing of a binding joint venture term sheet in June 2023.

In March, 2024, the Company entered into a \$15,000,000 convertible security funding agreement (the "Funding Agreement") with Lind. The first drawdown on the Funding Agreement was completed on March 27, 2024 for \$2,750,000 with the Company issuing a convertible note payable in the amount of \$2,750,000 to Lind (the "2024 Note"). The 2024 Note has a term of two years with a maturity date of March 27, 2026 and accrued an interest amount of \$550,000 on the date of issuance, resulting in the 2024 Note to bear a face value of \$3,300,000 at issuance. Lind is entitled to convert any outstanding amount of the face value of the 2024 Note into common shares commencing on July 28, 2024 at a conversion price equal to 85% of the five day trailing value weighted average price ("VWAP") of the common shares prior to the date of conversion. The Company has the right to repurchase the 2024 Note at the outstanding face value at any time after August 25, 2024, subject to the holder's option to convert up to one third of the original value into common shares prior to the Company's repurchase. As at the date of this AIF, the balance on the 2024 Note was \$2,475,000.

In September, 2024 the Company completed a Preliminary Economic Assessment ("PEA") for its Lithium Hydroxide Processing Facility project in Thunder Bay, Ontario (the "Lake Superior Lithium Project"). The PEA considers a design capacity for the annual production of 30,000 tonnes of battery-grade lithium hydroxide (LiOH). Key Highlights included: after-tax net present value ("NPV") of \$4.1 billion at 8% discount rate, after-tax internal rate of return ("IRR") of 48% for the 30-year period; initial capital cost \$1.2 billion and total capital cost \$1.3 billion; all-in life-of-project operating costs of \$13,029/tonne.

In November 2024, the Company Completed \$3,500,000 in debenture financing with Sibelco. Sibelco provided an additional funding of \$3,500,000 to the Company by way of an amended and restated debenture (the "2024 Debenture"). The 2024 Debenture replaced the 2023 Debenture and have a principal amount of \$6,500,000. The 2024 Debenture bears interest at 7.5% per annum, with the principal and accrued interest payable on maturity, being November 18, 2026.

Should the 2024 Debenture not be repaid by the Company at maturity, Sibelco has the right to (a) convert the outstanding principal and accrued interest into additional common shares of Avalon at a price equal to the greater of (i) the 15 day VWAP of the Company's common shares on the TSX immediately prior to the exercise of this right and (ii) the minimum price allowed by the TSX or (b) convert the outstanding principal and interest into additional common shares of the SRL, based on a pro-rated formula.

If the entire amount of the 2024 Debenture and accrued interest is converted at maturity, then Sibelco's equity interest in SRL will be increased by 30% to 90%, with the Company owning the remaining 10%. Sibelco will also have the right to exercise its conversion rights prior to maturity if the Company does not make certain reductions in its corporate and

administrative costs. The 2024 Debenture continues to be secured by a pledge of Company's shares in SRL, and grants Sibelco rights of first refusal on any future loan or debt financing to the Company and the Company may not enter into loan or debt financing, including loan or debt financing that is convertible into Common Shares, without first notifying Sibelco and giving Sibelco the right to provide such loan or debt financing.

## 4.2 Significant Acquisitions

Not applicable.

## 5. Description of the Business

### 5.1.1 General

#### *Overview*

The Company is a Canadian critical mineral development company that is seeking to vertically integrate Ontario's lithium supply chain in order to serve the growing regional electric vehicle ("EV") battery market and other vital industries dependent on critical minerals. Shares of Avalon trade on the Toronto Stock Exchange (TSX:AVL), the OTCQB® Venture Market (OTCQB:AVLNF) in the United States and the Frankfurt Stock Exchange in Germany.

The current management team is deeply focused on commercializing the mining assets that Avalon has acquired during the past two decades. Over the previous months, Avalon forged a joint venture with Belgium-based Sibelco, a global leader in materials solutions, to develop the Company's flagship lithium deposit at Separation Rapids. A strategic partnership was also signed with Metso Corp. of Finland, a market leader in sustainable lithium processing. In addition, in June, 2023, the Company acquired a 377-acre industrial property on Strathcona Avenue in Thunder Bay that is supplied by municipal power, gas and water, and is accessible by road, rail and water via a deep-water port. As described below, Avalon intends to develop the Strathcona property into a full-service lithium conversion and processing facility.

The Company has also continued exploration drilling, and began geotechnical drilling at the Separation Rapids project site while discussions and ongoing work with Sibelco continue to progress further into advancing the project. Taken together, these developments are expected to be transformative to Avalon's corporate profile and demonstrate its continued evolution from largely a holding entity of undeveloped mineral deposits into a potential commercial producer and advanced manufacturer. These milestones mark a new chapter in the Company's evolution, referred to internally as Avalon 2.0.

The ultimate objective is for Avalon 2.0 to develop end-to-end supply chains for Canadian critical minerals, including lithium, zirconium and rare earth minerals. Avalon's immediate strategic focus is the development of the Ontario midstream lithium processing solution envisioned for Thunder Bay, Ontario, a strategy that will rely on lithium ore feedstocks from assets in which it holds stakes (Separation Rapids Ltd.), as well as third-party producers through off-take agreements. It is a strategy that is intended to create value for Avalon shareholders, while simultaneously creating a more favourable investment climate for commercializing other regional deposits, which in turn should generate ongoing, incremental processing revenues for Avalon via new off-take agreements. Generating positive cash flow is essential to Avalon's mid- and long-term vision. In order to achieve these targets, Avalon may engage in productive commercial activities to secure the resources necessary for vertical integration and deliver on the promise of its assets.

The Company has embraced the principles of sustainability as core to its business practice and has made a strong commitment toward implementing corporate social responsibility ("CSR") best practices. In December, 2024 the Company will release its thirteenth annual comprehensive Sustainability Report (the "2023 Sustainability Report") and in February, 2021 secured a top 5% ESG Risk rating amongst our peer companies from Sustainalytics. The Company was also featured in the Benchmark Minerals' inaugural global lithium ESG rankings, scoring in the top 5% worldwide.

### *Market Trends*

While the Company does not have any producing mines, it is directly affected by trends in the metal industry, notably rare earths and lithium.

#### Rare Earths

The Company continues to monitor developments in the global rare earths market. Prior to 2017 very few consumers of rare earths were concerned about the availability of rare earths. Low pricing levels and product availability has reduced the interest of consumers in investing in rare earth projects outside China. However, since the start of 2017 prices for certain REE (Nd, Pr, Dy) began to increase due to increased demand for magnets for motors of hybrid and electric vehicles. Future price trends for rare earths still largely depend on decisions made in China. China remains the dominant producer with over 80% of supply. Prices are expected to continue to increase as demand increases and as China continues to restrict rare earth production from former domestic producers that used environmentally damaging recovery processes.

Rare earth magnets remain vital to many clean technology applications requiring high efficiency, lightweight electric motors and generators. This includes motors for electric vehicles, which can require 5-10kg of rare earth magnets per vehicle. The growing market for electric vehicles, especially in China, has created new demand for these high strength magnets, resulting in rising prices for neodymium and praseodymium ("Nd/Pr").

Future prices for rare earths are difficult to predict as they are influenced by demand for REE containing products such as magnets for electric motors in hybrid and electric vehicles, but also by Chinese government policy, and geopolitical events such as the simmering US-China trade war. Increased demand for hybrid and electric vehicles should lead to higher prices for rare earths, however there are a number of new initiatives outside China to create new rare earth supply chains that will get started in a few years. Demand for REE products is likely to continue to grow through innovation of new applications in many new technologies.

#### Lithium

The demand for lithium battery materials, both lithium carbonate and lithium hydroxide, has been growing rapidly in recent years, driven predominantly by lithium-ion rechargeable battery technology now in high demand for electric vehicles and other energy storage applications. Current projections indicate continued growth in lithium demand from the battery sector for the foreseeable future. Because lithium is marketed in different forms, (including lithium minerals used in glass and ceramics) aggregate lithium demand and supply is usually expressed in terms of lithium carbonate equivalent ("LCE").

For the purposes of its 2024 PEA for its Lake Superior Lithium Project, Avalon used a price assumption of US\$26,000 per tonne FOB plant for lithium hydroxide. Demand is likely to exceed supply for at least the next five years until a number of new supply sources are

established. In a report issued in 2024, The International Energy Agency forecasted as of 2035 a "significant gap between prospective supply and demand for copper and lithium: Anticipated mine supply from announced projects meets only 70% of copper and 50% of lithium requirements"<sup>1</sup>. Lithium battery material prices are also related to product quality with very high purities attracting higher prices.

Lithium chemicals are getting most of the attention in the market and the media due to the increased demand projected for lithium-ion batteries in electric vehicles. But the markets for lithium in high strength glass products are also growing. Many existing and new high strength glass formulations for automotive, aircraft, cell phones, and video displays where durability and light weight are key, require lithium to achieve the desired properties. Petalite as a high purity lithium aluminum silicate mineral is the desired lithium product for addition to many glass and ceramics formulations because the alumina and silica are also batch ingredients and the mineral form introduces all three in a pre-mixed form lacking in any undesired impurities. Avalon has been exploring new alternative petalite concentration processes that will accommodate different product quality requirements by glass-ceramic end-users.

Demand for lithium both for battery materials and high strength lithium glass-ceramic products continues to grow. The Company has received several expressions of interest in the battery material products mainly from internationally based battery manufacturers, as well as glass-ceramic manufacturers. The Company is looking at a number of different production models for its planned lithium battery materials processing facility which will depend on the specific requirements of the buyers who provide firm offtake commitments. Several companies that have expressed interest in making an offtake commitment have also expressed interest in being an investing partner in the processing facility which the Company now envisions as being a separate business unit.

Overall market prices for securities in the mineral resource sector and factors affecting such prices, including base metal prices, political trends in the countries such companies operate, and general economic conditions, may have an effect on the terms on which financing is available to the Company, if at all.

### *Employees*

The Company employed 8 full-time and 7 part-time employees as of August 31, 2024 and continued to employ 8 full-time employees and 7 part-time employees as of the date of this AIF.

#### **5.1.1.1 Strategic Partnership with SCR-Sibelco NV**

During the year ended August 31, 2023 the Company entered into a binding term sheet to create a new joint venture with SCR-Sibelco NV ("Sibelco"), a global leader in materials solutions. Avalon issued to Sibelco, on a non-brokered private placement basis, (i) 109,692,764 common shares of Avalon ("Common Shares") for aggregate proceeds of \$10,000,000, (ii) 1,793,722 Common Shares for aggregate proceeds of \$197,309.42 in a subsequent "top-up" financing which resulted in Sibelco owning 19.9% of the issued and outstanding Common Shares of Avalon after the top-up financing, and (iii) a secured convertible debenture in the principal amount of \$3,000,000 (the "2023 Debenture") (collectively, the "Private Placement"). Subsequent to the end of the Fiscal Year, Avalon and Sibelco closed the joint venture transaction by transferring its Separation Rapids Lithium

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1 <https://www.iea.org/reports/global-critical-minerals-outlook-2024/executive-summary>



Project and Lilypad Project into a new joint venture company, Separation Rapids Ltd. ("SRL")

### *Overview of Transactions*

#### *Strategic Financing*

Pursuant to the terms of the Private Placement, Sibelco (i) purchased 109,692,764 Common Shares at a price of approximately \$0.091164 per Common Share (the "Per Share Price") for gross proceeds of \$10,000,000; (ii) purchased 1,793,722 Common Shares for aggregate proceeds of \$197,309.42 in a subsequent "top-up" financing which resulted in Sibelco owning approximately 19.9% of the issued and outstanding Common Shares of Avalon after the top-up financing; and (iii) advanced Avalon \$3,000,000 for the 2023 Debenture. The 2023 Debenture bears interest at 7.115% per annum and the principal and interest are payable on maturity, being June 14, 2025 (the "Maturity"). To the extent not repaid at Maturity by Avalon, Sibelco will have the right to convert the outstanding principal amount of the 2023 Debenture and all accrued and unpaid interest thereon into either additional Common Shares at a conversion price equal to the Per Share Price, or an additional 5% interest in the joint venture corporation (the "JV Election"), as more particularly described below. The 2023 Debenture is a secured obligation, secured by a pledge of the shares of Avalon's shares of SRL.

Pursuant to an Investor Rights Agreement dated June 14, 2023, Avalon also granted to Sibelco, for so long as Sibelco holds not less than 10% of the issued and outstanding Common Shares on a non-diluted basis, the right to nominate one member to the board of directors of Avalon ("Board") (or up to two nominees if the size of the Board is increased to nine directors or more), and the right to participate in future equity offerings so that it can maintain its pro rata percentage ownership in Avalon. Sibelco also agreed to a 12-month standstill and certain resale restrictions placed on its holdings in Avalon.

The proceeds from the Private Placement were used by Avalon to fund the acquisition of industrial land for a lithium-hydroxide processing facility in Thunder Bay, Ontario, and repayment of up to C\$1.9 million of existing debt, and for working capital and general corporate purposes. As described below, Avalon subsequently completed the acquisition of the Thunder Bay property for cash consideration of \$8.3 million, and repaid the balance of its note payable, after the permitted conversions into common shares, at its face value of \$1,200,000 in cash.

In November 2024, the Company Completed \$3,500,000 in debenture financing with Sibelco. Sibelco provided an additional funding of \$3,500,000 to the Company by way of an amended and restated debenture (the "2024 Debenture"). The 2024 Debenture replaced the 2023 Debenture and have a principal amount of \$6,500,000. The 2024 Debenture bears interest at 7.5% per annum, with the principal and accrued interest payable on maturity, being November 18, 2026.

Should the 2024 Debenture not be repaid by the Company at maturity, Sibelco has the right to (a) convert the outstanding principal and accrued interest into additional common shares of Avalon at a price equal to the greater of (i) the 15 day VWAP of the Company's common shares on the TSX immediately prior to the exercise of this right and (ii) the minimum price allowed by the TSX or (b) convert the outstanding principal and interest into additional common shares of the SRL, based on a pro-rated formula.

If the entire amount of the 2024 Debenture and accrued interest is converted at maturity, then Sibelco's equity interest in SRL will be increased by 30% to 90%, with the Company

owning the remaining 10%. Sibelco will also have the right to exercise its conversion rights prior to maturity if the Company does not make certain reductions in its corporate and administrative costs. The 2024 Debenture continues to be secured by a pledge of Company's shares in SRL.

The proceeds from this new financing will be used to fund the advancement of its Lake Superior Lithium Project in Thunder Bay, the Nechalacho REE and Zirconium Project in the Northwest Territories, and for working capital and general and administrative expenses.

### *Joint Venture*

During the Fiscal Year, Avalon and Sibelco completed the establishment of their joint venture with respect to Avalon's lithium projects, including Separation Rapids and Lilypad in northwestern Ontario, with the execution of a Tripartite Purchase and Sale Agreement (the "Purchase and Sale Agreement") and a Joint Venture Company Shareholders Agreement (the "JV Agreement") with Sibelco and the joint venture company, Separation Rapids Ltd. ("SRL"), SRL is jointly owned by Sibelco (60%) and Avalon (40%).

Sibelco, which will act as operator of SRL, has committed to invest €34.8 million (approximately C\$51.3 million) into the joint venture. Of this amount, €4.8 million was advanced concurrently with the contribution by Avalon of its interests in the Separation Rapids and Lilypad projects, with an additional €30 million to be advanced in tranches to fund the development of the joint venture mineral projects, including facilities and related infrastructure. After total cash contributions of €34.8 million by Sibelco, each of the parties will make any further cash contributions on a pro-rata basis (with dilution to a non-contributing party's interest).

While the initial participating interests to be held on the formation date of the joint venture by Sibelco and Avalon are 60% and 40%, respectively, such participating interests may change to 65% and 35%, respectively, if on the Maturity date of the 2023 Debenture Avalon fails to pay the full principal and accrued interest and Sibelco elects to exercise the JV Election.

Pursuant to the terms of the Purchase and Sale Agreement, Avalon agreed to transfer the Separation Rapids and Lilypad properties to SRL, including all personal property, assumed contracts, permits, books and records in consideration for approximately €23.2 million (approximately C\$34.1 million), representing a 40% interest in SRL together with reimbursements of approximately C\$903,000 plus HST in funds expended by Avalon on the joint venture properties since the signing of a binding joint venture term sheet in June 2023.

In October 2023, Avalon, with Sibelco's approval, and for the benefit and cost of SRL, commenced a new comprehensive \$3.6 million drilling program at Separation Rapids. The drilling campaign was completed by Sibelco in early March 2024 and focused on expansion and infill drilling in efforts to upgrade 2023 MRE classification and to expand the mineral resource. A total of 8,921 metres were drilled.

Work has commenced on an updated mineral resource estimate, which is expected to be completed by SLR Consulting by the end of December 2024, or early 2025.

### **Drilling Highlights include:**

- SR24-114 intersected 1.67% Li<sub>2</sub>O over 105.6 metres from 313.5 metres depth and 1.78% Li<sub>2</sub>O over 21.5 metres from 143.5 metres depth



- SR24-113 intersected 1.68% Li<sub>2</sub>O over 66.2 metres from 292.2 metres depth and 1.95% Li<sub>2</sub>O over 32.6 metres from 121.0 metres depth
- SR24-115 intersected 1.81% Li<sub>2</sub>O over 13.8 metres from 93.5 metres depth
- SR24-116 intersected 1.69% Li<sub>2</sub>O over 8.9 metres from 313 metres depth and 1.67% Li<sub>2</sub>O over 12.7 metres from 325.3 metres depth
- SR24-121 intersected 1.54% Li<sub>2</sub>O over 136.95 metres from 321.00 metres depth including 2.28% Li<sub>2</sub>O over 4.00 metres from 421.00 metres depth
- SR24-119 intersected 1.87% Li<sub>2</sub>O over 17.15 metres from 284.40 metres depth
- SR24-120 intersected 1.60% Li<sub>2</sub>O over 12.80 metres from 66.15 metres depth

*All quoted intersections comprise a cutoff grade of 0.5% Li<sub>2</sub>O. All significant assay intervals with true widths are reported in the news releases dated [July 22, 2024](#) and [August 19, 2024](#).*

#### Other highlighted work on Separation Rapids Project

- Geotechnical & mineralogical studies continued to advance through the year to facilitate a higher confidence in mine design and planning as well as advance the process design and optimization to a higher level of understanding.
- Phase 1 hydrogeological testing & evaluation has begun this fall and will be followed up with a phase 2 evaluation and review in 2025
- Environmental field work as part of the baseline and permitting process was completed mid summer
- Engagement with local communities is on-going and continues

The technical information on the Separation Rapids Project has been reviewed and approved by Dr. Andrew Ramcharan, Vice-President, Corporate Development. Dr. Ramcharan is a qualified person for the purposes of National Instrument 43-101.

#### 5.1.1.2 Lake Superior Lithium Project

With both the Ontario and Federal Governments confirming their interest in establishing new battery materials supply chains in the province, and potentially providing financial support, Avalon continues to work towards establishing its lithium conversion facility in Thunder Bay, Ontario. The planned facility would be adaptable and expandable to increase output and accept concentrates from other producers of the various pegmatite deposits that occur in northwestern Ontario and globally. It is the Company's intention to construct a regional processing hub with multiple off-take agreements with third-party producers, to meet the rising demand for EV battery-grade lithium in southern Ontario and more broadly, North America. During the quarter ended August 31, 2023, Avalon acquired an industrial site in Thunder Bay, Ontario (965 Strathcona Avenue) (the "Thunder Bay Property") for the purchase price of \$8,300,000. The Thunder Bay Property consists of approximately 377 acres of which approximately 154 acres are on land and 223 acres are in Lake Superior and shoreline land, a 24,000 square-foot office building and a 55,000 square-foot warehouse. It has existing road, rail, and deep-water port access, as well as existing utilities services adequate for supporting the Company's planned lithium-hydroxide (LiOH) processing facility.

With its existing infrastructure, strategic geographic location and multi-channel accessibility, the Thunder Bay property is uniquely suited to host a regional lithium hydroxide conversion facility and represents a material advantage for Avalon that the Company intends to aggressively widen through the adoption of market leading processing and recycling technologies, as well as the construction of an on-site Technology and Innovation Centre ("TIC"). Avalon has progressed discussions with both Lakehead University as well as Confederation College, two regional educational institutions, to collaborate on the initiative, as well as a range of technology partners in Ontario and the U.S..

In October 2023, the Company expanded a strategic partnership with Metso to advance the development of the Thunder Bay facility. Metso agreed to provide testing and engineering equipment procurement and related services, as well as co-develop a laboratory for research and development on lithium and clean technology solutions. Avalon and Metso also agreed to cooperate on the recycling of used batteries and the refining of battery chemicals for recycle use.

The expanded partnership agreement followed a memorandum of understanding entered into in July 2023 that enabled Metso and Avalon to develop an innovative, sustainable methodology to economically produce commercial lithium hydroxide from spodumene as well as petalite mineral feeds.

Avalon's focus is also on building upon its relations with First Nations partners, the local community and local government. Deepening this collaboration is key to ensuring members of the regional ecosystem all benefit from the project and that all parties prioritize environmental stewardship. First Nations communities are valued partners and the Company looks forward to an ongoing dialogue of mutual respect and seeking innovative partnerships in the new green economy.

The Company also continues to advance discussions with a range of other parties interested in participating in the project and helping contribute to the province's industrial competitiveness.

When complete, the integrated project will:

- Create a significant number of jobs in the City of Thunder Bay, Ontario and surrounding regions.
- Enable broader development of northwestern Ontario's lithium assets by producers seeking to utilize the proximity of Avalon's processing capacity.
- Create tangential socioeconomic and educational benefits, including the planned creation of a regional critical-minerals innovation and technology hub in partnership with local university and college stakeholders.
- Create new economic development opportunities for local and regional First Nations and Métis communities.
- Demonstrate best-in-class environmental and sustainability process innovation and enable novel Canadian IP.
- Create supply chain efficiencies by connecting lithium assets in the north with regional processing capacity, thus leading to a decreased life-cycle carbon footprint compared to producers who ship raw materials to processing facilities overseas.

Localizing the EV battery supply chain creates a multiplier effect of investment opportunities.

In the United States, the passing of the Inflation Reduction Act (IRA) in August 2022 has spurred more than US\$70 billion worth of new investment announcements across the battery supply chain. These investments help stimulate local economic development by supporting surrounding industries, fostering spinoff entrepreneurship, and contributing to the development of industry clusters that improve productivity and growth.

A study was completed in early June 2024 on an order of magnitude site infrastructure valuation (the "Site Valuation Report") prepared by AFRY Canada for the site of Avalon's proposed lithium processing facility in Thunder Bay, Ontario. The report highlights that the replacement cost of the infrastructure at Avalon's Thunder Bay site, factoring in its current condition, is estimated to be \$46 million. In addition, the land value is estimated at between \$11 to \$16 million, which brings the total estimate of the site value to be between \$57 to \$62 million. The findings highlight the value proposition inherent in Avalon's Thunder Bay site including existing buildings, underground services, electrical services, rail spurs and a deep-water port.

A preliminary economic assessment study (the "PEA") has been completed on the planned lithium hydroxide conversion facility on Avalon's Thunder Bay site. Avalon engaged DRA Americans Inc., a 100% owned subsidiary of DRA Global to lead the study and featured the environmentally friendly Metso lithium conversion technology. The PEA also included the full infrastructure layout with lithium concentrate reagent receiving and storage, processing, and site infrastructure as well as shipping/handling of product and a means to remove the byproduct off site. As well, a preliminary environmental permitting pathway and timeline was outlined within the study. The financial economics of the project was assessed, and the results were extremely positive with a net present value ("NPV") at 8% discount rate of \$4.1 billion over a 30-year processing life and a after-tax internal rate of return ("IRR") of 48%.

The study summary outcome is outlined in Table 1 below. The study assumes a spodumene concentrate price of \$1,360/tonne (USD\$1,000/tonne) for the 30-year life of the project. The spodumene concentrate is expected to be sourced through competitive offtake agreements, purchasing of spodumene feed from neighbouring mines, and potentially being supplied by the Separation Rapids Ltd. Joint Venture.

The long-term pricing of lithium hydroxide is assumed to be \$35,360/tonne (USD\$26,000/tonne). A Clean Technology Manufacturing Industrial Tax Credit of 30% was applied against the initial capital cost.

**Table 1: Project Summary Financial Outcomes**

Items	Units	PEA Sept. 2024
Operating Life	years	30
Steady State Annual Spodumene Feed	tpa	196,000
Spodumene Concentrate Pricing @ 6%	\$ per tonne	1,360
Annual LiOH Production	tpa	30,000
LiOH Sale Price (long term) Life of Project	\$ per tonne	35,360

Total Capital Cost	\$Billion	1.3
After-Tax Net Present Value (NPV) @ 8% discount rate	\$Billion	4.1
After-Tax Rate of Return (IRR %)	%	48
Steady State LiOH Conversion Costs	\$/t LiOH	3,898
Spodumene Purchase Cost Delivered to Site	\$/t LiOH	9,131
After-Tax Payback	years	2.5

Work is underway now to prepare for continued study work to advance through a feasibility study over 2025 and early 2026 pending available financing. The preliminary schedule shows start of construction by Q3 2027 and first production in Q4 2028 but will be highly dependant on the permitting phase timing for the earliest start.

Avalon is currently considering a solar farm on its Thunder Bay property. The site includes approximately 46 acres of land on a former landfill that may be suitable as a solar facility. Avalon is exploring the possibility of behind-the-meter generation for its own use as a direct source of power for the lithium conversion facility or as a participant in a future Independent Electricity System Operator (IESO) procurement that would see the on-site generation used to supply power to the bulk electricity system or grid.

Two white papers have been prepared for submission to the Department of Defense (DOD) and the Industrial Base Analysis and Sustainment (IBAS) Program in the United States. The papers address the significant contribution that a lithium hydroxide facility would provide in the supply of battery grade lithium hydroxide or carbonate for the EV industry. The first paper was submitted to seek funding for study work towards a final definitive feasibility for the Company's proposed lithium hydroxide facility while the second paper was submitted to seek funding for the engineering and construction phase of the project. The white papers provided a preliminary estimate for the capital expenditures of the project and timeline for spend and an approximate ask for the funding. There has not been any response to date on the status of the white paper application. At this time, it is uncertain if Avalon will be successful in securing government funding.

Subsequent to the end of the Fiscal Year, Avalon released the results of a third-party economic and labour study was conducted by RIAS Inc. (RIAS), an Ottawa-based consulting firm. The report was based on the recent PEA and customized input-output multipliers from Statistics Canada, and details the significant economic and labour impacts from the Lake Superior Lithium Project. The report concluded that the project will have a significant economic multiplier effect across the Thunder Bay community, to the Northwestern Ontario region, to the province, and to the country through GDP, labour income, and employment. The study assessed the economic impacts of the two principal phases of the Project: construction, beginning in 2027, and operations, starting in 2028.

Subsequent to the end of the Fiscal Year, Avalon entered into a memorandum of understanding with Qualcomm Technologies Inc. (the "MOU") on a strategic collaboration focused on the Lake Superior Lithium Project, advancing cutting-edge digital solutions that enhance operational efficiency and optimize data management. Under the MOU, Avalon

intends to leverage Qualcomm Technologies' Industrial & Edge technologies to create a robust digital infrastructure to support mining activities across Avalon's operations. The collaboration will involve developing a strategic roadmap for Internet-of-Things (IoT)- enabled solutions, with an emphasis on commercialization over the next few years.

During the Quarter, the Company incurred \$437,392 (2023 - \$Nil) in project development costs on the Lake Superior Lithium Project. These expenditures were incurred primarily the PEA study.

During the Fiscal Year, the Company incurred \$620,921 (2023 - \$Nil) in project development costs on the Lake Superior Lithium Project. Approximately 93% of these expenditures were incurred on the PEA study and 7% on the Site Valuation Report.

#### **5.1.1.3 Nechalacho Project**

The Nechalacho Project is located at Thor Lake in the Mackenzie Mining District of the Northwest Territories ("NWT"), about five kilometres north of the Hearne Channel of Great Slave Lake and approximately 100 kilometres southeast of the city of Yellowknife. The property is now comprised of eight contiguous mining leases totalling 5,786 hectares (14,297 acres). The original five leases are subject to one underlying 2.5% Net Smelter Returns ("NSR") royalty agreement. Avalon has the contractual right to buy out this royalty on the basis of a fixed formula, which is currently approximately \$2.0 million and which will increase at a rate equal to the Canadian prime rate until the royalty is bought out.

During the year ended August 31, 2020, Avalon completed a sale of the rights to the near-surface dominantly light rare earth mineral resources above a depth of 150 metres ("Upper Zone Resources") at the Nechalacho Project to Cheetah Resources Pty Ltd. ("Cheetah"). Cheetah was subsequently acquired by Vital Metals Limited, a publicly-listed company in Australia (VML-ASX). Avalon retained a 3.0% net smelter returns royalty (the "3.0% NSR Royalty") and will continue to have access to the property for development and mining of its 100% owned Basal Zone heavy rare earth resource. Avalon has also agreed to waive the 3.0% NSR Royalty for the first five years of Cheetah's commercial production and to grant Cheetah the option to pay the Company \$2 million within eight years of the transaction closing to extend the waiver of this royalty in perpetuity. Cheetah also has the option to purchase the Company's option in the 2.5% NSR Royalty, provided that, upon exercising the option, it extinguishes this royalty. The eight mining leases are jointly recorded in the names of Cheetah 50% and the Company 50%, while the beneficial ownership is held in trust by Cheetah and Avalon as to their respective beneficial ownership entitlement in and to the Upper Zone Resources and the Basal Zone Resources, respectively. Avalon and Cheetah have formed a jointly-owned corporation (NWT Rare Earths Ltd.) to hold the exploration permits and related authorizations related to Nechalacho and have also entered into a co-ownership agreement governing each party's activities and management at site.

A white paper has been written for submission to the DOD and the Industrial Base Analysis and Sustainment Program in the United States. The paper addresses the significant contribution that Nechalacho can provide with its current resource of rare earth, zirconium and niobium. The demand for products from the Nechalacho Project is expected to increase significantly over the coming years and will support new advancements in up-and-coming technologies and material used in the nuclear industry, science and in the defence industry to improve the "Warfighter" needs. Submission of the paper would seek low interest loans or grants to further progress the project study work and eventual construction. There has not been any response to date on the status of the white paper application. At this time it is uncertain that Avalon will be successful in securing government funding.

Avalon is planning a new test program on Nechalacho mineralized material from the Basal Zone. The test work would focus on production of carbonate products of LREE, HREE and Zirconium concentrate and further test methods of separation to specific oxides. The work is to find a streamlined approach to processing and enhance the economics of the project while refining the current strategy of marketing of various concentrate and/or oxide products.

The details of the test program are currently under review with a phased budget. The timeline to start the work is expected to be Q2 2025 and will depend on aligned financing to complete the program.

Please see the detailed description of the Nechalacho Project in Section 5.4.2.

#### **5.1.1.4 Separation Rapids Lithium Project**

The Separation Rapids property consists of nineteen mineral claims and one mining lease covering a combined area of approximately 4,414 hectares (10,910 acres) in the Paterson Lake Area, Kenora Mining Division, Ontario. The lease covers an area of approximately 421 hectares over the area of the main lithium pegmatite deposit (the "Big Whopper") and adjacent lands that may be used for mine development infrastructure. Avalon also owned three aggregate permits along the road to the site, which cover a total area of approximately 16 hectares and are located within the area covered by the claims. The project is located in the traditional land use area of the Wabaseemoong Independent Nations ("WIN") for which they have stewardship under an agreement with the Province of Ontario.

As discussed earlier under "Strategic Partnership with SCR-Sibelco NV", during the Fiscal Year the Separation Rapids Lithium Project was transferred into the Avalon-Sibelco Joint Venture company.

#### **5.1.1.5 Lilypad Cesium-Tantalum Project**

The Lilypad Cesium-Tantalum Project consisted of 14 claims, comprising 166 new claim units or cells, totaling approximately 3,300 hectares (8,152 acres), covering a field of lithium, cesium, tantalum ("LCT") mineralized pegmatites, and located 150 kilometres northeast of Pickle Lake, Ontario. The project is located in the traditional territory of the Eabametoong First Nation ("EFN"), approximately 25 km west of the community of Fort Hope.

As discussed earlier under "Strategic Partnership with SCR-Sibelco NV", during the Fiscal Year the Lilypad Project was transferred to the Avalon-Sibelco Joint Venture company.

#### **5.1.1.6 East Kemptville Tin Project**

The 100% owned East Kemptville Tin-Indium Project is located approximately 55 kilometres northeast of Yarmouth, in Yarmouth County, southwestern Nova Scotia in the vicinity of the former East Kemptville Tin Mine. Highway #203, which connects the Town of Yarmouth to the southwest with the Town of Shelburne to the east, passes a short distance to the northwest of the project area. The East Kemptville Tin mine was developed in 1985 on a resource of tin-copper-zinc mineralization known geologically as a "greisen". Greisens are hydrothermal mineral deposits associated with granites consisting of a stockwork of mineralized veins and replacement zones in altered and mineralized granitic rocks.

The Company presently holds mineral rights at East Kemptville through an exploration licence of 75 units covering 1,165 hectares. It does not immediately convey surface land rights and, accordingly, access must be arranged with the permission of surface rights holders.



The Company completed a preliminary economic assessment during Fiscal 2018 with a development model of utilizing the existing tailings management area ("TMA") and had been in negotiation with the surface rights owner to secure full tenure to the project site. Agreement in principle was reached in Fiscal 2019, however, the surface rights owner subsequently refused to sign the agreement after putting a hold on any new work on TMAs on all of its closed mine sites. Not having access to the existing unused tailings ponds severely limits the possibilities for economic redevelopment of the site. This realization coupled with the continuing difficulties in getting surface access to the project site, caused the Company to decide to withdraw its mineral lease application and has written off the costs incurred to-date of \$5,587,210 as an impairment loss during Fiscal 2020.

During the Fiscal Year, the Company disposed of a residential property located near the site which it had acquired to support site operations for gross proceeds of \$165,000, and realized a gain of \$93,818. The Company continues to retain the mineral rights through its exploration licence, and management remains optimistic that the Company will eventually be able to secure access to the site again to resume reactivation plans

#### **5.1.1.7 Warren Township Anorthosite Project**

The Warren Township Anorthosite Project is a mineral development opportunity located near the Village of Foleyet, 100 kilometres west of Timmins, Ontario. The project consists of a mining lease totalling 688 hectares (1,699 acres) that includes an aggregate permit over the historical quarry site and which is 100% owned by the Company. The lease covers a portion of the Shawmere Anorthosite Complex hosting a historic resource (not prepared in accordance with NI 43-101) of a high purity calcium feldspar. The calcium feldspar product is used in the manufacture of reinforcing glass fibre and other industrial products, such as mineral fillers.

In June 2012, Avalon received a permit under the Aggregate Resources Act (Ontario) to operate a quarry at Warren Township on 240 hectares of land. A preliminary environmental baseline study has been completed, and an MOU was signed with the Chapleau Cree First Nation.

The location of the property near both road and rail transportation infrastructure and its proximity to markets in southern Ontario and the northeastern United States offers the potential for development of a low-cost industrial minerals operation.

There has also been demand for small quantities of the crushed anorthosite rock for use as a "lunar simulant" due to its mineralogical similarity with dust on the surface of the moon. Subsequent to the end of the Fiscal Year, a 20-tonne test sample of anorthosite was successfully extracted and shipped to a third party company for testing with the NASA moon rover. If successful, there may be larger future quantities based on their needs.

#### **5.1.1.8 Royalties**

##### ***Wolf Mountain Platinum-Palladium Property Royalty***

The Wolf Mountain Platinum-Palladium Project is located approximately 90 kilometres northeast of Thunder Bay, Ontario. In November 2003, Avalon sold its 40% working interest in the project to its joint venture partners for \$20,000 and a 0.4% NSR interest in the two properties. The joint venture can purchase this NSR interest from the Company at any time for \$1,000,000. In August, 2014, Avalon purchased an additional 2% NSR, which was held by the original vendor of the property, for \$15,000, of which up to 1.0% can be purchased

by the joint venture partners for \$1,000,000.

#### ***East Cedartree Gold Property Royalty***

The Company holds a 2% NSR interest in five claims, which it retained after selling these claims to a third party, comprising part of the East Cedartree Gold Property located 70 kilometres southeast of Kenora, Ontario. The title holder to the claims can repurchase a 1% NSR from the Company at any time for \$1,000,000.

#### **5.1.2 Bankruptcy and Similar Procedures**

Not applicable

#### **5.1.3 Reorganizations**

Not applicable

#### **5.1.4 Social or Environmental Policies**

Avalon is committed to being an environmentally and socially responsible corporate citizen in how it conducts its exploration and development activities. In particular, in the conduct of these activities, Avalon applies the Principles and Performance Guidelines for Responsible Mineral Exploration that has been established by the PDAC for its members and which can be viewed at <http://www.pdac.ca/pdac/advocacy/csr/pdac-principles-guidelines-draft.pdf>. In addition, Avalon has become an associate member of MAC, with a view to gradual implementation of their applicable Towards Sustainable Mining ("TSM") principles.

In 2010, Avalon was awarded the 2010 Environmental and Social Responsibility Award by the PDAC in recognition of the Company's community engagement efforts during the exploration of its Nechalacho Deposit. The PDAC Environmental and Social Responsibility Award honours individuals or organizations demonstrating outstanding initiative, leadership and accomplishment in protecting and preserving the natural environment and/or in establishing good community relations during an exploration program or operation of a mine. Avalon continues to be a leader in promoting responsible exploration practices, emphasizing early engagement and open communication with local Indigenous communities living in proximity to all of its projects. The Company has encouraged skills training and employment opportunities for Indigenous people and has offered joint business opportunities including environmental remediation work related to historical exploration activities. Committed to the principles of environmental and social responsibility, Avalon was the first junior exploration company to formally adopt PDAC's e3 Plus principles and guidelines as a policy of the Company.

#### ***Sustainability Policy***

Avalon Advanced Materials Inc. recognizes that maintenance of environmental quality is vital to the Company's existence, progress, and continued development. The Company will maintain high environmental standards limited only by technical and economic feasibility. The Company will take positive action to protect the safety of its workers, conserve natural resources, and minimize the impact of its activities on the environment through diligent application of appropriate technology and responsible conduct at all stages of exploration, mine development, mining, mineral processing, decommissioning, and reclamation.



The Sustainability Policy was approved by the Board of Directors in 2014 and replaces the Safety and Environment Policy previously approved in 2006. The Sustainability Policy is far more comprehensive and reflects the growing demands of society. At the end of this fiscal year, a review of the policy was ongoing to further strengthen and demonstrate Avalon's leadership in this area.

At Avalon, sustainability means adopting leading industry standards for the management of health, safety and the environment, transparently engaging with local communities and stakeholders, treating those with whom we work with respect, and creating a workplace where employees are valued, engaged and encouraged to succeed. Avalon believes that a commitment to sustainability enhances our reputation and ability to attract and retain quality people, enables us to gain access to new resources and capital and allows us to better identify and manage opportunities and risks related to our business. Through this, Avalon gains a competitive advantage and maintains our social license to operate by balancing social, environmental, health, safety and economic considerations in our business practices.

The purpose of Avalon Advanced Materials Inc.'s Sustainability Policy is to provide a measurable framework for the performance of the Company's activities in an environmentally and socially responsible manner, ensuring compliance by the Company and its employees with all applicable environmental regulations and commitments. It commits Avalon to work proactively with communities of interest to define sustainability priorities and participate in the development of responsible legislation. Avalon operates a risk and change management program and will periodically conduct internal or external audits of all projects and operations to ensure compliance with this policy, applicable laws and standards and Avalon will report on these results.

There are 4 pillars to the Policy:

Health and Safety. Health and safety is a core value at Avalon. Avalon's objective is to create an injury free workplace and to enhance the wellbeing of employees, contractors and the communities in which we operate.

Environment. The preservation and protection of the long-term health, function and viability of the natural environment is a key objective.

Community. Avalon is committed to being a responsible corporate citizen and contributing to the social and economic well-being of the communities associated with our activities.

People. A workplace based on mutual respect, fairness and integrity is a fundamental component of Avalon's core values. Avalon will create a workplace where employees are encouraged to innovate and grow within the organization over the long term.

(For a complete copy of the Sustainability Policy, see:  
[https://www.avalonadvancedmaterials.com/\\_resources/corporate/sustainability\\_policy\\_20150128.pdf](https://www.avalonadvancedmaterials.com/_resources/corporate/sustainability_policy_20150128.pdf))

### *Corporate Social Responsibility ("CSR")*

In December, 2024 the Company intends to release its thirteenth comprehensive Sustainability Report (the "2024 Sustainability Report"). The 2024 Sustainability Report will be available for view or download on the Company's website at: <http://www.avalonadvancedmaterials.com>. The 2024 Sustainability Report does not form part of this AIF.

In 2021, the Company engaged Sustainalytics, a Morningstar company, to conduct an independent audit of the Company's business practices and policies toward obtaining an Environmental, Social and Corporate Governance ("ESG") Risk Rating License. Sustainalytics' ESG Risk Ratings provide investors with third-party validation of the Company's sustainability performance along with insights into why certain ESG issues are considered material for a company and how well a company is managing those risks. The benefits of obtaining an ESG Risk Rating include the ability to provide better access to ESG investment capital, and the ability to gain commercial benefit from the rating externally with creditors, suppliers and other stakeholders. In February, 2021 Avalon secured a top 5% ESG Risk rating amongst our peer companies from Sustainalytics that demonstrated our leadership in this area and how our sustainability management systems reduce risk at our sites and for our suppliers, customers and other stakeholders.

In the past Avalon's annual Sustainability Reports have been prepared in accordance with the Global Reporting Initiative's Global Reporting Standards. Starting in 2023 Avalon's annual Sustainability Report is based on International Sustainability Standard Board (ISSB) reporting structure, which is aligned with the International Accounting Standard Board. The ISSB is also the most popular reporting structure in Canada. Avalon's annual Sustainability Reports still incorporate a self-assessment of Fiscal year performance and also set targets for the next fiscal year against the applicable Mining Association of Canada "Toward Sustainable Mining" indicators. A review and update of the Sustainability Policy has been initiated to formalize the significant progress the Company had made in sustainability and to ensure its industry leadership is maintained.

The Company seeks to be a proactive partner with the Indigenous communities within its operating footprint. Members of the Avalon management team and Board of Directors have completed the *San'Yas Anti-Racism Indigenous Cultural Safety Training Program* (Ontario) and received certification. Further, Avalon has developed and published a Land Acknowledgement.

The Company's main focus is on materials that enable clean technology, including electric vehicles, power storage, solar and wind power. In order to do this sustainably, Avalon designs its operations to minimize environmental impacts and greenhouse gas emissions, while planning for rehabilitation and productive use of the land post closure. The Company also now incorporates a staged-development approach to its cleantech materials projects, which involves starting production at a modest scale, to minimize project footprint and potential risks to environment, while also reducing investment risk and creating opportunities for its Indigenous business partners.

In response to the increasing concern expressed by regulators, insurers, investors, customers and other communities of interest, and building on its historic success in reducing greenhouse gas emissions, Avalon remains committed to becoming carbon neutral by 2040. Avalon believes this will give the project a competitive advantage in the ongoing efforts to obtain ESG investors and government research funding.

Being a recognized sustainability leader reduces costs and facilitates good relationships with all stakeholders, including Indigenous communities, which can help reduce risk of experiencing lengthy delays in receiving operating permits and approvals. This also helps facilitate the acquisition of our social license to operate. Avalon believes that responsible users of our cleantech materials will require increasingly sustainable sources for their materials which we believe will provide Avalon with a competitive advantage in securing market access for its products.

Avalon's leadership in applying the principles of sustainability in all of the Company's work is also benefitting the mineral exploration industry generally. Avalon supports the PDAC, the Ontario Mining Association and the Mining Association of Canada in their efforts to educate regulators and policymakers regarding the need to update regulations in order to encourage more and sustainable development of critical minerals resources in Canada that are vital for establishing the new clean economy in Canada and to ensure access to land for exploration purposes.

## 5.2 Risk Factors

An investment in securities of Avalon is highly speculative and involves significant risks. Exploration activities are based on professional judgments and statistically-based tests and calculations, and often yield few rewarding results. Mineral properties are often non-productive for reasons that cannot be anticipated in advance and operations may be subject to risks including labour disputes, environmental hazards, safety issues, geological issues, weather conditions and changing regulatory requirements as examples. Advanced manufacturing facilities are subject to significant risks through design, construction and eventual operations. Avalon is subject to competitive risk as its ability to finance its activities and generate profitable operations or proceeds from disposal of assets are subject to world prices for rare metals, REE, lithium and other specialty minerals and the economic forces that influence capital markets. Any one of the following risk factors could materially affect business, financial condition and/or future operating results and prospects and could cause actual events to differ materially from those described in forward-looking statements relating to Avalon. Additional risks and uncertainties not currently identified by Avalon or that Avalon currently believes not to be material also may materially and adversely affect Avalon's business, financial condition, operations or prospects.

### We have no operating revenues and a history of losses.

The Company has had no operating revenues and a history of losses, and no operating revenues are anticipated until one of the Company's projects comes into production, which may or may not occur. The Company will continue to experience losses unless and until it can successfully develop and begin profitable commercial production at one of its mining properties or projects. There can be no assurance that the Company will be able to do so.

### We have no history of mineral production or operating manufacturing facilities.

Avalon is an exploration and development company and has no history of mining or refining mineral products from its properties, or operating a manufacturing facility. As such, any future revenues and profits are uncertain. There can be no assurance that the Nechalacho Project, the Avalon-Sibelco joint venture, the Lake Superior Lithium Project or any other project will be successfully placed into production, produce minerals in commercial quantities or otherwise generate operating earnings. Advancing projects from the exploration stage into development and commercial production requires significant capital and time and will be subject to further technical studies, permitting requirements and construction of mines, processing plants, roads and related works and infrastructure. The Company will continue to incur losses until operations successfully reach commercial production levels and generate sufficient revenue to fund continuing operations. There is no certainty that the Company will generate revenue from any source, operate profitably or provide a return on investment in the future.

### There is material uncertainty regarding our ability to continue as a going concern.

The business of mining and exploring for minerals and developing processing facilities involves a high degree of risk and there can be no assurance that current exploration programs will result in profitable operations. The recoverability of the carrying value of exploration and evaluation assets and the Company's ability to continue as a going concern is dependent upon the preservation of its interest in the underlying properties, the discovery of economically recoverable reserves, the achievement of profitable operations or the ability of the Company to raise alternative financing.

The Company is currently in the exploration and development stage of its properties. If the Company determines based on its most recent information that it is feasible to begin operations on its properties, the Company will be required to raise additional capital in order to develop and bring the properties into production or operation. Our ability to raise funds will depend on several factors, including, but not limited to, current economic conditions, our properties, our prospects, metal prices, businesses competing for financing and our financial condition. There can be no assurance that we will be able to raise funds, or to raise funds on commercially reasonable terms.

We have little control of the operations of the joint venture with Sibelco and will be curtailed from acquiring additional lithium assets within the area of interest of that joint venture. We may be subject to dilution if we cannot meet financing commitments, or repay the 2024 Debenture.

During the Fiscal Year, the Company transferred its Separation Rapids and Lilypad Projects into a joint venture company. The Company holds a 40% interest in this Company, with Sibelco owning the other 60%.

Pursuant to a shareholders' agreement, Sibelco is the operator of the joint venture and Avalon will have little ability to influence the operation of the joint venture. In addition, there is a 500 km area of interest around the properties which gives the joint venture company the right to acquire any lithium mineral properties within these areas that the Company acquires (excluding the proposed lithium processing facility in Thunder Bay).

The development of the joint venture will require additional capital, and if the Company does not make the required payments, it will be subject to dilution.

In addition, if the entire amount of the 2024 Debenture and accrued interest is converted at maturity, then Sibelco's equity interest in SRL will be increased by 30% to 90%, with the Company owning the remaining 10%. Sibelco will also have the right to exercise its conversion rights prior to maturity if the Company does not make certain reductions in its corporate and administrative costs. The 2024 Debenture continues to be secured by a pledge of Company's shares in SRL, and grants Sibelco rights of first refusal on any future loan or debt financing to the Company and the Company may not enter into loan or debt financing, including loan or debt financing that is convertible into Common Shares, without first notifying Sibelco and giving Sibelco the right to provide such loan or debt financing.

The development of the Nechalacho Project, or other projects, involves numerous uncertainties and there are no guarantees that we will be successful.

Mine development projects typically require long time frames and significant expenditures before production is possible. Bringing any of the Nechalacho Project, Avalon-Sibelco joint

venture, or the Lake Superior Lithium Project into successful operation is dependent on many factors such as:

- the availability of funds to finance construction and other capital expenditures and to provide working capital;
- the timing and availability of permits and other approvals to proceed with construction and to operate the mine and processing facilities;
- the completion of negotiations with First Nations and other Indigenous groups and stakeholders affected by such project;
- the completion of acquisition of a property or properties for the processing facilities and the availability of infrastructure necessary for construction and operation;
- the negotiation of sales or offtake contracts for the planned production from such project; and
- the completion of negotiations with strategic partners for the provision of additional investment and/or the provision of technical assistance or services.

Other unanticipated problems and delays may arise in the development of the Nechalacho Project, the Avalon-Sibelco joint venture or the Lake Superior Lithium Project and, accordingly, the Company may not be successful in establishing mining, processing or manufacturing operations.

Additional financing will be needed for our business operations and there are no guarantees that we will be able to raise sufficient funds.

The Company does not presently have sufficient funds to complete permitting, development and construction of the Nechalacho Project, the Avalon-Sibelco joint venture, or the Lake Superior Lithium Project or to complete exploration or feasibility studies on any of its other properties. Accordingly, the Company will need to raise additional financing, which may be sought through sales of equity or debt securities, asset sales, joint ventures, project financing or other arrangements. The recent climate for financing in the mineral industry in general and for rare earth minerals projects in particular has been difficult, and there can be no assurance that the Company will be able to complete necessary financings on a timely basis or at all. Failure to complete adequate financing on a timely basis could result in delay or indefinite postponement of the development of the Nechalacho Project, the Avalon-Sibelco joint venture, or the Lake Superior Lithium Project, and could require the Company to reduce general and administrative expenses or impair the Company's ability to continue as a going concern. Future financings may result in significant dilution to existing shareholders.

We may fail to identify suitable joint venture partners or may fail to successfully manage joint ventures.

As part of the Company's development strategy, the Company is considering a number of alternatives to access development capital for its mineral properties and its proposed lithium processing facility in Thunder Bay, including joint ventures with strategic partners. While the Company has received several expressions of interest from potential joint venture partners there is no assurance that it will succeed at effectively managing the operation of any joint venture to production.

Development for the Nechalacho Project will need to be co-ordinated with the new owner of the near-surface resources which could result in delays.

During the year ended August 31, 2020, the Company sold the near-surface resources of the Nechalacho Project (which were not part of its own development plans). Although the parties

have agreed to work together, and have even formed a jointly-owned company to temporarily hold the exploration permits and related authorizations, there is a risk that one company's development work could negatively impact the other's development plans and cause delays in the Company's ability to rapidly develop the Nechalacho Project.

We will need to enter into offtake agreements and failure to secure and enter into favourable offtake agreements with customers could have a material adverse effect on, and could result in delay or suspension of the development of, the Nechalacho Project and the Lake Superior Lithium Project.

The Company intends to pursue entering into offtake agreements with industrial consumers of the minerals it intends to produce in order to have assurance of future sales of its products. It is likely that it will be necessary to have some of the offtake agreements in place in order to secure project financing for the Nechalacho Project and the Lake Superior Lithium Project in order to demonstrate the economic viability of the project to lenders. Failure to secure and enter into favourable offtake agreements with customers could have a material adverse effect on, and could result in delay or suspension of the development of these projects.

The ore body at the Nechalacho Project and the deposit at the Separation Rapids Lithium Project are unique and there is a risk that the metallurgical process that we anticipate using will not perform at commercial scale as expected.

The ore types on both projects are unique for which well-established metallurgical processes have not previously been applied. Accordingly, there is a risk that the process designed at the bench and pilot scale will not perform at commercial scale as expected. The failure of such metallurgical process could materially and adversely affect the Company's expected project development and production schedules.

Title to some of our mineral properties may be challenged or defective. Indigenous groups may raise title disputes in relation to land claims and any impairment or defect in title could have a negative impact on our results of operations and financial condition.

The Company's title to its properties may be subject to disputes or other claims including Indigenous land title claims. Although the Company has exercised the usual due diligence with respect to determining title to properties in which it has a material interest, there is no guarantee that title to such properties will not be challenged or impugned. There may be valid challenges to the title of the Company's properties, which, if successful, could impair the Company's ability to explore, develop and/or operate its properties or to enforce its rights with respect to its properties. Indigenous rights and title may be claimed with respect to Crown properties or other types of tenure with respect to which mining rights have been conferred. In addition, other parties may dispute the Company's title to the properties in which it has an interest and such properties may be subject to prior unregistered agreements or transfers or land claims by Indigenous peoples, and title may be affected by undetected encumbrances or defects or government actions.

An impairment to or defect in the Company's title to its properties could have a material adverse effect on the Company's business, financial condition or results of operations. In addition, such claims, whether or not valid, will involve additional costs and expenses to defend or settle which could adversely affect the Company's profitability.

The Company will need to enter into agreements with applicable Indigenous groups to complete the development of the Nechalacho Project. The Company entered into an accommodation agreement with the Deninu K'ue First Nation ("DKFN") which provides for



business and employment opportunities for the DKFN and contains measures to mitigate the environmental and cultural impacts of the project. The Company was seeking to enter into similar agreements with the Lutsel K'e Dene First Nation (the "LKDFN") and Yellowknives Dene First Nation (the "YKDFN"), but there is no assurance that these agreements will be completed in a timely manner or at all. Even after the accommodation agreements are entered into, the continuing co-operation of the First Nations will be required to implement the terms of the agreements and proceed with the Nechalacho Project. Any failure of co-operation by these or any other potentially impacted Indigenous groups could result in delay of work on the Nechalacho Project. The Company also entered into a Participation Agreement with the Northwest Territory Métis Nation ("NWTMN"). This agreement provides for training, employment, and business opportunities for the NWTMN related to the Nechalacho Project and associated facilities in the Northwest Territories. The Participation Agreement also contains measures to mitigate environmental and cultural impacts that may result from the project development.

During the year ended August 31, 2020, the DKFN's legal counsel sent a letter to the Company dated February 11, 2020, asserting that Avalon was in breach of its Accommodation Agreement with the DKFN, as the DKFN had not received advance notice regarding assignment and business opportunities related to the co-ownership agreement with Cheetah. The Company responded on February 20, 2020, explaining that the resources that were sold to Cheetah were not subject to the Agreement and accordingly Avalon was not in breach of the Accommodation Agreement. There has been no subsequent communication from the DKFN's legal counsel with respect to this matter.

We may need to acquire additional properties for our hydrometallurgical plant and separation plant, which may significantly delay the development of the Nechalacho Project as a whole.

As part of the Nechalacho Project feasibility study the Company planned for a hydrometallurgical plant to be located at Pine Point, 85 kilometres east of Hay River, Northwest Territories and a rare earth separation processing facility to be located in Geismar, Louisiana. It is presently considering alternative sites for both facilities including Saskatoon. Any grants and surface leases, if granted, may be subject to the rights of holders of exploration claims or other subsurface rights, which may be inconsistent with the use of the property for the hydrometallurgical plant. In addition, economic factors such as power cost and infrastructure factors such as the adequacy of road and/or rail access may cause the Company not to proceed with acquiring the Pine Point surface leases.

The Company's purchase option on the land parcel in Geismar, Louisiana expired on December 15, 2014. Several sites in western Canada are under consideration for the location of an updated hydrometallurgical plant.

If the properties in Pine Point, Geismar or a suitable alternative are not acquired, the Company will need to identify and acquire another suitable site or sites for its hydrometallurgical plant and rare earth processing facility, which may significantly delay the development of the Nechalacho Project as a whole.

In addition, the Company will also need to obtain a parcel of land similar to the previously identified land parcel in Geismar, Louisiana, or elsewhere, to build its own rare earth processing facility.

Our feasibility study relies upon estimates based on assessments of market conditions and available technical information concerning the Nechalacho Project, which are only historical projections and are inherently uncertain.

The Company's expected production schedules, capital costs, engineering and construction estimates and operating costs which are included in this AIF are contained in the Feasibility Study (FS) which was completed in 2013. The FS relied upon estimates based on assessments of market conditions at that time and available technical information concerning the Nechalacho Project. Accordingly, the results indicated by the FS are historical projections only and are inherently uncertain. In particular, actual capital costs may significantly exceed those estimated by the FS, and engineering and construction estimates and schedules set forth in the FS may prove materially inaccurate.

Anticipated operating costs and production schedules set forth in the FS are based upon a variety of factors, including:

- anticipated tonnage, grades and metallurgical characteristics of the ore to be mined and processed;
- anticipated recovery rates of REE and other minerals from the ore;
- cash operating costs of comparable facilities, supplies/consumables and equipment;
- anticipated climatic conditions; and
- forecasts for foreign exchange markets, and discount rates.

Capital costs, operating costs, production and economic returns, and other estimates contained in studies or estimates prepared by or for the Company in the future may differ significantly from those anticipated by the Company's current estimates, and there can be no assurance that the Company's actual capital and operating costs will not be higher than currently anticipated. The Company's actual costs and production may vary from estimates for a variety of reasons, including: lack of availability of raw material or equipment; unexpected construction or operating problems; metallurgical performance; unanticipated geologic features; short-term operating factors; delays in delivery of consumables; revisions to mine plans; risks and hazards associated with mining; natural phenomena, such as inclement weather conditions, water availability, floods, and earthquakes; and unexpected labour shortages or strikes. Costs may also be affected by a variety of factors, including changing waste-to-ore ratios, ore grade metallurgy, labour costs, the cost and consumption rate of commodities, general inflationary pressures and currency exchange rates. Many of these factors are beyond the Company's control. Failure to achieve estimates or material increases in costs could have an adverse impact on the Company's future cash flows, business, results of operations and financial condition.

Furthermore, delays in the construction and commissioning of mining projects and manufacturing facilities or other technical difficulties may result in even further capital expenditures being required. Any delay in the development of a project or cost overruns or operational difficulties once the project is developed may have a material adverse effect on the Company's ability to finance or complete construction of the Nechalacho Project and on the Company's business, results of operations and financial condition.

Changes in the market price of rare earth minerals, which in the past has fluctuated widely, will affect the profitability of our operations and financial condition.

The Company's revenues, if any, from the Nechalacho Project, are expected to be derived in large part from the mining and sale of rare metals and minerals from the Basal Zone deposit. Demand for and the prices of those commodities has fluctuated widely, particularly in recent years, and is affected by numerous factors beyond the Company's control, including international economic and political conditions (such as the complaint filed with the World Trade Organization and won by the United States, the European Union and Japan against China's REE export restrictions in 2014), expectations of inflation, international currency



exchange rates, interest rates, global or regional consumption patterns, speculative activities, levels of supply and demand, increased production of rare metals and minerals due to new mine developments and improved mining and production methods, availability and costs of lithium, REE and other rare mineral substitutes; lithium, REE and other rare minerals and other stock levels maintained by producers and others and inventory carrying costs. The effect of these factors on the price of rare metals and minerals and therefore the Company's ability to finance the construction of the Nechalacho Project and the economic viability of the Company's operations cannot be accurately predicted.

Demand for REE products may be impacted by demand for products incorporating rare earths, including hybrid and electric vehicles, wind power equipment and other clean technology products, as well as demand in the general automotive and electronic industries. Lack of growth in these markets may adversely affect the demand for REE products, which would have a material adverse effect on the Nechalacho Project and the Company's business. In contrast, extended periods of high commodity prices may create economic dislocations that may be destabilizing to rare earth minerals supply and demand. Strong REE prices, as well as real or perceived disruptions in the supply of REE, also create economic incentives to identify or create alternate technologies that ultimately could depress future long-term demand for REE products, and at the same time may incentivize development of additional mining properties to produce REE. For example, automobile manufacturers have previously announced plans to develop motors for electric and hybrid cars that do not require REE products due to concerns about the available supply of rare earths. If the automobile industry or other industries reduce their reliance on rare earth products, the resulting change in demand could have a material adverse effect on the Company's business. In particular, if prices or demand for rare earths were to decline, this could impair the Company's ability to obtain financing for the Nechalacho Project and its ability to find purchasers for its products at prices acceptable to the Company.

Volatility in lithium prices and lithium demand may create some uncertainty on the feasibility for the Company to develop its Lake Superior Lithium Project.

The development of the Lake Superior Lithium Project is dependent on the continued growth of the lithium market, and the continued increased demand for lithium chemicals by emerging producers of electric vehicles and other users of lithium-ion batteries. These producers and the related technologies are still under development and a continued sustained increase in demand is not certain. To the extent that such demand does not manifest itself, and the lithium market does not continue to grow, or existing producers increase supply to satisfy this demand, then the Company's ability to develop its Lake Superior Lithium Project will be adversely affected. The Company's lithium exploration and development activities may be significantly adversely affected by volatility in the price of lithium. Mineral prices fluctuate widely and are affected by numerous factors beyond the Company's control such as global and regional supply and demand, interest rates, exchange rates, inflation or deflation, fluctuation in the value of the United States dollar and foreign currencies, and the political and economic conditions of mineral-producing countries throughout the world. The exact effect of these factors cannot be accurately predicted, but the combination of these factors may result in the Company's lithium activities not producing an adequate return on invested capital to be profitable or viable.

We operate in a highly competitive industry and some of our competitors may engage in predatory pricing behaviour or manipulation of the available supply of REE or lithium.

An increase in the global supply of rare metal and REE products and lithium, dumping and predatory pricing by our competitors may materially adversely affect our ability to raise capital

and construct and profitably operate the Nechalacho Project or the Lake Superior Lithium Project. The pricing and demand for rare metal and REE products and lithium is affected by a number of factors beyond the Company's control, including growth of economic development and the global supply and demand for rare metal and REE products. Currently China provides the majority of the world's supply of REE. Further, the prospect of the Nechalacho Project and the Lake Superior Lithium Project and other development projects achieving production may lead our competitors to engage in predatory pricing behaviour or manipulation of the available supply of REE and/or lithium. Any increase in the amount of rare earth products exported from China or from mines outside China, or produced in South America or Australia in the case of lithium, and increased competition may result in price reductions, reduced margins and loss of potential sales, any of which could materially adversely affect the profitability of the Nechalacho Project or our ability to further pursue the Lake Superior Lithium Project. As a result of these factors, the Company may not be able to compete effectively against future competitors.

Any unexpected costs or delays in the commercialization of rare earth products could have a material adverse effect on our ability to finance construction of and successfully operate the Nechalacho Project.

The success of the Nechalacho Project will depend, in part, on the establishment of new markets by the Company or third parties for certain rare earth products that may be in low demand, the creation of new markets and the successful commercialization of REE products in existing and emerging markets. Any unexpected costs or delays in the commercialization of any of the foregoing products and applications could have a material adverse effect on our ability to finance construction of and successfully operate the Nechalacho Project.

Our mineral resource and mineral reserves are only estimates and are subject to significant risks and uncertainties.

Mineral resource and mineral reserve estimates are based upon estimates made by Company personnel and independent geologists. These estimates are inherently subject to uncertainty and are based on geological interpretations and inferences drawn from drilling results and sampling analyses and may require revisions based on further exploration or development work. There is no certainty that any of the mineral resources or mineral reserves identified on the Nechalacho Project or any other project will be realized, that any anticipated level of recovery of minerals will in fact be realized, or that an identified mineral reserve or mineral resource will ever qualify as a commercially mineable (or viable) deposit which can be legally and economically exploited. Evaluations of drilling results are ongoing, but until a deposit is actually mined and processed, the quantity of mineral resources and mineral reserves and grades must be considered as estimates only.

In addition, the grade of mineralization which may ultimately be mined may differ from that indicated by drilling results and such differences could be material. The quantity and resulting valuation of mineral reserves and mineral resources may also vary depending on, among other things, metal prices (which may render mineral reserves and mineral resources uneconomic), cutoff grades applied and estimates of future operating costs (which may be inaccurate). Production can be affected by such factors as permitting regulations and requirements, weather, environmental factors, unforeseen technical difficulties, unusual or unexpected geological formations and work interruptions. Any material change in quantity of mineral resources, mineral reserves, grade, or stripping ratio may also affect the economic viability of any project undertaken by the Company. In addition, there can be no assurance that metal recoveries in small scale, and/or pilot laboratory tests will be duplicated in a larger scale test under onsite conditions or during production.

The Company's estimated mineral resources and mineral reserves should not be interpreted as assurances of commercial viability or potential or of the profitability of any future operations. Readers should be cautioned not to place undue reliance on these estimates. The Company cannot be certain that its mineral resource and mineral reserve estimates are accurate and cannot guarantee that it will recover the expected quantities of metals. Future production could differ dramatically from such estimates for the following reasons:

- actual mineralization or ore grade could be different from those predicted by drilling, sampling, feasibility studies or technical reports;
- increases in the capital or operating costs of the mine;
- changes in the life-of-mine plan;
- the grade of ore may vary over the life of the mine and the Company cannot give any assurances that any particular mineral reserve estimate will ultimately be recovered; or
- metallurgical performance could differ from forecast.

The occurrence of any of these events may cause the Company to adjust its mineral resource and reserve estimates or change its mining plans, which could negatively affect the Company's financial condition and results of operations. Moreover, short-term factors, such as the need for additional development of the ore body or the processing of new or different grades, may adversely affect the Company.

We may not be able to obtain all required permits and licenses to place our properties into production.

The construction and operation of the Nechalacho Project and the other exploration and development operations of the Company, such as on the Lake Superior Lithium Project, requires licenses and permits from various governmental authorities. Obtaining the necessary governmental permits is a complex and time-consuming process involving numerous jurisdictions. There can be no assurance that the Company will be able to obtain all necessary licenses and permits that may be required to carry out exploration, development, mining and processing operations at its projects. If the Company proceeds to production on the Nechalacho Project or any other project, licenses and permits may contain specific operating conditions and there can be no assurance that these conditions will not result in material increases in capital or operating costs or reductions in anticipated production, or that the Company will be able to comply with any such conditions. Costs related to applying for and obtaining permits and licenses or complying with the requirements they impose may be prohibitive and could delay planned exploration, development, construction or operation activities. Failure to comply with applicable laws, regulations and permitting requirements or with the conditions contained in licenses or permits may result in enforcement actions, including orders issued by regulatory or judicial authorities, causing operations to cease or be curtailed, and may include corrective measures requiring capital expenditures, installation of additional equipment, or remedial actions.

Parties engaged in exploration, development, mining or processing operations may be required to compensate those suffering loss or damage by reason of those activities and may have civil or criminal fines or penalties imposed for violations of applicable laws or regulations. Amendments to current laws, regulations and permits governing operations and activities of mining companies, or more stringent implementation thereof, could have a material adverse impact on our operations and cause increases in capital expenditures or production costs, reductions in levels of production at producing properties or require abandonment or delays in the development of new mining properties.

Our activities are subject to environmental laws and regulations that may increase our costs of doing business and restrict our operations.

All phases of the Company's exploration and development activities are subject to regulation by governmental agencies under various environmental laws in the various jurisdictions in which it operates. These laws and the regulations adopted thereunder address emissions into the air, discharges into water, management of waste, management of hazardous substances, the transportation of hazardous and/or radioactive substances, protection of natural resources, antiquities and endangered species, and reclamation of lands disturbed by mining operations. Environmental legislation and regulation is evolving in a manner which will require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects, and a heightened degree of responsibility for companies and their officers, directors and employees. Compliance with environmental laws and regulations may require significant capital outlays on behalf of the Company and may cause material changes or delays in the Company's intended activities. There is no assurance that future changes in environmental regulation, if any, will not adversely affect the Company's operations or result in substantial costs and liabilities to the Company in the future. Furthermore, environmental hazards which are unknown to the Company at present and which have been caused by previous or existing owners or operators may exist on the Company's properties.

We do not maintain insurance with respect to certain high-risk activities, which exposes us to significant risk of loss.

In the course of exploration and development of, and production from, mineral properties, certain risks, and in particular, unexpected or unusual geological operating conditions including rock bursts, cave-ins, fire, flooding, earthquakes and environmental contamination may occur. It is not always possible to fully insure against such risks as a result of high premiums or other reasons. Should such events arise, they could reduce or eliminate any future profitability and result in increasing costs and a decline in the value of the Company's securities.

Competition for recruitment and retention of qualified personnel, for which we compete with other companies, many of which have greater financial resources than us, and a shortage of equipment and supplies could adversely affect our ability to operate our business.

The Company will be dependent on various supplies, equipment, parts and labour and the services of contractors to carry out construction of the Nechalacho Project and to carry out its other exploration and development projects, such as the Lake Superior Lithium Project. The availability and cost of such supplies, equipment, parts or labour or the services of contractors could have a material adverse effect on the Company's ability to successfully construct and operate the Nechalacho Project and carry out its other activities on the Lake Superior Lithium Project.

The loss of key management personnel may adversely affect our business and results of operations.

The Company is dependent on the services of key executives including the Company's Chief Executive Officer and other highly skilled and experienced executives and personnel focused on managing the Company's interests and the advancement of the Nechalacho Project and other projects, such as the Lake Superior Lithium Project, as well as the identification of new opportunities for growth and funding. Due to the Company's relatively small size, the loss of these persons or the Company's inability to attract and retain additional highly skilled

employees required for the development of the Company's activities may have a material adverse effect on the Company's business or future operations.

The mineral industry is highly speculative and involves substantial risks.

Mineral exploration and development are highly speculative, and certain inherent exploration risks could have a negative effect on the Company. Most exploration projects do not result in the discovery of commercially mineable ore deposits and no assurance can be given that any particular level of recovery of ore reserves will be realized or that any identified mineral deposit will ever qualify as a commercially mineable (or viable) ore body which can be legally and economically exploited. Estimates of reserves, mineral deposits and production costs can also be affected by such factors as environmental permitting regulations and requirements, weather, environmental factors, unforeseen technical difficulties, unusual or unexpected geological formations and work interruptions. Material changes in ore reserves, grades, stripping ratios or recovery rates may affect the economic viability of any project.

The Company's future growth and productivity in its mineral exploration and development will depend, in part, on its ability to identify and acquire additional mineral rights, and on the costs and results of continued exploration and development programs. Mineral exploration is highly speculative in nature and is frequently non-productive. Substantial expenditures are required to:

- establish ore reserves through drilling and metallurgical and other testing techniques;
- determine metal content and metallurgical recovery processes to extract metal from the ore;
- conduct environmental, social, economic and technical studies; and
- construct, renovate or expand mining and processing facilities.

In addition, if the Company discovers a mineral deposit, it would take several years from the initial phases of exploration until production is possible. During this time, the economic feasibility of production may change. As a result of these uncertainties, there can be no assurance that the Company will successfully acquire additional mineral rights.

We operate in a highly competitive industry.

The mineral exploration and development industry and the advanced manufacturing industry are intensely competitive. Significant competition exists for the marketing of the minerals that the Company intends to produce as well as the acquisition of mineral concessions, claims, leases and other mineral interests. The Company may be at a competitive disadvantage in arranging for the sale of products intended to be produced at the Nechalacho Project or other properties, such as the Lake Superior Lithium Project, or in acquiring additional mining properties because it must compete with other individuals and companies, many of which have greater financial resources, operational experience and technical capabilities than the Company. The Company may also encounter increasing competition from other mining companies and advanced manufacturing in its efforts to hire experienced mining professionals. Competition for exploration resources at all levels is currently very intense, particularly affecting the availability of manpower, drill rigs and helicopters. Increased competition could adversely affect the Company's ability to attract necessary capital funding or acquire suitable producing properties or prospects for mineral exploration in the future.

Our exploration activities are subject to various federal, provincial, state and local laws and regulations.

The Company's operations and exploration and development activities in Canada and the United States are subject to extensive federal, state, provincial, territorial and local laws and regulations governing various matters, including:

- environmental protection;
- management, transportation and use of toxic, hazardous and/or radioactive substances and explosives;
- management of tailings and other wastes generated by the Company's operations;
- management of natural resources;
- exploration and development of mines, production and post-closure reclamation;
- exports;
- price controls;
- taxation;
- regulations concerning business dealings with Indigenous groups;
- labour standards and occupational health and safety, including mine safety; and
- historic and cultural preservation.

Failure to comply with applicable laws and regulations may result in civil or criminal fines or penalties or enforcement actions, including orders issued by regulatory or judicial authorities enjoining or curtailing operations or requiring corrective measures, installation of additional equipment or remedial actions, any of which could result in the Company incurring significant expenditures. The Company may also be required to compensate private parties suffering loss or damage by reason of a breach of such laws, regulations or permitting requirements. It is also possible that future laws and regulations, or changes to or a more stringent enforcement of current laws and regulations by governmental authorities, could cause additional expense, capital expenditures, restrictions on or suspensions of the Company's operations and delays in the development of the Company's properties.

Exploration activities depend on adequate infrastructure and we cannot be assured that our properties will maintain adequate infrastructure.

Mining, processing, development and exploration activities depend on adequate infrastructure. Reliable roads, bridges, power sources and water supply are important determinants, which affect capital and operating costs. Unusual or infrequent weather phenomena, sabotage, government or other interference in the maintenance or provision of such infrastructure could adversely affect the Company's operations, financial condition and results of operations.

Mining and resource exploration is inherently hazardous and subject to conditions or events beyond our control, which could have a material adverse effect on our business and plans.

Mineral exploration, the development and construction and operation of mines and mining involves many risks, which even a combination of experience, knowledge and careful evaluation may not be able to overcome. The work which the Company is undertaking and proposes to undertake will be subject to all the hazards and risks normally incidental to exploration, development and production of resources, any of which could result in work stoppages and damage to persons or property or the environment and possible legal liability for any and all damage. Fires, power outages, labour disruptions, flooding, explosions and cave-ins are risks involved in the operation of mines and the conduct of exploration programs. Although the Company has secured liability insurance and will, when appropriate, secure property insurance in an amount which it considers adequate, the nature of these risks is such that liabilities might exceed policy limits, the liabilities and hazards might not be insurable, or the Company might elect not to insure itself against such liabilities due to high premium costs



or other reasons, in which event the Company could incur significant costs or uninsured losses that could have a material adverse effect upon its financial condition.

Changes in critical accounting estimates could adversely affect financial results.

Avalon's most significant accounting estimates relate to the carrying value of the Company's metal and mineral property assets, and its investment in associate. The accounting policies in relation to metal and mineral properties and its investment in associate are set out in full in the Company's annual financial statements. Management regularly reviews the net carrying value of each metal and mineral property and its investment in associate. Where impairment indicators exist, management assesses if carrying value can be recovered. Management's estimates of metal and mineral prices, mineral resources and operating capital and reclamation costs are subject to certain risks and uncertainties which may affect the recoverability of metal and mineral property costs. Although management has made its best estimate of these factors, it is possible that changes could occur in the near term, which could adversely affect the future net cash flows to be generated from the properties. Other significant estimates relate to accounting for stock-based compensation and warrant valuation. Option and warrant pricing models require the input of highly subjective assumptions including the expected price volatility. Changes in the subjective input assumptions can materially affect the fair value estimate, and therefore the existing models do not necessarily provide a reliable single measure of the fair value of the Company's stock options granted/vested during the year, or of the value of the Company's derivative financial instruments.

Certain officers and directors may be in a position of conflicts of interest.

Certain of the Company's directors and officers also serve as directors and/or officers of other companies or other managerial positions involved or related to natural resource exploration and development and consequently there exists the possibility for such directors and officers to be in a position of conflict. Any decision made by any of such directors and officers involving the Company will be made in accordance with their duties and obligations to deal fairly and in good faith with a view to the best interests of the Company and its shareholders. In addition, each of the Company's directors is required to declare any interest in any matter in which such directors may have a conflict of interest in accordance with the procedures set forth in the CBCA and other applicable laws. In one specific example, Mr. Benny Loix is a director of the Company, and also an employee of SCR-Sibelco NV, which is the 60% owner and operator of Separation Rapids Ltd., of which the Company owns the other 40%.

We are subject to cybersecurity risks.

The Company is reliant on its information technology ("IT") systems for its operations. User access and security of all Company sites and IT systems can be critical elements to its operations, as is cloud security, security of all of the Company's IT systems, and protection against cyber security incidents. Any IT failure pertaining to availability, access or system security could potentially result in disruption of the activities of the Company and its personnel, and could adversely affect the reputation, operations or financial performance of the Company.

Potential risks to the Company's IT systems could include unauthorized attempts to extract sensitive business information, confidential or personal information, denial of access extortion, corruption of information or disruption of business processes, or by inadvertent or intentional actions by the Company's employees or vendors. A cybersecurity incident resulting in a security breach or failure to identify a security threat could disrupt business and

could result in the loss of sensitive, confidential or personal information or other assets, as well as litigation, regulatory enforcement, violation of privacy or securities laws and regulations, and remediation costs, all of which could materially impact the Company's business or reputation.

We believe that we may be a "passive foreign investment company" for the current taxable year which may result in materially adverse United States federal income tax consequences for United States investors.

U.S. investors in the Company's common shares and warrants should be aware that the Company believes it was classified as a "passive foreign investment company" (a "PFIC") under the meaning of Section 1297 of the United States Internal Revenue Code of 1986, as amended during its tax year ended August 31, 2024, and based on current business plans and financial expectations, the Company believes that it may be a PFIC for the current and future taxable years. If the Company is a PFIC for any taxable year during which a United States person holds its common shares or warrants it may result in materially adverse United States federal income tax consequences for such United States person. The potential consequences include, but are not limited to, recharacterization of gain from the sale of the common shares, warrants, and those common shares received upon exercise of warrants as ordinary income and the imposition of an interest charge on such gain and on certain distributions received on the common shares or common shares received upon exercise of warrants. Certain elections may be available under U.S. tax rules to mitigate some of the adverse consequences of holding shares in a PFIC.

A U.S. taxpayer that makes a "qualified electing fund" (a "QEF") election with respect to the Company generally will be subject to U.S. federal income tax on such U.S. taxpayer's pro rata share of the Company's "net capital gain" and "ordinary earnings" (as specifically defined and calculated under U.S. federal income tax rules), regardless of whether such amounts are actually distributed by the Company. U.S. taxpayers should be aware, however, that there can be no assurance that the Company will satisfy record keeping requirements under the QEF rules or that the Company will supply U.S. taxpayers with required information under the QEF rules, if the Company is a PFIC and a U.S. taxpayer wishes to make a QEF Election. Alternatively, a U.S. taxpayer may make a "mark-to-market election" (a "Mark-to-Market Election") if the Company is a PFIC and the common shares are "marketable stock" (as specifically defined). A U.S. taxpayer that makes a Mark-to-Market Election generally will include in gross income, for each taxable year in which the Company is a PFIC, an amount equal to the excess, if any, of (a) the fair market value of the common shares as of the close of such taxable year over (b) such U.S. taxpayer's adjusted tax basis in the common shares.

Investors should consult their own tax advisor regarding the PFIC rules and other U.S. federal income tax consequences of the acquisition, ownership, and disposition of common shares and warrants.

We are subject to foreign currency fluctuations.

It is expected that a significant portion of the Company's revenue from the sale of its products from the Nechalacho Project and the Lake Superior Lithium Project will likely be priced in U.S. dollars, whereas most of its operating costs will likely be incurred in Canadian dollars and other international currencies. In addition, a significant portion of the capital costs for the construction of the mining plant at the Nechalacho Project will also likely be priced in U.S. dollars. The fluctuation in the exchange rate between the U.S. dollar and the Canadian dollar and other international currencies may have a significant impact on the future profitability of



the Company and it may also significantly increase or decrease the capital costs for the Nechalacho Project.

Our Common Shares have experienced volatility in share price and there can be no assurance that an active market for the Company's securities will be sustained.

In recent years, the securities markets in Canada have experienced a high level of price and volume volatility and the market price of securities of many companies, particularly those considered development stage companies, have experienced wide fluctuations in price which would not have necessarily been related to the operating performance, underlying asset values or prospects of such companies.

The market price of the Company's securities may fluctuate significantly based on a number of factors, some of which are unrelated to the financial performance or prospects of the Company. These factors include macroeconomic developments in North America and globally, market perceptions of the attractiveness of particular industries, short-term changes in commodity prices, other precious metal prices, the attractiveness of alternative investments, currency exchange fluctuation, the political environment and the Company's financial condition or results of operations as reflected in its financial statements. Other factors unrelated to the performance of the Company that may have an effect on the price of the securities of the Company include the following: the extent of analytical coverage available to investors concerning the business of the Company may be limited if investment banks with research capabilities do not follow the Company's securities; lessening in trading volume and general market interest in the Company's securities may affect an investor's ability to trade significant numbers of securities of the Company; the size of the Company's public float may limit the ability of some institutions to invest in the Company's securities; the Company's operating performance and the performance of competitors and other similar companies; the public's reaction to the Company's press releases, other public announcements and the Company's filings with the various securities regulatory authorities; changes in estimates or recommendations by research analysts who track the Company's securities or the shares of other companies in the resource sector; the arrival or departure of key personnel; acquisitions, strategic alliances or joint ventures involving the Company or its competitors; the factors listed in this Form 20-F under the heading "Cautionary Statement Regarding Forward-Looking Statements"; and a substantial decline in the price of the securities of the Company that persists for a significant period of time could cause the Company's securities to be delisted from any exchange on which they are listed at that time, further reducing market liquidity. If there is no active market for the securities of the Company, the liquidity of an investor's investment may be limited and the price of the securities of the Company may decline. If such a market does not develop, investors may lose their entire investment in the Company's securities.

Additional financing may be needed for our business operations which may lead to dilution of our current shareholders.

The Company will require additional funds to fund further exploration and/or development activities or to fulfill its obligations under any applicable agreements. If the Company raises additional funding by issuing additional equity securities, such financing will dilute the holdings of the Company's shareholders. Future sales of common shares or warrants of the Company in public or private markets could adversely affect the trading price of the Company's common shares and its ability to continue to raise funds by new offerings of common shares or warrants.

We do not currently intend to pay cash dividends.

The Company has not paid any dividends on its Common Shares. Any decision to pay dividends on its Common Shares in the future will be dependent upon the financial requirements of the Company to finance future growth, the financial condition of the Company and other factors which the Company's Board of Directors may consider appropriate in the circumstances.

### International Conflicts

International conflicts and other geopolitical tensions and events, including war, military action, terrorism, trade disputes and international responses thereto have historically led to, and may in the future lead to, uncertainty or volatility in global commodity and financial markets and supply chains. Russia's invasion of Ukraine in February 2022 has led to sanctions being levied against Russia by the international community and may result in additional sanctions or other international action, any of which may have a destabilizing effect on commodity prices, supply chains and global economies more broadly. In October 2023, Israel and Hamas, the terrorist organization and current ruling political party in the Gaza Strip, engaged in a series of violent exchanges, primarily in southern Israel and the Gaza Strip. This has resulted in a significant increase in tension in the region and may have far reaching effects on the global economy. Volatility in commodity prices and supply chain disruptions may adversely affect the Company's business, financial condition and results of operations. The extent and duration of the current conflicts in the Ukraine and Israel and related international action cannot be accurately predicted at this time and the effects of such conflict may magnify the impact of the other risks identified in this short form prospectus, including those relating to commodity price volatility and global financial conditions. The outcome of these conflicts is uncertain, and these conflicts may escalate and may result in escalated tensions within and outside of Eastern Europe and the Middle East, respectively. This could result in significant disruption of supplies of oil and natural gas from the region and could cause a significant worldwide supply shortage of oil and natural gas and have a significant impact on worldwide prices of oil and natural gas. A lack of supply of energy and high prices of oil and natural gas could have a significant adverse impact on the world economy. The situation is rapidly changing and unforeseeable impacts, including on the Company's shareholders and counterparties on which the Company relies and transacts with, may materialize and may have an adverse effect on the Company's operations and trading price of the Common Shares.

### Global Financial Conditions Can Reduce Share Prices and Limit Access to Financing

In recent years, global financial markets have been characterized by extreme volatility impacting many industries, including the mining industry. Global financial conditions remain subject to sudden and rapid destabilizations in response to future economic shocks, as government authorities may have limited resources to respond to future crises. A sudden or prolonged slowdown in the financial markets or other economic conditions, including but not limited to, consumer spending, employment rates, business conditions, inflation, fuel and energy costs, consumer debt levels, lack of available credit, the state of the financial markets, interest rates and tax rates, may adversely affect the Company's growth and profitability. Future economic shocks may be precipitated by a number of causes, including, but not limited to, material changes in the price of oil and other commodities, the volatility of metal prices, governmental policies, geopolitical instability, war, terrorism, the devaluation and volatility of global stock markets and natural disasters. Any sudden or rapid destabilization of global economic conditions could impact the Company's ability to obtain equity or debt financing in the future on terms favorable to the Company or at all. In such an event, the Company's operations and financial condition could be adversely impacted.

### There is no market for our warrants.

There is no existing trading market for warrants to purchase the common shares of the Company. As a result, there can be no assurance that a liquid market will develop or be maintained for those securities, or that an investor will be able to sell any of those securities at a particular time (if at all). The Company may not list any of its warrants on any Canadian or U.S. securities exchange, and the Common Shares could be delisted or suspended. The liquidity of the trading market in those securities, and the market price quoted for those securities, may be adversely affected by, among other things:

- changes in the overall market for those securities;
- changes in the Company's financial performance or prospects;
- changes or perceived changes in the Company's creditworthiness;
- the prospects for companies in the Company's industry generally;
- the number of holders of those securities;
- the interest of securities dealers in making a market for those securities; and
- prevailing interest rates.

## **5.3 Asset-backed Securities**

Not applicable

## **5.4 Mineral Projects**

The Nechalacho Project is the Company's material property. The summary of the Nechalacho Project set forth below is qualified in its entirety by reference to the full text of the Nechalacho Technical Report (as defined below).

### **5.4.1 Nechalacho Project**

#### **(A) Summary of Technical Report**

##### *1. Current Technical Report*

The most recent technical report on the property is entitled "Technical Report Disclosing the Results of the Feasibility Study on the Nechalacho Rare Earth Elements Project" dated May 31, 2013, effective April 17, 2013 (the "Nechalacho Technical Report"), and prepared by Tudorel Ciuculescu, M.Sc., P.Geo. of RPA, Kevin Hawton, P.Eng. of Knight Piesold Limited, and Bernard Foo, P.Eng., Richard Gowans, P.Eng., Christopher Jacobs, C.Eng., MIMMM, and Jane Spooner, P. Geo., all of Micon, each of whom is a qualified person pursuant to NI 43-101.

As described above in section "5.1.1.3 Nechalacho Project", during the year ended August 31, 2020, Avalon completed a sale of the rights to the near-surface dominantly light rare earth mineral resources above a depth of 150 metres at the Nechalacho Project to Cheetah Resources Pty Ltd. These zones are not part of the resources which are contemplated to be developed in the Nechalacho Technical Report, and any direct references to these zones have been omitted from this summary.

##### *2. Property Description, Location and Access*

The Nechalacho Deposit is situated on the Company's Thor Lake property, located in Canada's Northwest Territories ("NWT"), 100 kilometres southeast of the capital city of Yellowknife and five kilometres north of the Hearne Channel on the East Arm of Great Slave Lake. The property is within the Mackenzie Mining District of the NWT and Thor Lake is shown on National

Topographic System ("NTS") map sheet 85I/02 at approximately 62°06'30"N and 112°35'30"W (Zone 12, 6,886,500N, 417,000E - NAD83).

There is no road access into the Nechalacho site. It is accessible by barge during the summer months, ice road in the winter and year-round by aircraft. The site has been serviced by float planes and ski planes with helicopter support over freeze-up and break-up. A 30.4 m wide by 305 m long airstrip provides all-year fixed-wing service to the site, if necessary. In addition, ice roads on Great Slave Lake have been utilized to mobilize equipment to the site in winter as and when required.



The Thor Lake property consists of five contiguous mineral leases (totalling 4,249 hectares, or 10,449 acres) and three claims (totalling 1,869 hectares, or 4,597 acres). The claims were staked in 2009 to cover favourable geology to the west of the mining leases.

The mining leases have a 21-year life and each lease is renewable in 21-year increments. Annual payments of \$4.94 per hectare (\$2.00 per acre) are required to keep the leases in good standing. Avalon owns the leases subject to various legal agreements described below. The mineral claims are in good standing with the next renewal date as of the FS being October 24, 2015. As the required work is \$5 per hectare, the total required annually on the claims is \$9,301.31 and the fee due is \$465.07.

Two underlying royalty agreements were inherited with the title to the Thor Lake property: the Murphy Royalty Agreement and the Calabras/Lutoda Royalty Agreement. The Murphy



Royalty Agreement is a 2.5% NSR royalty and has a provision for Avalon to buy out the royalty at the principal amount of \$150,000 compounded annually at the average Canadian prime rate from May 2, 1982 to the buyback date. The Calabras/Lutoda Royalty Agreement totals 3% NSR. In June, 2012, 8110131 Canada Inc., a wholly owned subsidiary of the Company, acquired the NSR under the Calabras/Lutoda Royalty Agreement for \$2.0 million.

### *3. Exploration History*

The Thor Lake area was first mapped by J. F. Henderson and A. W. Joliffe of the Geological Survey of Canada ("GSC") in 1937 and 1938. According to National Mineral Inventory records of the Mineral Policy Sector, Department of Energy, Mines and Resources, the first staking activity at Thor Lake dates from July 1970 when Odin 1-4 claims were staked by K. D. Hannigan for uranium.

In 1971, the GSC commissioned an airborne radiometric survey over the Yellowknife region that outlined a radioactive anomaly over the Thor Lake area (GSC Open File Report 124). Simultaneously, A. Davidson of the GSC initiated mapping of the Blachford Lake Intrusive Complex. It has subsequently become clear that this radiometric anomaly is largely due to elevated thorium levels in the T Zone.

In 1976, Highwood Resources Ltd., ("Highwood") in the course of a regional uranium exploration program, discovered niobium and tantalum on the Thor Lake property and the property was staked in 1976 and 1977. From 1976 to 1979, exploration programs included geological mapping, sampling and trenching on the Lake, Fluorite, R, S and T Zones. Twenty-two drill holes were also completed, seven of these on the Nechalacho Deposit (referred to as the "Lake Zone" in the historic reports). This work resulted in the discovery of significant concentrations of niobium, tantalum, yttrium and REE.

Recognizing a large potential resource at Thor Lake, Placer Development Ltd. ("Placer") optioned the property from Highwood in March 1980 to further investigate the tantalum and related mineralization. Placer conducted geophysical surveys on the Nechalacho Deposit. Eighteen holes were drilled in 1980 and 1981. Preliminary metallurgical scoping work was also conducted, but when the mineralization did not prove amenable to conventional metallurgical extractions of tantalum, Placer relinquished its option in April 1982.

From 1983 to 1985, work on the property was concentrated on the T Zone and included geochemical surveys, surface mapping, significant drilling, surface and underground bulk sampling, metallurgical testing and a detailed evaluation of the property by Unocal Canada. Five holes were also drilled in the Nechalacho Deposit to test for high grade tantalum-niobium mineralization and to determine zoning and geological continuity. Two additional holes were completed at the northeast end of Long Lake to evaluate high yttrium and REE values obtained from nearby trenches.

In August 1986, the property was joint ventured with Hecla Mining Company of Canada Ltd. ("Hecla"). In 1988, earlier holes were re-assayed, and 19 more holes were drilled into the Nechalacho Deposit, primarily in the southeast corner, to further test for yttrium and REE. However, in 1990, after completing this and considerable work on the T Zone, including some limited in-fill drilling, extensive metallurgical testing and conducting a marketing study on beryllium, Hecla withdrew from the project. In 1990, control of Highwood passed to Conwest Exploration Company Ltd. ("Conwest") until 1996, at which time Conwest divested itself of its mineral holdings. Mountain Minerals Company Ltd. ("Mountain"), a private company controlled by Royal Oak Mines Ltd. ("Royal Oak"), acquired the 34% controlling interest of Highwood.

In late 1999, the application was withdrawn. Royal Oak's subsequent bankruptcy in 1999 resulted in the acquisition of the control block of Highwood shares by Dynatec Company ("Dynatec"). In 2000, Highwood initiated metallurgical, marketing and environmental reviews by Dynatec.

In 2001, Navigator Exploration Corp. ("Navigator") entered into an option agreement with Highwood. Navigator's efforts were focused on conducting additional metallurgical research at a third party geotechnical consultant firm in order to define a process for producing a marketable tantalum concentrate from the Nechalacho Deposit. These efforts produced a metallurgical grade tantalum (Ta)/zirconium (Zr)/niobium (Nb)/yttrium (Y)/REE bulk concentrate. The option was dropped in 2004, however, in view of falling tantalum prices and low tantalum content in the bulk concentrate.

Beta Minerals Inc. ("Beta") acquired Highwood's interest in the Thor Lake property in November 2002 under a plan of arrangement with Dynatec. No work was conducted at Thor Lake by Beta and in May of 2005 Avalon purchased from Beta a 100% interest and full title, (subject to royalty interests), to the Thor Lake property.

#### *4. Geology and Mineralization*

The Nechalacho rare metals deposit is hosted by the peralkaline Blachford Lake intrusion, an Archean-age ring complex emplaced in Archean-age supracrustal rocks of the Yellowknife Supergroup. The principal rock types in the intrusion are syenites, granites and gabbros and associated pegmatitic phases hosting rare metal mineralization. The key rock units in the vicinity of the mineralization are the Grace Lake Granite, the Thor Lake Syenite and nepheline-sodalite syenite referred to by Avalon as the "Nechalacho Nepheline Syenite". The Grace Lake Granite surrounds the Thor Lake Syenite with the two separated by the enigmatic "Rim Syenite". The host of the Nechalacho Deposit mineralization, the Nechalacho nepheline syenite, is within and below the Thor Lake Syenite, and exposed locally in the northwest part of the Thor Lake Syenite.

Five distinct zones or deposits of rare metal mineralization have been identified as being of potential economic interest: the Nechalacho Deposit and smaller North T, South T, S and R Zones. The Nechalacho Deposit is the largest, containing significant yttrium, tantalum, niobium, gallium and zirconium mineralization. The Nechalacho Deposit is particularly notable for its enrichment in the more valuable HREEs such as europium, terbium and dysprosium, relative to light rare earth elements ("LREEs") such as lanthanum and cerium and its enrichment in zirconium.

The Nechalacho Nepheline Syenite that hosts the Nechalacho Deposit has the following key distinctive features which contrast it to the Thor Lake Syenite and Grace Lake Granite:

- It has a distinct chemical composition showing undersaturation in quartz, with nepheline and sodalite variously as rock-forming minerals.
- It has cumulate layering.
- It contains zircon-silicates including eudialyte.
- It is the host to the Nechalacho zirconium-niobium-tantalum-rare earth mineralization.

This syenite is only exposed at surface in a window through the Thor Lake Syenite in the area encompassing Long Lake to Thor Lake. It is believed to dip underneath the Thor Lake Syenite in all directions. This is supported by drilling north of Thor Lake, within and close to Cressy Lake. Also, the Nechalacho Deposit mineralization, which occurs in the top, or apex, of the syenite, is also present in throughout this window through the Thor Lake Syenite. This



unnamed syenite is referred to in the AIF as the "Ore (Nechalacho) Nepheline Sodalite Syenite".

The Nechalacho Deposit is a part of layered peralkaline intrusion with some near surface hydrothermal alteration that extends from surface to depths of approximately 200 m, characterized by alternating sub-horizontal layers of relatively high and lower grade REE mineralization with varying mineralogy. HREEs are present in the Nechalacho Basal Zone Deposit in fergusonite ((Y, HREE) NbO<sub>4</sub>) and zircon (ZrSiO<sub>4</sub>), whereas the LREEs are present in bastnaesite, synchysite, allanite and monazite in the near-surface resources (Upper Zone). Niobium and tantalum are hosted in columbite as well as fergusonite.

There is a gradual increase in HREE from surface to depth within the Nechalacho Deposit with the lowermost sub-horizontal layer, which is also the most laterally continuous, being referred to as the Basal Zone. Accordingly typical proportions of heavy rare earth oxides ("HREO") relative to total rare earth oxides ("TREO") in the Upper Zone can be 6% to 10%, but in the Basal Zone averaging over 20% and reaching as high as 50% in individual samples. There is also a tendency for the Basal Zone, which undulates to some extent, to increase in HREO with depth.

The Nechalacho Nepheline Syenite consists of a layered series of increasingly alkaline rocks with depth. A consistent downward progression is observed from hanging wall sodalite cumulates, through coarse grained to pegmatitic nepheline aegirine syenites which are locally enriched in zircon-silicates, to foyaitic syenite with a broad zone of altered "pseudomorphs-after-eudialyte" cumulates (referred to above as the "Basal Zone"). This upper sequence is strongly to intensely hydrothermally altered by various sodic and iron-rich fluids. Pre-existing zircon-silicates (eudialyte) are completely replaced by zircon, allanite, bastnaesite, fergusonite and other minerals. Below the Basal Zone cumulates, mineralization decreases rapidly, but alteration decreases more gradually, with relict primary mineralogy and textures increasingly preserved. Aegirine and nepheline-bearing syenites and foyaitic syenites progress downward to sodalite foyaites and naujaite. Drilling has not extended beyond this sodalite lithology to date. Minerals related to agpaite magmatism identified from this lower unaltered sequence include eudialyte, catapleite, analcime, and possibly mosandrite.

The part of the Nechalacho Deposit alteration system that is enriched in REEs varies between 80 metres and 190 metres in vertical thickness, with the alteration usually starting from the surface. The whole alteration system is enriched to varying degrees in rare earth elements, zirconium ("Zr"), niobium ("Nb") and tantalum ("Ta"), relative to unaltered syenite, with average values over the whole approximately 200 metres thick alteration package of approximately 0.75% to 1.0% total rare earth oxides.

Within this alteration envelope, there are sub-horizontal zones of increased alteration accompanied by increased REE enrichment alternating with less enriched REE zones. Within the more intensely altered zones, the effect is that the original textures and mineralogy of the host rock are no longer apparent.

These zones of increased alteration, which can vary in thickness from a few metres to tens of metres, can frequently contain TREO grades in the range of 2% and higher. The lowermost band, referred to as the Basal Zone, contains the highest proportion of HREO. Overall, the HREO proportion of the TREO within the 80 metres to 190 metres thick alteration system is typically between 7% and 15%. However, within the Basal Zone, this proportion is typically greater than 20% and can locally exceed 30% over the full width.

## *5. Exploration*

In 2005, Avalon conducted extensive resampling of archived Nechalacho Deposit drill core to further assess the yttrium and heavy REE resources on the property. In 2006, TetraTech-WEI (formerly Wardrop Engineering Inc.) ("TetraTech") was retained to conduct a Preliminary Economic Assessment of the Nechalacho Deposit (Preliminary Economic Assessment on the Thor Lake Rare Metals Project, NT Wardrop Document No. 0551530201-REP-R0001-03). In 2007, Avalon commenced further drilling of the Nechalacho Deposit. Apart from support of geoscience graduate theses which included mapping of the property, Avalon's exploration activities at the site were confined to drilling.

## 6. Drilling

Avalon has carried out the following drilling on the Nechalacho Deposit, summarized to August 31, 2015:

Year	Diameter	Drill holes	Metres
2007	BTW	13	2,440.47
	<b>TOTAL</b>	<b>13</b>	<b>2,440.47</b>
2008	NQ2	70	14,033.65
	<b>TOTAL</b>	<b>70</b>	<b>14,033.65</b>
2009	HQ	43	8,794.32
2009	NQ	26	5,476.78
	<b>TOTAL</b>	<b>69</b>	<b>14,271.10</b>
2010	HQ	86	23,840.43
2010	PQ	20	3,754.00
	<b>TOTAL</b>	<b>106</b>	<b>27,594.43</b>
2011	HQ	43	10,967.22
2011	NQ	21	3,923.96
2011	PQ	46	10,864.60
	<b>TOTAL</b>	<b>110</b>	<b>25,755.78</b>
2012	HQ	73	18,100.90
2012	PQ	13	3,160.45
	<b>TOTAL</b>	<b>86</b>	<b>21,261.35</b>
2013	HQ	16	2,977.30
	<b>TOTAL</b>	<b>16</b>	<b>2,977.30</b>
2014	HQ	15	3,135.00
2014	PQ	7	1,773.00
	<b>TOTAL</b>	<b>22</b>	<b>4,908.00</b>
<b>Total to August 31, 2015</b>		<b>492</b>	<b>113,242.08</b>

Minor differences to previous tables disclosing historic drilling statistics are due to previous errors and decisions by the data compilers as whether to exclude or include abandoned holes with no assays.

Mineral resource estimates with the effective date of May 3, 2013 included drill results up to August 27, 2012 and the updated mineral resource estimates, completed after the FS, included drill results up to March 2, 2013. See "Nechalacho Project - Mineral Resource Update". There was no drilling done in 2015.

## 7. Sampling, Analysis and Security of Samples

A comprehensive core logging and sampling protocol was established for the July 2007 drilling program. This protocol has been strictly applied for all of the drilling programs since 2007. In addition, a comprehensive geotechnical logging protocol was introduced at the start of the summer 2009 drill program. The Company's former Vice President, Exploration, William Mercer, Ph.D., P.Geol. (Ontario), P. Geol. (NWT), provided overall direction on the project and is responsible for monitoring the QA/QC protocol for the laboratory analyses and provided overall direction on the project.

Core sizes range from BTW diameter for the initial 2007 drill program to NQ2 in the winter/summer 2008 program and NQ2 or HQ in 2009 and 2010. Since 2011, a second rig recovering very large PQ sized core was mobilized to site to maximize the amount of material available for the bulk sample while the first rig continued with HQ equipment.

Core is placed in standard wooden core boxes at the drill by the driller helper, with a wooden marker placed at the end of each core run marking the metreage from the surface. Throughout the BTW-NQ programs drill rods were imperial lengths of 10 feet, and core markers were written in feet on one side of the wooden block, and using a metric conversion chart, written in metres on the opposite side of the block. The HQ drilling initially used both imperial and metric rods, so markers were in both feet and metres to ensure proper measurement.

In general, in the mineralized zones, core recovery is very high, effectively 100%. As a result, core handling is not expected to materially affect the results in terms of accuracy or reliability. In addition, as the mineralization is disseminated, there is not expected to be a significant sampling effect on accuracy or reliability.

After inspection by the geologist at the drill, the boxes are closed with wooden lids and taken to the core logging facility at the camp by snowmobile in the winter and by boat and ATV in the summer. At camp, the boxes are opened by the geologist on outdoor racks. In good weather, logging and other geotechnical measurements are done outside; in poor weather and in winter, core is processed in a heated core shack. Core is initially measured to determine recoveries, and marked incrementally every metre. This marking serves as a guide for magnetic susceptibility, rock quality determinations ("RQD"), and density measurements. Magnetic susceptibility is measured every metre with a hand-held 'KT-10 magnetic susceptibility meter'. Density is measured every five metres by weighing a section of drill core in air and then weighing by submersing the sample in water and comparing the difference between dry and submersed weight. A typical core sample for density measurement averages 10 centimetres in length. Geotechnical logging, comprising RQD, are performed for each run.

Core is generally very clean when brought to camp, and requires no washing except for occasional sprays of water when mud is present. The geologist marks out major rock units and completes a written description for the entire core sequence. Frequent readings using a Thermo-Scientific Niton® XLP-522K hand held analyzer act as a guide to areas of mineralization and general chemistry of a specific interval. The final task is to mark out with a china marker specific sample intervals for the length of the entire drill hole. On average, assay samples are two metres long except where, in the geologist's opinion, it is advisable to follow lithological boundaries. Due to the long widths of mineralization with the Basal Zone averaging over 20 m thick, even spaced sampling is not considered a significant factor in resource estimation. Consequently, individual samples can vary in length when encountering lithological changes, as efforts are made not to split across well-defined lithological boundaries. A list is made of all sample intervals as a record and also a guide to the core splitting technicians. All geological, geophysical and geotechnical data was originally entered into a custom designed database, provided and maintained by an external consulting firm.

Subsequently, starting in 2012, Avalon started using Maxwell Geoservices software (LogChief and DataShed) to enter and control data into the DataShed database.

At the first step of data entry, the data is checked for corrected and completed required fields which are necessary to import into LogChief. Adjusted procedures for different fields in LogChief can be considered control manager on data entry and possible available errors. Those parts of the data which includes errors are rejected and sent back to field geologists for correction. The data is then synchronized from LogChief to DataShed. An exception to the sampling process described above is that for PQ core. Due to the weight of the core, about 18 kgs per metre, and for safety reasons related to lifting heavy samples, samples were restricted to 1 metre core lengths.

Due to the hydrothermal alteration of all lithologies, identifying specific precursor lithologies has proven quite difficult, particularly in the early drill programs. Early lithological coding tended to incorporate hydrothermal alteration, commonly making it difficult to correlate units between drill holes. As more information became available from deeper drilling and specific textures and lithologies were compared to other unaltered, alkaline deposits elsewhere, such as Illimausaq in Greenland, a new lithological code was produced using, as a basis, the recognizable precursor lithologies. This has greatly advanced the understanding of the lithology, mineralogy, and to a lesser degree the petro-genesis of the deposit.

After all tests and core observations are completed, and prior to splitting, the core is photographed outdoors using a hand-held digital camera. Down-hole distance and hole number are marked so as to be visible in all photos. Core is generally photographed in groups of six boxes. Starting in the 2009 summer drill program, drill core was also logged for geotechnical characteristics. This was initiated with the guidance of external geotechnical consultants. Some of the holes were logged from top to bottom, while others were logged above, below, and within the Basal Zone, to determine rock quality characteristics of both the mineralized zones and country rocks. Efforts were made to select holes with varying orientations to provide comprehensive orientation characteristics of planar structural features. The geotechnical logging was done on core logging sheets and entered electronically into a custom-designed Excel spreadsheet provided by the geotechnical consultants. A total of 385 holes were logged in whole or in part. Holes which were partially logged included the Basal Zone and a minimum 10 metre interval above and below. When the core has been logged and photographed, it is stored in core racks outside the core splitting tent, from which they are then brought into the core shack to be split and sampled. Core photos are stored on the camp computer in addition to an external hard drive.

For all core except PQ, the core splitter would break the core into smaller lengths to fit into the mechanical core splitter, split the core in half, and placed one half in a plastic sample bag with the other half placed back into the core box in sequence to serve as a permanent record. In programs after 2009, for mineralized intervals, the core was split initially into halves and then one half into quarters. One quarter was utilized as an assay sample, a second quarter retained as a library sample, and the full half core bagged in intervals identical to the sample interval, as a metallurgical sample. The sample interval is marked on a sample tag in a three-part sample book and a tag with the corresponding sample number is placed in the sample bag. The sample bag is also marked with the corresponding sample number using a felt marker. The bag is then either stapled or zip-tied closed, and placed in a rice bag with two other samples. Most rice bags contain three samples to keep weight to a manageable level. The rice bag is then marked on the outside with corresponding sample numbers contained within, and a second number identifying the rice bag itself. A sample shipment form is then completed, generally in increments of 50 rice bags, which constitutes a single shipment. The sample form is enclosed in an appropriately marked rice bag, with a duplicate paper copy kept in camp, and also kept on electronic file.

Starting in winter 2010, a second drill was added, also using HQ core. This core was sampled as above. From July 2010 on, this rig was converted to PQ diameter core in order to obtain more metallurgical sample. This core, weighing about 18 kg per metre, was initially sawn in order to acquire an assay sample of about 1.5 kg, with a second cut for a library sample of about 1.5 kg, leaving about 14 kg for metallurgical purposes. However, due to the hardness of the rock, it was deemed that sawing the core was impractical due to low productivity. Consequently, a test was completed of coarse crushing the whole core to 3.3 mm in 1 metre samples. Then an assay sample and a library sample were split out and the remaining 3.3 mm material retained for metallurgical purposes. The results of the test that studied the particle size distribution and the homogeneity of the sample indicated that this was a satisfactory procedure for both assaying and metallurgy, and for mineralized intervals this PQ core procedure continued to be followed. For unmineralized core, a section was sawn off weighing about 3-5 kg per sample to avoid the cost of crushing whole core and the remaining core stored at site.

Standards are inserted routinely every 15<sup>th</sup> sample with the primary laboratory and every 35<sup>th</sup> sample with the secondary laboratory. Blanks, composed of split drill core of unaltered and un-veined diabase dyke intersected in drilling beneath Thor Lake, are inserted every 40<sup>th</sup> sample. Samples are shipped by air from Thor Lake to Yellowknife. The standard shipment is 50 rice bags, or a total of 150 samples per shipment. The rice bags are zip-tied for security, and are met and unloaded in Yellowknife by a representative of a third-party expeditor. The expeditor takes the samples to its warehouse and inventories all samples and produces a manifest which is sent electronically to Thor Lake camp, and accompanies the shipment. The samples are then taken by the expeditor to the core processing lab facilities. At this point, the laboratories take custody of the samples. Core is sent to the preparation laboratory with specification that all core should be crushed to 90% passing 10 mesh with a supplementary charge if necessary. For samples from drill holes completed in 2007, every sample pulp was duplicated and sent to the secondary laboratory for check analyses. Subsequent to this (2008 to 2009), approximately every tenth pulp was sent for duplicate analysis in the secondary laboratory. Standards are inserted in the duplicate sample stream by Avalon employees prior to shipping to the secondary laboratory.

Any assay results obtained prior to 2007 (holes 1 to 51) are referred to as the "older holes". These did not have internal Quality Assurance/Quality Control ("QA/QC") and were analyzed for a limited set of elements; however, six of the old holes were re-assayed in 2008 for the complete suite of elements. Avalon has changed the laboratories used for analysis over time. For the first year of drilling by Avalon (2007), the primary laboratory was an independent laboratory located in Ancaster, Ontario ("Lab 1"), and the secondary laboratory was in Vancouver, British Columbia ("Lab 2"). Samples were shipped to the Lab 1 facility in Ancaster, Ontario for preparation, and a duplicate pulp was submitted to Lab 2 in Vancouver for complete check analysis.

For the 2008 winter and summer programs, the preparation laboratory was a different laboratory in Yellowknife, Northwest Territories ("Lab 3") and the primary analytical laboratory was Lab 2 in Vancouver, British Columbia. A split of every tenth sample reject was sent to a different independent laboratory in Vancouver, British Columbia ("Lab 4") for check analyses. All core was analyzed by Lab 2 using two analytical packages: Group 4A and Group 4B. Lab 4 analyzed the samples with the MS81 method. Lab 2's Group 4A is a whole rock characterization package comprising four separate analytical tests. Lab 2's Group 4B is a Total Trace Elements by Inductively Coupled Plasma-Mass Spectrometry ("ICP-MS"). This package comprises two separate analyses. For 2008, secondary samples, comprising roughly every tenth reject sample supplied by Lab 2, were shipped to Lab 4, where the samples were analyzed by the package MS81. This is a combination of lithium metaborate/ICP atomic

emission spectrometry ("ICP-AES") for whole rock values, lithium borate/ICP-MS for refractory mineral values and other elements, and aqua regia/ICP-MS for volatile elements.

Starting with the winter 2009 drilling campaign, all samples were prepared at a different preparation facility in Yellowknife, Northwest Territories ("Lab 5"), and a subsample shipped and analyzed at Lab 4 in Vancouver, British Columbia by lithium metaborate/tetraborate fusion and dilute nitric acid digestion, followed by whole rock and 45 element multi-element ICP analysis (Lab 4 sample method ME-MS81). All samples contained within intercepts above the 1.6% cutoff criteria and any additional samples exceeding analytical limits or of geological significance are rerun using similar Lab 4 method ME-MS81H for higher concentration levels. ME-MS81H is a similar method but with greater dilution in the analytical procedure. Every tenth sample has a duplicate pulp prepared from the sample reject which, with inserted standards and blanks, was sent to Lab 2 in Vancouver, British Columbia for check analyses. Results were monitored for key elements, and in cases of QA/QC issues, re-analysis was requested. Values were reported by the laboratories in parts per million ("ppm") and converted to rare earth and rare metal oxides by Avalon geologists.

Since 2007, Avalon has commissioned a specialist laboratory from British Columbia to generate standards called AVL-H, AVL-M or AVL-L (2007), S0409 (2010) (sometimes referred to as H2) and S229 and S236 (2010). For the 2007 standards and S0409, Avalon then commissioned an independent consultant to review the round robin and assess the quality of the data and for S239 and S236 another independent consultant was similarly commissioned.

Statistics on QA/QC samples submitted during the period January 2011 to August 2012 are presented below.

QA/QC Samples Submitted From January, 2011 to August, 2012			
QC Category	DH Sample Count	QC Sample Count	Ratio of QC Samples to DH Samples
Company Standards	16,914	1,117	1:15
Company Blanks	16,914	453	1:37
Laboratory Duplicates	16,914	2,019	1:8
Field Duplicates	16,914	88	1:192

The following table shows the interlab comparison for the period June 2010 and December 2011.



Laboratory Comparison Results for All Elements (ppm)								
Element	No. of Samples	Mean 1 (Lab 4)	Mean 2 (Lab 2)	SD 1 (Lab 4)	SD 2 (Lab 2)	CV 1 (Lab 4)	CV 2 (Lab 2)	RPHD% <sup>(1)</sup>
La	453	1996.72	1882.70	1153.64	1076.56	0.58	0.57	2.69
Ce	451	4398.52	4184.67	2535.14	2392.85	0.58	0.57	2.24
Pr	453	558.23	518.04	331.16	300.76	0.59	0.58	3.21
Nd	453	2166.97	2069.39	1297.18	1223.40	0.60	0.59	1.97
Sm	453	456.80	422.45	290.66	265.58	0.64	0.63	3.56
Eu	453	52.32	49.91	34.33	32.65	0.66	0.65	2.07
Gd	453	357.29	359.70	257.90	256.03	0.72	0.71	-0.80
Tb	453	48.63	48.37	44.61	43.68	0.92	0.90	0.01
Dy	452	240.93	235.89	258.54	252.82	1.07	1.07	1.05
Ho	453	41.09	38.98	50.96	50.06	1.24	1.28	5.24
Er	453	101.74	96.24	137.84	132.60	1.35	1.38	4.59
Tm	453	13.25	13.25	18.48	18.48	1.39	1.39	-0.44
Yb	453	80.59	81.97	112.45	112.15	1.40	1.37	-3.44
Lu	453	11.37	11.08	15.76	15.32	1.39	1.38	-0.39
Y	453	964.62	914.19	1144.75	1072.82	1.19	1.17	2.22
Zr-ICPMS <sub>h</sub>	451	16794.83	16441.79	11635.23	11661.55	0.69	0.71	1.51
Zr-XRF	497	22748.89	20472.55	11023.60	9747.00	0.48	0.48	5.16
Nb-ICPMS <sub>h</sub>	452	2045.91	1937.76	1173.36	1158.36	0.57	0.60	2.82
Nb-XRF	228	3645.18	3169.35	1189.18	994.35	0.33	0.31	7.00
Ta	453	217.29	207.36	169.17	157.83	0.78	0.76	1.45
Hf	453	380.31	369.85	274.54	268.91	0.72	0.73	1.47

NOTES:

(1) RPHD: Relative Percent Half Difference

Avalon monitors the results of its internal standards during routine analysis of drill core. Due to the large number of elements involved, it would be impractical to apply a normal logic table of failures where an analysis batch is failed on the basis of issues with one element. Avalon followed the following procedure for assessing analytical data:

Batches were not failed if the samples analysed were clearly far below any economic levels (not mineralized), unless the standards results were very grossly out.

The results of the standards were reviewed to see how many elements were out of acceptable range as recommended in the standard certification, and if four elements were out of range (greater than three standard deviations), but two high and two low, and the remaining 14 elements were in range, the batch was accepted.

If five elements or more elements were out of acceptable range (greater than three standard deviations), and all in the same direction, either biased all high or all low, then the batch was re-analysed.

More recently, subsequent to the May 3, 2013 resource estimate, Avalon added an additional criterion as follows:

If the overall Net Metal Return ("NMR") of the standard is outside the range of +/-10% of the recommended value, then the batch is considered for reanalysis.

#### *8. Mineral Processing and Metallurgical Testing*

Extensive metallurgical testwork has been completed at a number of different laboratories and a large number of testwork reports have been issued to summarize this work. Much of the pertinent metallurgical and mineralogical development studies have been undertaken using bulk composite samples that represent the Nechalacho deposit mineralization spatially and in terms of lithology. These selected composite samples tended to be selected to represent mineralization at different depths in the deposit in terms of elevation. The composites designated UZ were from Upper Zone mineralization and BZ were from Basal Zone mineralization.

Since 2010, Avalon has completed four flotation pilot plant tests at two different labs. All of these pilot plant tests were conducted using bulk samples sourced from drill core.

#### Mineralogy

The mineralogy of the Nechalacho deposit has been studied using QEMSCAN®, a scanning electron microscope ("SEM") and an electron microprobe ("EMP"). Nechalacho mineralization is hosted in nepheline syenite that has been extensively hydrothermally altered in areas of mineralization. The payable elements of the Nechalacho Basal Zone deposit are typically hosted in a number of minerals, summarized as follows:

- LREEs dominantly occur in bastnaesite, synchisite, monazite and allanite.
- HREEs dominantly occur in zircon, fergusonite and rare xenotime.
- Zirconium (Zr), along with HREE, niobium and tantalum occurs in zircon and other zircono-silicates (eudialyte).
- Niobium and tantalum occur in columbite and ferrocolumbite, fergusonite and zircon.

The mineralogy of the Nechalacho Basal Zone ore is complex and guides metallurgical development and performance.

#### Hydrometallurgical Testwork

Six hydrometallurgical pilot plant campaigns were conducted between June and October, 2012. The main objectives of these campaigns were to:

- Test a continuous version of the hydrometallurgical flowsheet.
- Optimize REE extraction in the pregnant solution.
- Remove target contaminants (iron, uranium and thorium).
- Ensure the final mixed rare earth precipitate product had an acceptable grade of REE while reducing the uranium and thorium contents below 500 ppm.
- Ensure the concentrations of species in the filtrate from the tailings circuit met target environmental levels.

The final pilot plant campaign, which operated between September 24 and October 5, 2012, demonstrated the technical viability of the process and provided crucial input for the final hydrometallurgical flowsheet, process design criteria and process engineering adopted for the FS.

#### Refinery

The refinery comprises two plants, the leaching and the separation plants. The leaching plant removes impurities from the hydrometallurgical precipitate in order to attain a purified feed to the separation plant where the individual rare earth products will be produced.

A large number of testwork reports have been issued to summarize the testwork that has been undertaken at a number of different laboratories. All relevant testwork has been completed using the rare earth precipitate produced during the hydrometallurgical pilot plant testwork program.

## 9. Mineral Resource and Mineral Reserve Estimates

### Mineral Resource Estimate in the Feasibility Study

The mineral resource estimate for the Nechalacho Project presented in the FS based on the block model prepared by Avalon was audited originally by Roscoe Postle Associates Inc. ("RPA") on November 21, 2012. Subsequent to this, Avalon updated the database and re-estimated the resource as of May 3, 2013. The update included correction of some minor assay data entry errors and drill hole locations. The net effect of these changes is considered immaterial as the resource change was less than 1% in most individual parameters. The largest changes were for ZrO<sub>2</sub> grade, and the effect was an increase in grade in Measured and Indicated resources of between 0.1% and 3.2% of the overall grade in the various categories.

The mineral resource estimated by Avalon and accepted by RPA that was the basis for the mineral reserves estimate given below (See "Nechalacho Project – Mineral Reserve Estimate") for the Nechalacho deposit is summarized in the table below. The mineral resource is reported at a cutoff value of US\$320/t. The effective date of the mineral resource estimate is May 3, 2013. This resource has been subsequently updated as of August 15, 2013 (See "Nechalacho Project – Mineral Reserve Estimate"). The tables of the May 3, 2013 mineral resource have been provided for completeness purposes.

Nechalacho Deposit Mineral Resource Estimate as at May 3, 2013 <sup>(8)</sup>							
Category	Zone	Tonnes (million)	TREO (%)	HREO (%)	ZrO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)
Measured	Basal	10.86	1.67	0.38	3.23	0.40	0.04
Indicated	Basal	55.81	1.55	0.33	3.01	0.40	0.04
Measured and Indicated	Basal	66.67	1.57	0.34	3.05	0.40	0.04
Inferred	Basal	61.09	1.29	0.25	2.69	0.36	0.03

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at an NMR cut-off value of US\$320/t. NMR is defined as "Net Metal Return" or the in situ value of all payable metals, net of estimated metallurgical recoveries and off-site processing costs.
3. An exchange rate of US\$1=CAD1.05 was used.
4. Heavy rare earth oxides ("HREO") is the total concentration of: Y<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>2</sub>O<sub>3</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub> and Lu<sub>2</sub>O<sub>3</sub>.
5. Total rare earth oxides ("TREO") is HREO plus light rare earth oxides ("LREO"): La<sub>2</sub>O<sub>3</sub>, Ce<sub>2</sub>O<sub>3</sub>, Pr<sub>2</sub>O<sub>3</sub>, Nd<sub>2</sub>O<sub>3</sub> and Sm<sub>2</sub>O<sub>3</sub>.
6. Rare earths were valued at an average net price of US\$62.91/kg, ZrO<sub>2</sub> at US\$3.77/kg, Nb<sub>2</sub>O<sub>5</sub> at US\$56/kg, and Ta<sub>2</sub>O<sub>5</sub> at US\$256/kg. Average REO price is net of metallurgical recovery and payable assumptions for contained rare earths, and will vary according to the proportions of individual rare earth elements present. In this case, the proportions of REO as final products were used to calculate the average price.
7. ZrO<sub>2</sub> refers to zirconium oxide, Nb<sub>2</sub>O<sub>5</sub> refers to niobium oxide and Ta<sub>2</sub>O<sub>5</sub> refers to tantalum oxide.
8. Note references to the Upper Zone have been omitted. Please see section 1.

Mineral Resource Estimate Grades of Individual Rare Earth Oxides and Specific Gravity <sup>(8)</sup>										
Category	Zone	Tonnes (million)	La <sub>2</sub> O <sub>3</sub> (ppm)	Ce <sub>2</sub> O <sub>3</sub> (ppm)	Pr <sub>2</sub> O <sub>3</sub> (ppm)	Nd <sub>2</sub> O <sub>3</sub> (ppm)	Sm <sub>2</sub> O <sub>3</sub> (ppm)	Eu <sub>2</sub> O <sub>3</sub> (ppm)	Gd <sub>2</sub> O <sub>3</sub> (ppm)	Tb <sub>2</sub> O <sub>3</sub> (ppm)
Measured	Basal	10.86	2,629	5,878	745	2,928	652	82	594	91
Indicated	Basal	55.81	2,522	5,605	701	2,761	596	73	529	80
Measured and Indicated	Basal	66.67	2,539	5,649	708	2,788	605	75	539	82
Inferred	Basal	61.09	2,110	4,760	608	2,390	487	60	439	63
Category	Zone	Tonnes (million)	Dy <sub>2</sub> O <sub>3</sub> (ppm)	Ho <sub>2</sub> O <sub>3</sub> (ppm)	Er <sub>2</sub> O <sub>3</sub> (ppm)	Tm <sub>2</sub> O <sub>3</sub> (ppm)	Yb <sub>2</sub> O <sub>3</sub> (ppm)	Lu <sub>2</sub> O <sub>3</sub> (ppm)	Y <sub>2</sub> O <sub>3</sub> (ppm)	SG
Measured	Basal	10.86	471	84	221	29	174	24	2,061	2.85
Indicated	Basal	55.81	413	72	182	24	141	20	1,813	2.88
Measured and Indicated	Basal	66.67	422	74	189	25	147	20	1,853	2.88
Inferred	Basal	61.09	315	55	132	18	106	15	1,327	2.83

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at an NMR cut-off value of US\$320/t. NMR is defined as "Net Metal Return" or the in situ value of all payable metals, net of estimated metallurgical recoveries and off-site processing costs.
3. An exchange rate of US\$1=CAD1.05 was used.
4. Heavy rare earth oxides ("HREO") is the total concentration of: Y<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>2</sub>O<sub>3</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub> and Lu<sub>2</sub>O<sub>3</sub>.
5. Total rare earth oxides ("TREO") is HREO plus light rare earth oxides ("LREO"): La<sub>2</sub>O<sub>3</sub>, Ce<sub>2</sub>O<sub>3</sub>, Pr<sub>2</sub>O<sub>3</sub>, Nd<sub>2</sub>O<sub>3</sub> and Sm<sub>2</sub>O<sub>3</sub>.
6. Rare earths were valued at an average net price of US\$62.91/kg, ZrO<sub>2</sub> at US\$3.77/kg, Nb<sub>2</sub>O<sub>5</sub> at US\$56/kg, and Ta<sub>2</sub>O<sub>5</sub> at US\$256/kg. Average REO price is net of metallurgical recovery and payable assumptions for contained rare earths, and will vary according to the proportions of individual rare earth elements present. The proportions are based on the actual planned production from the Nechalacho project.
7. ZrO<sub>2</sub> refers to zirconium oxide, Nb<sub>2</sub>O<sub>5</sub> refers to niobium oxide, and Ta<sub>2</sub>O<sub>5</sub> refers to tantalum oxide.
8. Note references to the Upper Zone have been omitted. Please see section 1.

The cutoff grade was determined using both rare metals and rare earths as they all contribute to the total revenue of the Nechalacho deposit. An economic model was created, using metal prices that were updated from those used in the pre-feasibility study, flotation and hydrometallurgical recoveries, the effects of payable percentages, and any payable Net Smelter Return ("NSR") royalties. The payable percentages of elements (Zr, Nb, Ta) contained within the Enriched Zirconium Concentrate ("EZZ") were also included. The net revenue generated by this model is termed the NMR. The mineral resource estimate is based on the minimum NMR value being equal to an operating cost of US\$320/t, a break-even cutoff value.

#### Mineral Resource Database

The database for the November 21, 2012 mineral resource estimate for the Nechalacho deposit contained 490 drill holes totalling 104,918.7 m. The database included 51 historic drill holes amounting to 5,588 m and 439 recent drill holes with a total length of 99,330.6 m. The estimate was based on 33,236 samples assayed for rare metals, rare earths, and other elements, from 450 drill holes, 48 historical and 402 recent. Samples from 41 historical drill holes have incomplete or no REE assay results. Only 21 of the historical drill holes sampled the Basal Zone, as it was not a target at that time.

The updated database and re-estimated resource for the Nechalacho Deposit made by the Company as of May 3, 2013 are based upon detailed core logging, assays and geological interpretation by Avalon geologists and independently audited by RPA. The only change from

the November 2012 Update is correction of some minor errors in the database that had no material effect, except to change some numbers in the second decimal place as noted above. The drill holes and their related assays form the basis for the creation of two domains of REE mineralization: an upper LREE enriched domain ("Upper Zone") and a lower HREE enriched domain ("Basal Zone").

#### Mineral Resource Classification

For all domains, blocks populated using a 240m X 240m X 120m search ellipse and up to 120 m away from a drill hole were classified as Inferred.

Within the Basal Zone, blocks populated using a 60m X 60m X 30m search ellipse and up to 60 m away from a drill hole were classified as Indicated. A manually digitized contour was used to select and reclassify isolated blocks or patches of Indicated material to the Inferred category. In the Basal Zone, two separate areas supported by diamond drilling spaced at 25 m were manually digitized to define the Measured blocks.

The classification details are outlined in the table below.

Zone	Classification	Distance to Nearest Drill hole	Minimum Number of Drill holes
Basal	Measured	≤30m (by manually digitized contour)	1
	Indicated	≤60m	1
	Inferred	≤120m	1

Note that references to the Upper Zone have been omitted. Please see section 1.

#### Mineral Reserve Estimate

The mineral reserve estimate for the Nechalacho Project presented in the feasibility study was estimated from the block model prepared by Avalon and audited originally by RPA on November 21, 2012 which was updated and re-estimated as of May 3, 2013. The mineral reserve estimate is derived from this block model by applying the appropriate technical and economic parameters to extraction of the REE with proven underground mining methods.

The mineral reserve has been estimated based on conversion of the high-grade mineral resources at a cutoff value greater than US\$320/t NMR. Payable elements include the REE, zirconium, niobium and tantalum. No Inferred mineral resources were converted to mineral reserves. The high grade mineral resources are 34.7% and 14.7% of the total Measured and Indicated mineral resources, respectively.

The key design criteria set for the Nechalacho mine are:

- Initial design based on a 20-year life-of-mine ("LOM") of high-grade material.
- Mechanized cut or drift and fill and long hole mining methods with paste backfill.
- Minimum mining thickness of 5 m.
- Extraction ratio of 94.2%.
- Internal dilution of 8.5%.
- External dilution of 5% applied to all stopes.
- Estimated total average dilution for the life of mine of approximately 11%.
- Production rate of 2,000 t/d ore (730,000 t/y).
- Ore bulk density of 2.91 t/m<sup>3</sup>.

The mineral reserve estimate for the Nechalacho Project shown in the table below has an effective date of May 3, 2013. The figures in the table are rounded to reflect that the numbers

are estimates. The conversion of mineral resources to mineral reserves includes technical information that requires subsequent calculations or estimates to derive subtotals, totals and weighted averages. Such calculations or estimations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, Micon International Limited ("Micon") does not consider them to be material.

Mineral Reserve Estimate as at May 3, 2013			
Description	Mineral Reserve Category		
	Proven	Probable	Proven and Probable
Tonnage (Mt)	3.68	10.93	14.61
TREO (%)	1.7160	1.6923	1.6980
HREO (%)	0.4681	0.4503	0.4548
HREO/TREO	27.28%	26.61%	26.78%
La <sub>2</sub> O <sub>3</sub>	0.256%	0.256%	0.256%
Ce <sub>2</sub> O <sub>3</sub>	0.570%	0.567%	0.568%
Pr <sub>2</sub> O <sub>3</sub>	0.072%	0.071%	0.071%
Nd <sub>2</sub> O <sub>3</sub>	0.284%	0.283%	0.283%
Sm <sub>2</sub> O <sub>3</sub>	0.065%	0.065%	0.065%
Eu <sub>2</sub> O <sub>3</sub>	0.008%	0.008%	0.008%
Gd <sub>2</sub> O <sub>3</sub>	0.062%	0.061%	0.061%
Tb <sub>2</sub> O <sub>3</sub>	0.010%	0.010%	0.010%
Dy <sub>2</sub> O <sub>3</sub>	0.058%	0.056%	0.056%
Ho <sub>2</sub> O <sub>3</sub>	0.011%	0.010%	0.010%
Er <sub>2</sub> O <sub>3</sub>	0.029%	0.027%	0.028%
Tm <sub>2</sub> O <sub>3</sub>	0.004%	0.004%	0.004%
Yb <sub>2</sub> O <sub>3</sub>	0.023%	0.022%	0.022%
Lu <sub>2</sub> O <sub>3</sub>	0.003%	0.003%	0.003%
Y <sub>2</sub> O <sub>3</sub>	0.259%	0.249%	0.251%
ZrO <sub>2</sub>	3.440%	3.309%	3.342%
Nb <sub>2</sub> O <sub>5</sub>	0.425%	0.413%	0.416%
Ta <sub>2</sub> O <sub>5</sub>	0.046%	0.045%	0.045%

1. CIM definitions were followed for Mineral Reserves.
2. Mineral Reserves are based on Mineral Resources published by Avalon in News Release dated November 26<sup>th</sup>, 2012 and audited by Roscoe Postle Associates Inc., and modified as of May 3, 2013.
3. Mineral Reserves are estimated using price forecasts for 2016 for rare earth oxides given below.
4. HREO grade comprises Y<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>2</sub>O<sub>3</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub>, and Lu<sub>2</sub>O<sub>3</sub>. TREO grade comprises all HREO and La<sub>2</sub>O<sub>3</sub>, Ce<sub>2</sub>O<sub>3</sub>, Nd<sub>2</sub>O<sub>3</sub>, Pr<sub>2</sub>O<sub>3</sub>, and Sm<sub>2</sub>O<sub>3</sub>.
5. Mineral Reserves are estimated using an NMR cash cost cut-off value of US\$320/t.
6. Rare earths were valued at an average net price of US\$62.91/kg, ZrO<sub>2</sub> at US\$3.77/kg, Nb<sub>2</sub>O<sub>5</sub> at US\$56/kg, and Ta<sub>2</sub>O<sub>5</sub> at US\$256/kg. Average REO price is net of metallurgical recovery and payable assumptions for contained rare earths, and will vary according to the proportions of individual rare earth elements present. In this case, the proportions of REO as final products were used to calculate the average price.
7. Mineral reserves calculation includes an average internal dilution of 8.5% and external dilution of 5% on secondary stopes.
8. The mine plan was developed by Avalon Advanced Materials Inc. engineers and reviewed by Micon International Limited. The Qualified Person for this Mineral Reserve is Barnard Foo., P. Eng., M. Eng., MBA, Senior Mining Engineer, Micon International Limited.

Micon believes the key assumptions, parameters and methods used to convert mineral resource to mineral reserve are appropriate. To the best of Micon's knowledge there are no



known mining, metallurgical, infrastructure, permitting or other relevant factors that may materially affect the mineral reserve estimate.

#### Mineral Resource August 15, 2013 Update

Subsequent to the FS, an internal resource update was completed and released on August 15, 2013. This update reflects the improved understanding of the geometry of the resource. It incorporates drill results from the eight-hole winter 2013 drill program and the final 41 holes from the 2012 summer drill program. These holes were not incorporated into the resource model used in the FS.

The estimated Measured Mineral Resources in the base case now stand at 12.56 million tonnes averaging 1.71% TREO, 0.38% HREO and 22.5% HREO/TREO. The only change of consequence in methodology from the November 26, 2012 Resource estimate was that the base case cutoff grade, expressed as Net Metallurgical Return ("NMR"), increased from US\$320 to US\$345 per tonne due to minor changes in estimated operating costs, as per the FS. Work is continuing on optimizing the mine plan to incorporate more of the high-grade ore identifiable at higher NMR cutoffs into the early years of production.

The mineral resource estimate was prepared by a senior resource geologist employed by Avalon Advanced Materials Inc., under the supervision of the Company's former Vice-President, Exploration, William Mercer, Ph.D., P.Geo. (Ont), P. Geo. (NWT) who is the Qualified Person for Avalon for this resource estimate. Dr. Mercer also provided overall direction on the project and monitoring of the QA/QC on the laboratory analyses.

Nechalacho Deposit Mineral Resources as at August 15, 2013 above a US\$345/tonne NMR Cut-Off <sup>(11)</sup>								
Category	Zone	Tonnes (millions)	TREO (%)	HREO (%)	HREO/TREO (%)	ZrO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)
Measured	Basal	12.56	1.71	0.38	22.50	3.20	0.405	0.0404
Indicated	Basal	49.33	1.62	0.35	21.27	3.07	0.405	0.0398
Measured and Indicated	Basal	61.90	1.64	0.35	21.53	3.10	0.405	0.0399
Inferred	Basal	58.16	1.38	0.26	18.89	2.80	0.380	0.0351

1. CIM definitions were followed for Mineral Resources.
2. The Qualified Person for this Mineral Resource estimate is William Mercer, PhD, P.Geo. (Ontario), P. Geo. (NWT), VP, Exploration, Avalon Advanced Materials Inc..
3. HREO (Heavy Rare Earth Oxides) is the total concentration of: Y<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub> and Lu<sub>2</sub>O<sub>3</sub>.
4. TREO (Total Rare Earth Oxides) is HREO plus: La<sub>2</sub>O<sub>3</sub>, CeO<sub>2</sub>, Pr<sub>6</sub>O<sub>11</sub>, Nd<sub>2</sub>O<sub>3</sub> and Sm<sub>2</sub>O<sub>3</sub>.
5. Rare earths were valued at an average net price of US\$62.91/kg, ZrO<sub>2</sub> at US\$3.77/kg, Nb<sub>2</sub>O<sub>5</sub> at US\$56/kg, and Ta<sub>2</sub>O<sub>5</sub> at US\$256/kg. Average REO price is net of metallurgical recovery and payable assumptions for contained rare earths, and will vary according to the proportions of individual rare earth elements present. In this case, the proportions of REO as final products were used to calculate the average price.
6. The changes in methodology from the November 26, 2012 Resource were the cut-off grade and the interpolation method. The cut-off grade, expressed as Net Metallurgical Return ("NMR"), increased from US\$320 to US\$345 per tonne. NMR is defined as "Net Metal Return" or the in-situ value of all payable metals, net of estimated metallurgical recoveries, and in the case of Nb, Ta and Zr, off-site processing costs. The revised interpolation method utilized the elevation above the lower contact of the Basal Zone to provide better geologic continuity of the ore zone. The effect on overall tonnage and grade is not material.
7. ZrO<sub>2</sub> refers to Zirconium Oxide, Nb<sub>2</sub>O<sub>5</sub> refers to Niobium Oxide, Ta<sub>2</sub>O<sub>5</sub> refers to Tantalum Oxide.
8. See the table below for individual rare earth oxide details.
9. See the table for Basal Zone tonnes and TREO grades at higher NMR cut-off values.
10. Values for HREO/TREO may differ due to rounding.
11. Note that references to the Upper Zone have been omitted. Please see section 1.

**Nechalacho Deposit Measured, Indicated and Inferred Rare Earth Oxide Grades as at August 15, 2013  
above a US\$345/tonne NMR Cut-Off<sup>(1)</sup>**

Category	Zone	Tonnes (millions)	La <sub>2</sub> O <sub>3</sub> (%)	CeO <sub>2</sub> (%)	Pr <sub>6</sub> O <sub>11</sub> (%)	Nd <sub>2</sub> O <sub>3</sub> (%)	Sm <sub>2</sub> O <sub>3</sub> (%)	Eu <sub>2</sub> O <sub>3</sub> (%)	Gd <sub>2</sub> O <sub>3</sub> (%)	Tb <sub>4</sub> O <sub>7</sub> (%)	Dy <sub>2</sub> O <sub>3</sub> (%)	Ho <sub>2</sub> O <sub>3</sub> (%)	Er <sub>2</sub> O <sub>3</sub> (%)	Tm <sub>2</sub> O <sub>3</sub> (%)	Yb <sub>2</sub> O <sub>3</sub> (%)	Lu <sub>2</sub> O <sub>3</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)
Measured	Basal	12.56	0.266	0.622	0.078	0.295	0.066	0.0082	0.060	0.0094	0.047	0.008	0.022	0.003	0.017	0.002	0.207
Indicated	Basal	49.33	0.258	0.603	0.074	0.283	0.061	0.0076	0.055	0.0084	0.043	0.007	0.019	0.002	0.015	0.002	0.187
Measured and Indicated	Basal	61.90	0.260	0.607	0.075	0.285	0.062	0.0077	0.056	0.0086	0.043	0.008	0.019	0.003	0.015	0.002	0.191
Inferred	Basal	58.16	0.223	0.528	0.066	0.252	0.051	0.0064	0.046	0.0067	0.033	0.006	0.014	0.002	0.011	0.002	0.136

1. Note that references to the Upper Zone have been omitted. Please see section 1.

**Nechalacho Deposit Measured, Indicated and Inferred Mineral Resources for Basal Zone by  
NMR Cut-Off Value as at August 15, 2013 at NMR Cut-off Values over \$345/tonne**

Zone	NMR Cut-Off (\$USD)	Tonnes (millions)	TREO (%)	HREO (%)	HREO/TREO (%)	ZrO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)
<b>Measured</b>								
Basal	≥345	12.56	1.71	0.38	22.50	3.20	0.405	0.0404
Basal	≥600	8.28	1.98	0.48	24.29	3.79	0.468	0.0480
Basal	≥800	5.11	2.20	0.58	26.17	4.23	0.520	0.0544
Basal	≥1000	2.49	2.49	0.68	27.38	4.77	0.586	0.0620
<b>Indicated</b>								
Basal	≥345	49.33	1.62	0.35	21.27	3.07	0.405	0.0398
Basal	≥600	28.66	1.95	0.45	23.21	3.68	0.472	0.0479
Basal	≥800	16.15	2.20	0.55	24.87	4.13	0.521	0.0542
Basal	≥1000	6.99	2.52	0.66	26.03	4.66	0.583	0.0614
<b>Measured and Indicated</b>								
Basal	≥345	61.90	1.64	0.35	21.53	3.10	0.405	0.0399
Basal	≥600	36.94	1.96	0.46	23.46	3.70	0.471	0.0479
Basal	≥800	21.27	2.20	0.55	25.19	4.15	0.521	0.0543
Basal	≥1000	9.48	2.52	0.66	26.38	4.69	0.584	0.0616
<b>Inferred</b>								
Basal	≥345	58.16	1.38	0.26	18.89	2.80	0.380	0.0351
Basal	≥600	22.41	1.74	0.37	21.09	3.40	0.453	0.0431
Basal	≥800	6.68	2.04	0.49	24.26	3.84	0.502	0.0506
Basal	≥1000	1.81	2.42	0.61	25.31	4.17	0.547	0.0570

The main change in estimation method utilized in this resource estimate was relative elevation. This methodology is one way to adapt the estimation method to the rolling nature of the bottom of the Basal Zone.

### *10. Mining Operations*

Underground mining of the Measured and Indicated mineral resource of the Basal Zone was investigated for the FS. The majority of the mineral resource of the Basal Zone contemplated for development lies directly beneath and to the north of Long Lake, approximately 200 m below surface. Thus, the deposit is to be mined using underground mining methods.

The planned mine production rate is 2,000 t/d (730,000 t/y) of ore and the mine life based

on that portion of the mineral resources that have been defined in sufficient detail to qualify as mineral reserves is 20 years.

Geotechnical information for the mine design was based on geotechnical data collection completed in conjunction with Avalon's ongoing exploration drill program. The analysis indicated that excavations 15 m wide, 5 m high and 100 m in length will be stable with the proper installation of ground support and mitigation strategies.

The deposit at the Nechalacho Project is relatively flat lying and will be mined with a combination of longhole stoping, and cut and fill methods. The mine will be accessed through a mine portal located near the concentrator. The dimensions of the 1,600 metre main ramp were designed to accommodate the overhead conveyor system and access for workers and equipment.

Subzones less than 10 metres thick will be mined by cut or drift and fill methods in a primary and secondary mining sequence. Subzones over 10 metres thick will be mined with longhole stoping. Secondary stopes would be mined after the adjoining primary stopes have been filled. The mining of the secondary stopes would be the same as the mining of the primary stope.

Blasted material would be mucked and transported by rubber tired equipment to the crusher station. The crushed ore would be transported to the surface by conveyor.

Paste backfill will be used to improve the overall mine stability, reduce the surface footprint for the Nechalacho TMF, and enable the extraction of secondary stopes for increased mining recovery.

### *11. Processing and Recovery Operations*

The metallurgical processing described below is that in the FS.

#### Processing – Flotation Concentrator

The grinding circuit was designed to be a conventional rod mill/ball mill operation. The rod mill will be operated in open circuit, and the ball mill in closed circuit with classifying hydrocyclones. A final grind p80 of 38µm is targeted.

The cyclone overflow was designed to gravitate to two stages of magnetic separation, followed by a desliming circuit. The magnetics from the magnetic separation circuit and the fines from desliming will be routed to tailings. The deslimed slurry will feed the flotation circuit.

This flotation circuit design comprises three stages of bulk flotation, four stages of cleaner flotation and a single cleaner scavenger stage. Flotation concentrate would be pumped to a gravity separation circuit for further enrichment before being thickened and filtered to final product concentrate. The light material (gravity tailings) would be recycled to the bulk rougher flotation circuit.

Concentrate production will be stored in a covered bulk storage facility and shipped to the hydrometallurgical processing plant each summer using barges to cross Great Slave Lake at the rate of 145,000 wet tonnes per year (10% moisture is assumed).

The tailings will be thickened, the overflow from which will be pumped to the process water tank although a portion will be fed to a water treatment plant to remove impurities. The

tailings thickener underflow will be directed to either the TMF or the paste backfill plant. The paste backfill plant has been designed to produce 1,738 t/d of backfill using concentrator tailings.

#### Processing – Hydrometallurgical Plant

A hydrometallurgical plant in the FS was designed to be built at Pine Point to produce mixed rare earth concentrate from the flotation concentrate at the planned rate of 49,900 tonnes per year (at approximately 16.5% TREO and a secondary product of EZC at the rate of approximately 103,800 tonnes per year (containing 12.5% Zr).

The hydrometallurgical plant designed for Pine Point comprises the following process sections:

- Pre-leach.
- Sulphuric acid bake.
- Water leach.
- Neutralization and impurity removal.
- Impurity removal re-dissolution.
- Rare earth precipitation.
- Waste water treatment.
- Tailings neutralization.

The concentrate barged from Nechalacho would be fed to the pre-leach section of the plant where excess sulphuric acid produced in the water leach section will be used to neutralize the base materials. The product from the pre-leach circuit would be filtered and the solids fed to the acid bake system while the filtrate would feed the iron reduction circuit.

The filter cake from the pre-leach circuit would be mixed with concentrated sulphuric acid and fed into the acid baking rotary kiln where the REE in the concentrate would be converted to sulphates at a temperature of 220°C. The discharge from the acid bake kiln would be leached in water to recover approximately 80% of the LREE and 50% of the HREE. The solids containing the balance of the REE, along with most of the zirconium, niobium and tantalum, would be filtered, washed, neutralized and dried to approximately 8% moisture. This dried product would be packaged and shipped to customers as EZC.

The rare earth filtrate from the water leach process would be cleaned through several neutralization and impurity removal steps. The resulting slurry would be filtered and washed, and the final rare earth precipitate dried to approximately 8% moisture.

In order to minimize process water usage in the plant, tailings water would be recycled into the water leach circuit. Pilot plant results showed no negative changes in REE recoveries with recycled tailings water.

The mixed rare earth concentrate is envisioned in the FS to be shipped in 35-40 tonne capacity sealed containers and taken by truck to the rail head at Hay River and then by rail to a REE Separation Plant and Refinery in Geismar, Louisiana. The Company has investigated the potential for sales of EZC directly to customers, primarily in China.

Tailings from the hydrometallurgical process would be stored in a tailings management facility to be constructed within a historic open pit. Decant water from the tailings management facility will be discharged to an adjacent historic open pit for natural infiltration into the groundwater aquifer.

### Rare Earth Separation Plant and Refinery

In August 2011, the Company concluded that rare earth separation and refining should be a part of its development plan and a PFS on the rare earth separation plant and refinery was commissioned and subsequently completed in March 2012. The FS also included a rare earth separation plant and refinery.

In the FS, the separation plant and refinery are planned to be situated adjacent to an existing industrial facility in Geismar, Louisiana where Avalon had a purchase option on a suitably-sized property. Electrical power, fresh water, sodium hydroxide and hydrochloric acid would be supplied via tie-in to an adjacent third party chemical production facility and rail spurs connected to the existing rail line in the adjacent facility would accommodate shipment of concentrate feed stock to and shipment of marketable product from the separation plant. The design capacity in the FS has been based on the PFS capacity of 10,000 tonnes per year of TREO although forecast average annual production from the FS would be approximately 6,800 tonnes of TREO.

The rare earth refinery design consists of two key sections, the leaching plant to remove impurities, and the separation plant where products are separated and refined to the quality required for the customers.

The leaching plant design comprises a series of processes, including re-dissolution of the mixed rare earth precipitate, re-precipitation, solvent extraction and selective precipitation. Impurities, principally uranium and thorium, would be removed in a series of dissolution, selective precipitation, filtration and solvent extraction steps.

The separation plant design uses solvent extraction circuits based on the common Chinese configuration of stages and is divided into 16 extraction steps, each with a specific number of stages for loading, extraction, washing and stripping, and sized according to the feed composition. The design of entire extraction circuits comprises a total of approximately 1,000 mixer/settlers.

The separation plant design will produce 10 different pure rare earth oxides products in accordance with the specifications indicated in the following table.

List of Products from the Rare Earth Separation Plant and Refinery			
Product	Design Plant Production (t/y)	Product Distribution (%)	Feasibility Study Specification <sup>(1)</sup>
La Oxide	1,583	16.0	3 N
Ce Oxide	3,572	36.0	3 N
Pr Oxide	451	4.0	3 N
Nd Oxide	1,783	18.0	3 N
Sm Oxide	391	4.0	2 N
Eu Oxide	49	0.5	4 N
Gd Oxide	371	4.0	3 N
Tb Oxide	54	0.5	4 N

List of Products from the Rare Earth Separation Plant and Refinery			
Dy Oxide	271	3.0	4 N
Y Oxide	1,170	11.0	5 N
Lu Oxide	14	0.1	3 N
Er/Ho/Tm/Yb Carbonate Mix <sup>(2)</sup>	292	3.0	2 N
<b>Total</b>	<b>10,000</b>	<b>100.0</b>	

**NOTES:**

- (1) "N" stands for the number of nines purity produced as final product, for example 3 N = 99.9%.
- (2) This stream containing four different rare earth carbonates for which there is limited market at the present time will be stockpiled initially and eventually disposed of if markets are not forthcoming.

A kerosene mixture is used as the extracting agent for most separations. Hydrochloric acid is used as the stripping agent. Deionized water is added in the washing and stripping stages to dilute and adjust the reagent concentrations.

The purified strip solution from the respective solvent extraction stage would feed the atmospheric precipitation tanks where soda ash or oxalic acid is added in order to precipitate the pure REE as carbonates or oxalates, respectively. The slurry streams containing the precipitates are thickened, filtered, dried and calcined to produce pure rare earth oxides. The filtrate is then forwarded to the water treatment facility. The mixed holmium, erbium, thulium, and ytterbium stream will be precipitated as carbonate and, hence, would not be calcined.

The dry rare earth oxide or carbonate products are cooled and then packaged in drums ready for shipment to customers. The product storage facility would provide two weeks capacity, to interface between plant production and continuous product dispatch via rail, air or ocean transportation.

## *12. Infrastructure, Permitting and Compliance Activities*

### Permit Status and Environmental Issues

The Nechalacho property is situated in an area known as the Akaitcho Territory, an area which is subject to a comprehensive land claim negotiation involving four communities of the Dene Nation. The area is also subject to a settled Land Claim of the Tlicho Government who refer to the area as the Monfwe overlap.

Under the Mackenzie Valley Resource Management Act ("MVRMA") and Regulations, the Mackenzie Valley Land and Water Board ("MVLWB") administers land use permits and water licenses. Upon completion of a preliminary screening process, projects deemed to potentially have significant adverse impacts are referred to the Mackenzie Valley Environmental Impact Review Board ("MVEIRB") to initiate an environmental assessment process. The MVRMA allows local and particularly Indigenous input into land and water use permitting. The MVRMA establishes a three-part environmental assessment process:

- Preliminary screening (MVLWB)
- Environmental assessment (MVEIRB)
- Environmental impact review (MVEIRB, if necessary)



Subsequent to the acquisition of the Thor Lake property, and continuation of community engagement meetings, Avalon applied to the MVLWB for an exploration permit, and a two year permit was granted as of July 2007. It was under this permit that the drilling programs in 2007 to April 2009 were conducted. Avalon applied for an extension of this permit in early 2009, and a two year extension was granted by the MVLWB making the permit valid to July 2011. In December 2009, Avalon applied for an addendum to the existing exploration permit to allow for a second drill unit to be added to the program and the construction of a short take-off and landing ("STOL") airstrip. The permit addendum and a separate airstrip land use permit were granted and issued in January 2010 and valid to July 2011. The land use permit for the construction of the airstrip has since been satisfactorily concluded. Current exploration activities at Thor Lake are under a new land use permit issued by the MVLWB on June 23, 2011, that was originally issued for a period of five years beginning on July 5, 2011. However, on July 7, 2016, the MVLWB granted Avalon an extension of this permit to July 4, 2018. On June 19, 2019, a new exploration (Type B) land use permit was issued, valid until 2023, which also included the extension of the airstrip.

On April 23, 2010, Avalon submitted a land use and water license permit application through the MVLWB, for the mining, flotation processing and hydrometallurgical processing in the NWT. Upon completion of the MVLWB preliminary screening process, the Nechalacho Project was referred to the MVEIRB on June 11, 2010, for environmental assessment.

On May 20, 2011, the Company submitted the Developers Assessment Report ("DAR"), (more commonly referred to as an Environmental and Social Impact Statement). In November, 2011, the DAR was deemed by MVEIRB to be in conformity with the terms of reference. First Round information requests were received and addressed from November 2011 to May 2012. In mid-August 2012, Avalon participated in the environmental assessment process technical sessions organized by MVEIRB for various regulators and community representatives. Subsequently, Avalon completed and submitted all additional work and undertakings requested by MVEIRB and other regulators for clarification purposes at the technical sessions. Avalon then entered and completed the Second Round Information Requests stage. The environmental assessment process ended with public hearings held on February 18 – 20, 2013 in Yellowknife, NWT and February 22, 2013 in Fort Resolution, NWT. The final Report of Environmental Assessment (the "Report of EA") was released by MVEIRB on July 26, 2013, recommending approval by the responsible Ministers. This approval was received on November 4, 2013. Applications for the necessary construction and operating permits and licences were submitted in December 2013, and were subsequently amended into a two phase permitting process of 1) low impact site preparation activities and 2) the full construction and operations permits. A Class A Land Use Permit and Class B Water Licence were approved on April 24, 2014 and May 22, 2014 respectively for identified low impact activities including site preparation, early camp erection, portal development and associated infrastructure such as roads, power and water treatment expected to take up to a full year, pending financing. Avalon submitted a \$50,000 security payment for the first phase of this activity and completed the site clearing phase of the project. The additional phases may proceed with the filing of additional site security. The permitting process for the full construction and operating permits continued to advance, including public Technical Review Sessions held in Yellowknife July 22-24, 2014. Responses to intervener comments were initiated in 2014; however, since these technical review sessions the work on these permits has since been progressing intermittently to conserve resources. Approximately 4-6 months would be required to finalize these permits, once the Company commences the final application process. This would not in any way limit the first year of pre-construction activity as approved under the existing permits, qualified by the filing of identified financial assurance. In 2019, the Class A Land Use Permit was renewed, and similarly, the Class B Water License was renewed. In 2020, these permits were again renewed to include both the previously approved Avalon Early Works and to include the

Cheetah/Vital Metal Demonstration plant, following Avalon's review and approval. Cheetah filed the additional financial assurance agreed to with the MVLWB for the Demonstration Plant. The updated Land Use Permit MV2020D0013 now expires on November 29, 2025 and the updated Water License expires November 29, 2027. There is no negative impact to the Avalon project.

In its 220 page Report of EA, MVEIRB set out five measures that, when implemented, will mitigate any predicted environmental impacts so that they are no longer significant. These measures require the Company to:

- Ensure through comprehensive monitoring that the water released from the Nechalacho Project into the receiving environment does not cause significant impacts;
- Develop and implement a wildlife and wildlife habitat protection plan and wildlife effects monitoring program, with an emphasis on caribou, and mitigation if required; and
- Complete a socio-economic agreement with the Government of the Northwest Territories ("GNWT") before construction begins.

Work on advancing plans to implement the measures identified above has been well advanced, including engagement with the Company's Indigenous partners and regulators. As part of its philosophy of open and transparent communications, engagement with Indigenous partners on the environmental management plans required as part of the permitting process was initiated prior to submission to the regulators, helping to both improve the quality of the plans and facilitate the permitting process. Following the technical review sessions with regulators and the communities of interest, the Company has submitted proposed and updated water quality monitoring programs, wildlife and wildlife habitat protection plans and a wildlife effects monitoring program for which discussions are ongoing. The socio-economic agreement has been put on hold pending finalizing of the project designs. Updates to plans were submitted in late 2014 in response to intervener comments and annual reports are submitted to the government as per the water license requirement.

Similarly, in 2020 and 2021, Vital Metals updated the environmental management plans impacted by the Demonstration Plant to manage the associated activities, following the review and approval of Avalon. There is no negative impact to Avalon associated with these changes. Since then, the Avalon project has benefited by the maintenance and upgrade of the camp, roads and infrastructure improvements.

A copy of all information submitted by the Company can be found on MVEIRB's public registry at [www.reviewboard.ca](http://www.reviewboard.ca).

Avalon has received a letter from Transport Canada that confirmed that the water bodies located within the tailings management facility ("TMF") are not considered navigable and do not require any additional authorizations from Transport Canada. A section 35(2) fisheries authorization or letters of advice from the Department of Fisheries and Oceans ("DFO") under the *Fisheries Act* (Canada) may be required, though the ponds within the TMF are not considered as fisheries habitat (do not contain fish). In addition, a response from DFO to the MVEIRB stated that "DFO has not identified any activities or components of the project that require an authorization or permit under the Fisheries Act". The TMF is included in the Project approval.

Past exploration activity on the Thor Lake property included underground bulk sampling, drilling and trenching on a separate rare metals resource called the North T deposit. Stockpiles of waste rock from underground development have been progressively reclaimed

by Avalon without obligation. Three old construction camp trailers were sent to Yellowknife for disposal while three remaining trailers have been refurbished for future use by Avalon, and a building is being used to store equipment. Recently, an additional trailer deteriorated and was also sent to Yellowknife for disposal. There is little surface disturbance from historical exploration activities apart from miscellaneous buildings, a 60,000 gallon capacity fuel tank farm (empty), a tent camp and a core storage area left on the Thor Lake property. There are no significant environmental liabilities left by past exploration activities. The diesel fuel remaining in the tank farm was consumed during the 2007 and 2008 exploration programs. The Company has undertaken extensive general cleanup of material left from previous exploration utilizing First Nations labour. During 2014, a fire break was constructed around the property and a fire sprinkler system installed in the core storage area as a precaution against forest fires concerns during the year. In 2017 and again in 2019, a site maintenance and cleanup campaign was completed at the exploration camp. Commentary was submitted to the Government of the NWT related to proposed regulatory initiatives with potential to impact the project and the draft caribou management plan on an ongoing basis.

#### Accessibility, Climate, Physiography and Planned Infrastructure

The Thor Lake property is characterized by low relief, between 230 m and 255 m above sea level and relatively subdued topography. The area is a typical boreal forest of the Canadian Shield and is primarily covered by open growths of stunted spruce, birch, poplar and jack pine which mantle isolated, glaciated rocky outcrops. Approximately one third of the property is occupied by lakes and swamps. Thor Lake is generally shallow with typical depths of the order of three to four metres.

Topography is typical of the Canadian Shield, gently rolling with abundant bedrock exposure with glacial till cover, and numerous shallow lakes. Vegetation is dominated by spruce and poplar which do not grow to a size to be harvested economically.

Air temperature at the Nechalacho site recorded from June, 2008 to October, 2010 displayed typical seasonal fluctuations, with warm temperatures occurring from late May to August, with the coldest period occurring from December to February. The monthly average temperatures expected at site range from -26°C in January to 16°C in July. Monthly average temperatures rise above 0°C for significant periods of time in May and fall below 0°C for significant periods in October.

Average annual total precipitation at Thor Lake is approximately 275 mm. Rainfall predominates during May to October, and snowfall predominates during October to April. Six snow courses were established throughout the Nechalacho site in March, 2009. Mean snow depths varied from 31.3 cm to 66.6 cm in the vicinity of Thor Lake. Forested areas that were generally less exposed to wind had a tendency to accumulate the thickest snowpacks.

Relative humidity is generally highest during the winter months, while summers are generally drier.

The dominant wind direction at the site is from the east-northeast during November to June. Wind directions had a tendency to be more dispersed from July to October; however, an east-northeast trend was still evident. The average hourly wind speed at 20 m above ground level is 4.54 m/s. Wind speeds at 20 m above ground are generally in the range of 2 to 6 m/s, with occasional wind speeds exceeding 10 m/s.

The Thor Lake site has no road access from Yellowknife, although there is a historical 5 kilometre road from the Thor Lake site to the shore of Great Slave Lake. This road is presently used to haul supplies shipped by barge or trucked on an ice road to the Thor Lake site. At the present time, year round access is primarily achieved by aircraft. The use of winter ice

roads on Great Slave Lake is also feasible, but is not included as an integral part of the FS. A temporary barge dock and a materials storage area will be constructed on the shore of Great Slave Lake. A camp, offices, shops, yards, diesel tank farm, propane storage facility, and access roads to the tailings management facility and the barge dock on Great Slave Lake will be developed. Electrical power at the site will be initially provided by a diesel power generating station, supplemented if possible by renewable energy sources including solar power. The diesel plant design is based upon having spare capacity at any given time. Opportunities for the construction of a road to site will continue to be monitored due to the associated reduction in capital and operating costs, and social and safety benefits, though this would be the subject of an additional environmental assessment process. A mine optimization study to evaluate the application of available underground electrification will be completed to further reduce capital and operating costs and reduce greenhouse gas generation.

An ice road was constructed in 2021 to allow Cheetah to ship equipment, supplies and the sensor based sorter to the site, demonstrating its viability and potential benefit to Avalon.

The proposed location of the hydrometallurgical plant contemplated in the FS is at Pine Point, NWT, which is a brownfield site formerly used as a lead/zinc mining operation located 90 kilometres east of Hay River in the NWT. This proposed site is accessible by all-weather roads and highways. A temporary barge dock and yard at the shore of Great Slave Lake would be developed for the movement of concentrate and supplies. Offices, shops, yards, and access roads to the tailings management facility and the temporary barge dock on Great Slave Lake would need to be developed. Clean (low greenhouse gas ("GHG")) electrical power would be obtained from the southern NWT power grid, from the Taltson Dam hydroelectric facility. The use of diesel generators to supplement the grid power is planned for times when hydroelectric power availability is limited at the expanded production rate.

### *13. Capital and Operating Costs*

#### Capital Cost Estimate

A summary of the FS capital cost estimate for the Nechalacho Project is presented in the following table.

Nechalacho Project Capital Cost Summary			
Cost Category	NWT <sup>(1)</sup> (\$ million)	LA <sup>(2)</sup> (\$ million)	Total (\$ million)
Mine development	81.58	-	81.58
Main process facilities	351.24	192.51	543.75
Infrastructure	150.68	78.82	229.50
EPCM	119.27	38.57	157.84
Indirect construction costs	175.56	27.25	202.81
Owner's costs	36.76	18.95	55.71
Contingency	120.91	44.90	165.81
Closing costs / bond	13.00	3.16	16.16
<b>Pre-production capital cost</b>	<b>1,049.00</b>	<b>404.16</b>	<b>1,453.16</b>

Nechalacho Project Capital Cost Summary			
Cost Category	NWT <sup>(1)</sup> (\$ million)	LA <sup>(2)</sup> (\$ million)	Total (\$ million)
Sustaining capital	102.72	19.12	121.84
<b>Total capital cost</b>	<b>1,151.72</b>	<b>423.28</b>	<b>1,575.00</b>

**NOTES:**

- (1) NWT – Costs applicable to the Nechalacho and Pine Point sites in the Northwest Territories.  
(2) LA – Costs applicable to Geismar, Louisiana.

The scope of the estimate encompasses the engineering, administration, procurement services, construction, pre-commissioning and commissioning of the project. The estimate was completed to a level consistent with an AACEI (Association of Advanced Cost Engineering International) Class 3 estimate with target accuracy level of  $\pm 15\%$ , based on second quarter 2012 prices, excluding escalation.

The total estimated preproduction capital cost is \$1.453 million. The life-of-mine sustaining capital is estimated at \$122 million.

#### Operating Cost Estimate

A summary showing the average annual and life-of-mine unit operating costs by project cost area is presented below.

Life of Mine Average Operating Costs per Project Cost Area		
Project Section	Average Annual Costs (\$ million)	LOM Average Unit Costs (\$/t milled)
Reagents & Consumables	97.2	133.20
Fuel & power	50.7	69.48
Labour	36.7	50.26
Freight	29.4	40.31
G&A	26.8	36.74
Other	23.7	32.29
<b>Project total</b>	<b>264.5</b>	<b>362.28</b>

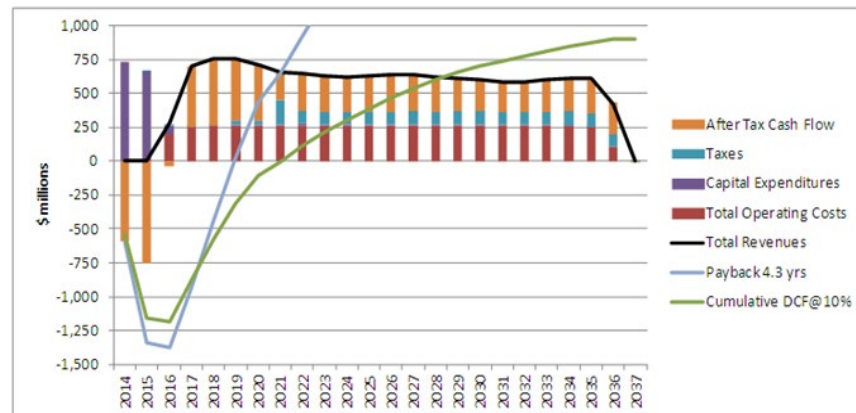
The FS operating cost estimates have been prepared on an annual basis for the life of the mine. The operating cost estimate has been prepared with an estimated level of accuracy of  $\pm 15\%$  based on the design of the plant and facilities as described in detail in the FS.

#### Cash Flow Analysis

An assessment of the project has been prepared on the basis of a discounted cash flow model, from which net present value ("NPV"), internal rate of return ("IRR"), payback and other measures of project viability can be determined. Assessments of NPV are generally accepted within the mineral industry as representing the economic value of a project after allowing for the cost of capital invested. A 10% discount rate is commonly used for the base case.

A summary of the Life of Mine cash flows and the cumulative discounted and undiscounted

cash flows is presented below.



The table below shows the results of the economic evaluation of the FS projected cash flows.

Feasibility Study Economic Evaluation				
	Discount rate (%/year)	Pre-Tax \$ million	After Tax \$ million	Payback (years)
Undiscounted Cash Flow		6,052	4,381	4.3
Net Present Value	8	1,833	1,262	5.5
	10	1,351	900	6.3
	12	981	620	7.2
Internal Rate of Return		22.5%	19.6%	

The FS estimates that the Nechalacho Project provides a payback of 4.3 years on the undiscounted cash flow, or 6.3 years on the cash flow discounted at 10%/year, leaving a considerable reserve “tail”. The cash operating margin is seen to remain positive over the whole Life of Mine period, and is particularly strong in the first four years of full production.

#### 14. Exploration, Development and Production

##### Optimization of the FS

During the course of executing the FS, Avalon had identified a number of opportunities for project optimization that may improve project economics, reduce technical risk, enhance metallurgical recoveries, improve operational efficiencies and to meet environmental requirements. These include:

- Reviewing the current mine plan and design in particular the crusher location, access ramp and paste backfill system.
- Optimization of the crushing and grinding circuit, plant layouts and materials of construction.



- Laboratory testwork on the concentrator flowsheet to further improve reagent selection and flotation recoveries.
- Improvements to the hydrometallurgical plant processes.
- Alternative impurity removal scenarios.
- Potential to separate lanthanum and cerium at the hydrometallurgical plant and stockpile for future sales.
- Potential to reintroduce cracking of zircon to increase direct production of HREE and separate the byproducts from the EZC.
- Potential sales of magnetite byproduct from the concentrator.
- Potential to defer construction of the refinery and toll process mixed rare earth concentrate through a refinery or refineries built and operated by others.
- Potential to use excess capacity in the refinery to toll process third party production and reduce operating costs.
- Updated environmental studies, including water treatment testing to demonstrate compliance with regulatory requirements.
- Energy options and other potential cost reductions associated with road access.

These opportunities are under consideration and will continue to be investigated as the Nechalacho Project proceeds.

## **(B) Current Work and Future Plans**

Subsequent to the completion of the FS in April 2013, the Company has been investigating optimization opportunities identified in the FS and conducting testwork/technical studies necessary to confirm potential benefits and with a view to potentially updating the development model of specific opportunities among those noted above. A number of design optimization activities were initiated that have focused primarily on improving project economics, improving operation efficiency and reducing project risk. These include the following:

- Underground mine plan, including mining method, underground equipment and facilities;
- Nechalacho site and concentrator building layout and design;
- Hydrometallurgical plant location;
- Concentrate handling and shipping; and
- Metallurgical process development for both the concentrator and hydrometallurgical plant.

In addition, two further drill programs were completed in winter (HQ rig) and summer (PQ rig), 2014. These programs, totalling 22 holes and 4,908 metres, were mainly for the purpose of collecting further mineralized drill core for metallurgical purposes. The geological drill database has been updated but no new resource has been estimated.

### **Underground Mine**

An initial study was carried out to determine the most appropriate mining method to be used. Particular consideration was given to the mining cost, the undulating floor of the Basal Zone, the changing Basal Zone thickness, and the need to be able to maintain a relatively constant grade of ore. A hybrid mining method consisting of "drift and fill" primary stopes, and "up-hole" bulk mining (uppers for the secondary stopes) was selected and a new mine plan developed accordingly for a 2,000 tonnes of ore per day, 20 year life-of-mine operation. Opportunity exists to reduce mine capital and operating costs with electrification of

underground operations using proven technology for this size of operation. Avalon continues to monitor green energy production technology in hope of even more green energy utilization.

### Concentrator Plant

The crushing and milling circuits have also been re-examined. The milling circuit can be revised to include a SAG mill allowing the removal of secondary and tertiary crushing and resulting in a more energy efficient comminution circuit. A further study concluded that there were both cost and operability advantages in moving the primary crusher from the underground location previously considered, to an above ground location near the SAG mill. This change also included replacing the conveyor system with haul trucks to bring the ore to the surface.

Laboratory testwork and a pilot plant trial of an updated Concentrator flowsheet have also been completed. This work has confirmed a potential overall improvement in REE flotation recoveries to approximately 89% (compared to approximately 78% in the FS) using a simpler and easier to operate flowsheet.

These results were achieved using a flowsheet without de-sliming ahead of flotation, with no gravity enrichment of final concentrate and with zero recycling of tailings from the four stages of cleaner flotation; all of which will result in a simpler plant to operate. The principal change has been the introduction of a superior reagent suite together with an increase in the flotation mass pull from 18.0% to 21.4%.

Environmental testing of the new tailings composition from the modified reagent suite has indicated no negative impacts on environmental performance. A simplified flowsheet is anticipated to improve environmental performance through reduced energy use, reduced carbon dioxide emissions and improvements in water treatment efficiencies.

As part of the optimization work, potential modifications are expected to be made to the site layout and the concentrator including revising the milling equipment and developing the surface ore handling/crushing area, modifying the equipment layout in the concentrator building and reducing the required size and volume of the building.

### Hydrometallurgical Plant Flowsheet

Significant modifications to the Hydrometallurgical Plant flowsheet are now envisaged based on the extensive testwork program undertaken since the FS.

This flowsheet optimization work for the Hydrometallurgical Plant has resulted in the development of an alkali cracking process to potentially replace the sulphuric acid baking used to treat the flotation concentrate in the FS. Optimization of this flowsheet is nearly completed with the details around reagent recovery and recycling being the only outstanding items. Work here has indicated an 80% reduction in hydrochloric acid ("HCl"), 90% reduction in magnesium oxide and almost 100% reduction in calcium carbonate could be achievable.

The sulphuric acid baking process utilized in the FS resulted in approximately 47% of the HREE contained in the flotation concentrate (as well as the niobium and tantalum) remaining trapped in the Enriched Zirconium Concentrate ("EZC") specialty byproduct. The alkali cracking process successfully alters (or "cracks") the zircon in the flotation concentrate which enables the contained HREE (and most of the zirconium) to be released into solution. Total HREE recoveries reporting to the Refinery could now be in excess of 90% of the HREE in the flotation concentrate, as opposed to the approximately 52% recovery contemplated in the FS.

In addition, the alkali cracking process would allow for the recovery of zirconium in a form for which there is already established markets.

A further benefit of this alternative process is that the hydrochloric acid will be recovered without the use of sulphuric acid and the production of large volumes of gypsum waste. Instead, a clean sodium chloride (salt) waste product is produced which is easier to dispose of and could potentially be of some use. The reduction in HCl transport achieved through recycling is an additional cost and sustainability advantage.

Light rare earth element ("LREE") leach recoveries are also generally improved with the updated flowsheet (with the exception of cerium which becomes oxidized during the cracking process, making it less amenable to the acid leaching).

#### Hydrometallurgical Plant Location

Several sites in western Canada are under consideration for the location of a potential new Hydrometallurgical Plant design. The original design contemplated in the FS was planned to be located in Pine Point, NWT, but this area has insufficient infrastructure to support the new potential plant design. Geismar was also considered as a potential location, but costs for transporting the concentrate to Louisiana remain high. Eventually a number of potential sites meeting the necessary infrastructure requirements were identified in Saskatchewan and Alberta and these are now undergoing further evaluation. An excellent potential site was identified in Saskatchewan, but nothing has yet been finalized.

The potential for relocating the Hydrometallurgical Plant outside the Pine Point, NWT area would likely require the shipment of concentrate by rail from Hay River, NWT. The entire shipping process has been carefully looked at including the containers required both for barge shipment and rail shipment, the concentrate loading requirements at Nechalacho, barging across Great Slave Lake, rail car requirements for shipment from Hay River, and a storage/trans-shipment facility at Hay River. A concept has been developed to include all of the shipping components from container loading at Nechalacho to railcar loading in Hay River in a single contract, potentially reducing project capital costs and simplifying the shipping operation.

It is noted that these changes have been presented to the regulators, Indigenous groups and other communities of interest and due to the environmental benefits of these changes associated with lower energy use, fewer reagents and water treatment benefits, are not considered significant and will not impact on the permitting process in the NWT.

#### Metallurgical Process Development

Recent work has focused on various optimization opportunities within the FS base case flowsheets for the Concentrator and in particular for the Hydrometallurgical Plant.

A further integrated pilot plant campaign has been planned, but will only proceed when funding becomes available. This is designed to fully evaluate process performance particularly with the incorporation of the acid recovery circuit(s) and associated recycle streams and would include all unit operations from crushing of ore right through to the generation of a mixed rare earth precipitate. The total bulk sample of ore required for this pilot plant is approximately eight tonnes. The material is being stored in Yellowknife, until such time as the funding becomes available to proceed with the pilot plant work, presently estimated at approximately \$4.0 million. There is no firm timeline for when this work will be carried out.

Efforts to recover the niobium and tantalum from the solid residue after acid leaching have so far proved unsuccessful and work in this regard has been placed on hold. This latest work has confirmed that total HREE recoveries of approximately 93% can be achieved in the hydrometallurgical plant directly from the flotation concentrate.

The final economics for the potential revised process are still being determined. However, initial estimates of increased power and reagent consumption associated with the processes and logistical issues have necessitated consideration of alternative locations for the hydrometallurgical plant with better infrastructure and reagent availability.

In Fiscal 2016 Avalon conducted metallurgical testwork investigations related to the potential recovery of zirconium and production of marketable quality zirconium basic sulphate ("ZBS") and zirconium oxychloride ("ZOC") products.

### Refinery

In early 2014 the Company entered into an agreement which would have had Solvay toll-process the Company's rare earth concentrate into separated and purified rare earth oxides rather than the Company building its own refinery. In early 2016 Avalon and Solvay mutually terminated their refining agreement and left the door open to initiate discussions on an updated refining toll contract when market conditions became favorable for such discussions to take place.

### Mineral Reserves

As part of its annual procedures the Company analyzes price trends and other factors as they may impact the determination of its mineral reserves. As part of this analysis, the Company obtained a new price forecast from a third party, which indicates that the long term REE average net price forecast would be now approximately US\$71/kg compared to the US\$62.91/kg used in the resource estimate. Furthermore, the exchange rate used in the resource estimate was US\$1=CAD\$1.05 and current forecasts for the exchange rate are closer to US\$1=CAD\$1.35. As all of the projected revenues, and less than a third of the projected costs are expected to be denominated in US dollars, this has a significantly beneficial effect on the determination of the mineral reserves. Refined zirconium prices are also currently in the US\$5/kg range compared to the US\$3.77/kg used in the mineral estimate. Niobium and Tantalum do not have a significant impact on the resource estimate. The Company also updated its expected capex and opex costs by using a variety of public inflation factors. Accordingly, the Company is of the opinion that its determination of its mineral reserves is still valid.

### Current Development and Permitting Plans

Avalon and Cheetah closed the sale of the near-surface resources in Fiscal 2020. Avalon and Cheetah formed a jointly-owned corporation to hold the exploration permits and related authorizations related to Nechalacho. Avalon and Cheetah also entered into a co-ownership agreement governing each party's activities and management at site. Cheetah has implemented maintenance and additional infrastructure development at site that are of benefit to Avalon, and future additional development could further reduce Avalon's future development costs on its own portion of the Nechalacho Project. Cheetah has filed financial assurance that was approved by the NWT regulator for all their activities in the T Zone, which reduces Avalon's overall site closure liability.

The property is situated in an area referred to as the Akaitcho Territory, an area which is subject to comprehensive native land claim negotiations between the Government of Canada

and the Treaty 8 Tribal Corporation, which consists of the Yellowknives Dene First Nation ("YKDFN"), the Deninu K'ue First Nation ("DKFN") and the Lutsel K'e Dene First Nation ("LKDFN"). The Company has signed an Accommodation Agreement with the DKFN. The Company also recognizes that the Tlicho First Nation ("TFN") has a settled land claim with the Government of Canada which provides for certain harvesting rights in the area of the Nechalacho site. The general area around the Nechalacho site is subject to Indigenous rights asserted by two Métis organizations: the Northwest Territory Métis Nation ("NWTMN") and the North Slave Métis Alliance ("NSMA"). During 2014, Avalon concluded a Participation Agreement with the NWTMN and commenced discussions with the NSMA.

Avalon completed a brief geological program in July 2019 at the project on behalf of Cheetah. This work assisted in drill targeting for a drill program planned and completed by Avalon in September-October, 2019 on behalf of Cheetah. Cheetah has successfully initiated production on the T Zone resource, such that Avalon anticipates future opportunities to expand production at the site by reactivating work on its heavy rare earth rich Basal Zone resource.

Avalon's next steps are primarily focused on continuing its process optimization work and new product development, with a view toward producing an updated technical report incorporating the results of such work. Other goals include completing the acquisition of the operations land use permit and water license, carrying out an additional pilot plant trial of the new hydrometallurgical plant flowsheet (to confirm reagent recycle performance), finalize detailed plant designs and engineering, assess electrification of its underground operations to reduce greenhouse gas emissions and to lower capital and operating costs, securing commitments on offtake and arranging project financing. Avalon continues to monitor regulatory changes in the NWT in order to prepare for and facilitate permitting for its development of the project. Avalon is working with Cheetah to update environmental management plans to ensure alignment with regulatory changes, to the benefit of both companies. Avalon is also monitoring and lobbying for the development of infrastructure in the NWT along with interested Indigenous stakeholders. A road and power line to or near to the mine site from Yellowknife for example, could have multiple benefits to the NWT as well as significantly reducing capital and operating costs while improving the social benefits of the project.

While the Nechalacho Project has been relatively inactive since 2014, the Company continues to monitor REE markets closely and there is now renewed demand with supplies being limited and still largely controlled by China. The anticipated increase in demand for electric vehicles ("EVs") in the coming years, and the need for high strength permanent magnets in the electric motors for these vehicles have sparked a significant increase in price for the "magnet rare earths" neodymium ("Nd") and praseodymium ("Pr") in recent years. In Fiscal 2019 and 2020, interest in creating new rare earth supply chains outside China has revived due to the ongoing uncertainty around security of supply in the wake of the recent US-China "trade war" and permitting issues Lynas Corporation has faced in maintaining operations with its Rare Earth Separation Plant and Refinery in Malaysia.

There is also growing interest in new supply sources of zirconium in North America because zirconium metal is a critical material in nuclear reactor technology. With small modular reactors ("SMRs") now in demand as a clean energy alternative to diesel generators at remote sites in North America, a new supply source is needed to serve the growing demand creating an additional opportunity for re-activating the Nechalacho Basal Zone Project.

Avalon is planning a new test program on Nechalacho mineralized material from the Basal Zone. The test work would focus on production of carbonate products of LREE, HREE and Zirconium concentrate and further test methods of separation to specific oxides. The work

is to find a streamlined approach to processing and enhance the economics of the project while refining the current strategy of marketing of various concentrate and/or oxide products. The details of the test program are currently under review with a phased budget. The timeline to start the work is expected to be Q2 2025 and will depend on aligned financing to complete the program.

The key factors going forward influencing the timely execution of the Nechalacho Project are securing one or more strategic or financial partners, securing sufficient binding agreements for offtake to support project financing, the availability of equity and debt financing at a reasonable cost and receipt of all requisite construction and operating permits.

## 6. Dividends

To date, the Company has not paid any dividends on its common shares and anticipates that it will retain all future earnings and other cash resources for the future operation and development of its business. The Company does not intend to declare or pay any cash dividends in the foreseeable future. Payment of any future dividends will be at the discretion of the Company's Board of Directors after taking into account many factors, including the Company's operating results, financial condition and current and anticipated cash needs.

## 7. Description of Capital Structure

Avalon's authorized share structure consists of an unlimited number of common shares, of which 571,790,055 common shares were outstanding as at August 31, 2024 and 25,000,000 preferred shares, of which 950 have been issued and none were outstanding as at August 31, 2024. As of the date of this AIF, Avalon had 590,014,988 common shares issued and outstanding and no preferred shares were outstanding.

### Common Shares

All issued and outstanding common shares are fully paid and non-assessable. Holders of common shares of the Company are entitled to receive notice of any meetings of shareholders of the Company, to attend and to cast one vote per common share of the Company at all such meetings. Holders of common shares of the Company do not have cumulative voting rights with respect to the election of directors and, accordingly, holders of a majority of the common shares of the Company entitled to vote in any election of directors may elect all directors standing for election. Holders of common shares are entitled to receive on a pro-rata basis such dividends, if any, as and when declared by the Board of Directors of the Company at its discretion from funds legally available therefore and upon the liquidation, dissolution or winding up of the Company are entitled to receive on a pro-rata basis the net assets of the Company after payment of debts and other liabilities, in each case subject to the rights, privileges, restrictions and conditions attaching to any other series or class of shares ranking senior in priority to or on a *pro-rata* basis with the holders of common shares of the Company with respect to dividends or liquidation. The common shares of the Company do not carry any pre-emptive, subscription, redemption or conversion rights, nor do they contain any sinking or purchase fund provisions.

### Series A1 Preferred Shares

The holder of the Series A1 Preferred Shares (the "Holder") then outstanding shall not be entitled to receive any dividend on Series A1 Preferred Shares. The Holder may not transfer, sell or trade the Series A1 Preferred Shares. The Series A1 Preferred Shares redemption value that starts at \$5,000 per share and increases by \$250 per share each quarter over a



24 month period ending on March 10, 2019, to a cap of \$6,750 per share. The Holder may convert the Series A1 Preferred Shares into common shares from time to time at a price per common share equal to 85% of the five-day volume weighted average price of the common shares on the TSX immediately prior to the date that notice of conversion is given. The Holder is entitled to certain adjustments if there shall occur any reorganization, recapitalization, reclassification, consolidation, arrangement, subdivision, amalgamation or merger involving the Company. In certain circumstances, the Holder is entitled to accelerate its conversion right to the full amount of the redemption value applicable at such time, or demand repayment of the applicable redemption value per share in cash, upon the occurrence of certain events (the "Redemption Events"). The triggering Redemption Events include certain key financial and non-financial conditions, which include change of control, insolvency and liquidity conditions. These Redemption Events also limit the Company from obtaining other debt or preferred share financings that are not junior to the Preferred Shares other than certain project-related financings, as well as other at-the-market, equity lines or credit type of common share offerings, or convertible security financings where the price of the common share is not fixed at a predetermined price. In addition, if the Redemption Event is a change of control event, the redemption amount will be equal to 110% of the applicable redemption amount at that time. The Company has the right to redeem all of the outstanding Series A1 Preferred Shares at any time at a 5% premium to the redemption value. The Company also has floor price protection such that if any conversion results in an effective conversion price of less than \$0.10 per common share, then the Company has the right to deny the conversion and instead redeem the Series A1 Preferred Shares that were subject to that conversion for the redemption amount in cash plus a 5% premium.

#### Series B1 Preferred Shares

The holder of the Series B1 Preferred Shares (the "B1 Holder") then outstanding shall not be entitled to receive any dividend on Series B1 Preferred Shares. The B1 Holder may not transfer, sell or trade the Series B1 Preferred Shares. The Series B1 Preferred Shares redemption value that starts at \$5,000 per share and increases by \$250 per share each quarter over a 24 month period ending on January 15, 2020, to a cap of \$6,750 per share. The B1 Holder may convert the Series B1 Preferred Shares into common shares from time to time at a price per common share equal to 85% of the five-day volume weighted average price of the common shares on the TSX immediately prior to the date that notice of conversion is given. The B1 Holder is entitled to certain adjustments if there shall occur any reorganization, recapitalization, reclassification, consolidation, arrangement, subdivision, amalgamation or merger involving the Company. In certain circumstances, the B1 Holder is entitled to accelerate its conversion right to the full amount of the redemption value applicable at such time, or demand repayment of the applicable redemption value per share in cash, upon the occurrence of certain events (the "Redemption Events"). The triggering Redemption Events include certain key financial and non-financial conditions, which include change of control, insolvency and liquidity conditions. These Redemption Events also limit the Company from obtaining other debt or preferred share financings that are not junior to the Preferred Shares other than certain project-related financings, as well as other at-the-market, equity lines or credit type of common share offerings, or convertible security financings where the price of the common share is not fixed at a predetermined price. In addition, if the Redemption Event is a change of control event, the redemption amount will be equal to 110% of the applicable redemption amount at that time. The Company has the right to redeem all of the outstanding Series B1 Preferred Shares at any time at a 5% premium to the redemption value. The Company also has floor price protection such that if any conversion results in an effective conversion price of less than \$0.10 per common share, then the Company has the right to deny the conversion and instead redeem the Series B1 Preferred Shares that were subject to that conversion for the redemption amount in cash plus a 5% premium.

## Series C1 Preferred Shares

The holder of the Series C1 Preferred Shares (the "C1 Holder") then outstanding shall not be entitled to receive any dividend on Series C1 Preferred Shares. The C1 Holder may not transfer, sell or trade the Series C1 Preferred Shares. The Series C1 Preferred Shares redemption value that starts at \$5,000 per share and increases by \$250 per share each quarter over a 24 month period ending on June 29, 2020, to a cap of \$6,750 per share. The C1 Holder may convert the Series C1 Preferred Shares into common shares from time to time at a price per common share equal to 85% of the five-day volume weighted average price of the common shares on the TSX immediately prior to the date that notice of conversion is given. The C1 Holder is entitled to certain adjustments if there shall occur any reorganization, recapitalization, reclassification, consolidation, arrangement, subdivision, amalgamation or merger involving the Company. In certain circumstances, the C1 Holder is entitled to accelerate its conversion right to the full amount of the redemption value applicable at such time, or demand repayment of the applicable redemption value per share in cash, upon the occurrence of certain events (the "Redemption Events"). The triggering Redemption Events include certain key financial and non-financial conditions, which include change of control, insolvency and liquidity conditions. These Redemption Events also limit the Company from obtaining other debt or preferred share financings that are not junior to the Preferred Shares other than certain project-related financings, as well as other at-the-market, equity lines or credit type of common share offerings, or convertible security financings where the price of the common share is not fixed at a predetermined price. In addition, if the Redemption Event is a change of control event, the redemption amount will be equal to 110% of the applicable redemption amount at that time. The Company has the right to redeem all of the outstanding Series C1 Preferred Shares at any time at a 5% premium to the redemption value. The Company also has floor price protection such that if any conversion results in an effective conversion price of less than \$0.10 per common share, then the Company has the right to deny the conversion and instead redeem the Series C1 Preferred Shares that were subject to that conversion for the redemption amount in cash plus a 5% premium.

## **8. Market for Securities**

### **8.1 Trading Price and Volume**

Avalon's common shares became listed and posted for trading on the TSX on February 28, 2008 under the trading symbol "AVL", prior to which they were listed on the TSX Venture Exchange under the same trading symbol. Effective November 22, 2018, the Company's common shares are traded on the OTCQB<sup>®</sup> Venture Market in the United States under the symbol "AVLNF", prior thereto they were traded on the OTCQX Best Market commencing on December 18, 2015, under the same trading symbol. The Company's common shares were listed on the NYSE American in the United States also under the trading symbol "AVL" from December 22, 2010 until December 17, 2015. The Company's common shares are also traded on the Frankfurt Stock Exchange in Germany under the symbol "OU5".

The following table sets out the range of the market price and trading volumes of the common shares on the TSX for the most recently completed fiscal year:

Period	High (\$)	Low (\$)	Volume
<b>2024</b>			
August	0.075	0.050	5,127,238

Period	High (\$)	Low (\$)	Volume
July	0.085	0.050	3,969,000
June	0.070	0.050	3,731,087
May	0.075	0.060	4,867,203
April	0.085	0.065	2,966,817
March	0.095	0.075	2,251,014
February	0.100	0.080	2,298,289
January	0.105	0.090	2,204,640
<b>2023</b>			
December	0.110	0.095	3,459,507
November	0.125	0.100	3,392,239
October	0.125	0.105	5,354,684
September	0.140	0.115	5,748,046

## 8.2 Prior Sales

As of November 28, 2024, the only securities that the Company has outstanding that are not listed or quoted on a marketplace are: 23,633,750 stock options granted under the Company's Stock Option Plan, 3,304,013 Restricted Share Units ("RSU"s) granted under the Company's Restricted Share Unit Plan, 1,395,000 Deferred Share Units ("DSU"s) granted under the Company's Deferred Share Unit Plan and 48,860,312 warrants issued to various stakeholders. Set forth in the following tables is information with respect to the stock options, warrants, RSUs, DSUs and convertible note payable issued during the most recently completed financial year.

### *Stock Options*

The following table sets out the stock options granted during the fiscal year ended August 31, 2024.

Date of Grant	Date of Expiry	Number of Options Granted	Exercise Price of Options Granted
September 19, 2023	September 18, 2025	250,000	\$0.13
September 19, 2023	September 18, 2026	1,000,000	\$0.13
December 1, 2023	November 30, 2026	500,000	\$0.11
February 11, 2024	February 10, 2027	500,000	\$0.10
March 5, 2024	March 4, 2027	1,925,000	\$0.10
April 15, 2024	April 14, 2027	300,000	\$0.08
June 1, 2024	May 31, 2027	2,400,000	\$0.08

### *RSUs*

During the fiscal year ended August 31, 2024, an aggregate of 4,369,424 RSUs vesting at the grant date were granted to certain employees of the Company at the grant date weighted average fair value of \$0.10 per unit, which was the five day VWAP of the Company's

common shares prior to the date the RSUs were granted.

### ***DSUs***

During the fiscal year ended August 31, 2024, an aggregate of 210,000 DSUs vesting at the grant date were granted to certain directors of the Company at the grant date weighted average fair value of \$0.09 per unit, which was the five day VWAP of the Company's common shares prior to the date the DSUs were granted.

### ***Warrants***

The following table sets out the warrants issued during the fiscal year ended August 31, 2024.

Date of Issuance	Date of Expiry	Number of Warrants Issued	Exercise Price of Warrants Issued
January 31, 2024	January 31, 2027	2,125,000	0.15
March 27, 2024	March 27, 2029	15,800,000	0.13
<b>Note:</b> (1) Issued pursuant to the January 2024 private placement completed on January 31, 2024 (2) Issued in conjunction with the issuance of convertible note payable issued on March 27, 2024			

### ***Convertible Note Payable***

During the fiscal year ended August 31, 2024, the Company entered into an up to \$15,000,000 convertible security agreement (the "Funding Agreement") with an entity managed by The Lind Partners ("Lind") and completed the first drawdown and issued a convertible note payable of \$2,750,000 to Lind (the "2024 Note"). Subject to further agreement by the parties, an additional drawdown under the Funding Agreement can be made on satisfaction of certain conditions. The 2024 Note has a two-year term and accrues a simple interest rate obligation of 10% per annum on the funded amount, which is prepaid and attributed to the face value of the 2024 Note upon issuance, resulting in a face value of \$3,300,000 (the "Face Value"). Lind is entitled to convert the Face Value amount over a 24-month period at a conversion price equal to 85% of the five-day trailing volume weighted average price ("VWAP") of Avalon's common shares prior to the date of conversion (the "Conversion Feature"). The 2024 Note matures on March 27, 2026. Commencing on August 26, 2024, the Company has the right to repurchase the 2024 Note at the outstanding face value (the "Buyback Option"), subject to Lind's option to convert up to one third of the Face Value into Avalon common shares prior to such repurchase.

## **9. Escrowed Securities and Securities Subject to Contractual Restrictions on Transfer**

Not applicable.

## **10. Directors and Officers**

### **10.1 Name, Occupation and Security Holdings**

The name, province or state and country of residence of each executive officer and director of Avalon, including their positions with Avalon, committee memberships and principal occupation for the past five years, the period during which each has served as a director of Avalon (as applicable), as of the date of this AIF are as follows:

<b>Name, Province/State and Country of Residence</b>	<b>Position with the Company</b>	<b>Principal Occupation</b>	<b>Director Since</b>
Alan Ferry <sup>(1)(2)</sup> Ontario, Canada	Director, Chair of the Board	Self-employed businessperson; Director, Plateau Energy Metals Inc. 2006-2021; Director, Guyana Goldfields Inc. 1998-2019.	February 24, 2000
Timothy Haig <sup>(1), (2)</sup> Ontario, Canada	Director	CEO of Valent Low-Carbon Technologies January, 2021 to present; CEO of Mara Renewable Corp. and Forge Hydrocarbon Corp. since March, 2011.	October 20, 2023
Flavio Hees Quebec, Canada	Director	Vice-President of Geology and Mining, SCR-Sibelco NV since February 2022, prior thereto Manager Resources Development, Rio Tinto.	September 17, 2024
Naomi Johnson <sup>(2)</sup> Ontario, Canada	Director	Self-employed businessperson; Practice Manager - Extractives, World Bank 2022 - 2023; Social Performance Principal, Anglo American 2021-2022; Vice President of Community Relations at Titan Mining Corporation from April 2018 to January 2019, prior thereto Partner and Senior Director, Community Relations, Barrick Gold Corporation, January 2016 to November 2017.	September 10, 2019
Alec Kodatsky <sup>(1)</sup> Ontario, Canada	Director	Co-President & Founding Partner, Forthlane Partners Ltd., Toronto, since 2017.	September 5, 2023
Scott Monteith Ontario, Canada	Director, CEO	Officer of the Company since May, 2023; Chair of Monteco Ltd. since 1995, Cable House Capital Ltd. since 2020 and Imtex Membranes Corporation since 2008.	April 28, 2023
Harvey L. A. Yesno Ontario, Canada	Director	Self-employed businessperson; Chief of the Eabametoong First Nation 1991-2021.	December 29, 2021
R. James Andersen	Vice President,	Officer of the Company since June 2001.	Not applicable

Name, Province/State and Country of Residence	Position with the Company	Principal Occupation	Director Since
Ontario, Canada	Finance, CFO and Corporate Secretary		
Zeeshan Syed Ontario, Canada	President and Vice President, External Affairs and Partnerships	Officer of the Company since January 2022; prior thereto employee of the Company since January 2021; prior thereto consultant to the Company since November 2019; prior thereto self-employed businessperson.	Not applicable
Rickardo Welyhorsky Ontario, Canada	Vice President, Operations	Officer of the Company since January 2023; prior thereto Chief Operating Officer at Signature Resources Ltd. from May, 2021 to December, 2022; prior thereto Advisor to the Board of Signature Resources Ltd. from February 2021 to May, 2021; prior thereto Mine General Manager at Pure Gold Mining Inc. from June, 2020 to February, 2021; prior thereto President MMW Consulting from September, 2018 to June, 2020; prior thereto Director Technical Services for Yamana Gold from January, 2016 to September, 2018.	Not applicable
Andrew Ramcharan Ontario, Canada	Vice President, Corporate Development	Officer of the Company since June 2024; prior thereto Founder of AAR Mining 2018 (a mining consulting company) and provided services to Roscan Gold, Rockridge Resources and Skyharbour Resources.	Not applicable

**Notes:**

- (1) Member of the Audit Committee.
- (2) Member of the Corporate Governance and Nominating Committee.

The directors and executive officers of the Company, as a group, beneficially own, control or direct, directly or indirectly, 2,511,500 common shares of the Company, representing 0.4% of the issued and outstanding common shares of the Company as of the date hereof.

The term of office for each director expires at the next annual meeting of shareholders at which their successor is elected unless, prior thereto, a director resigns or is removed from office or otherwise ceases to be qualified as a director, in each case in accordance with the



CBCA.

## **10.2 Cease Trade Orders, Bankruptcies, Penalties or Sanctions**

To the Company's knowledge, no director or executive officer of the Company is, as of the date hereof, or was within ten years before the date hereof, a director, chief executive officer or chief financial officer of any company (including the Company) that:

- (i) was subject to a cease trade order, an order similar to a cease trade order, or an order that denied the relevant company access to any exemption under securities legislation, that was in effect for a period of more than 30 consecutive days (an "Order") that was issued while the director or executive officer was acting in the capacity as director, chief executive officer or chief financial officer; or
- (ii) was subject to an Order that was issued after the director or executive officer ceased to be a director, chief executive officer or chief financial officer and which resulted from an event that occurred while that person was acting in the capacity as director, chief executive officer or chief financial officer.

To the Company's knowledge, no director or executive officer of the Company, or a shareholder holding a sufficient number of the securities of the Company to affect materially the control of the Company:

- (i) is, as at of the date hereof, or has been, within the ten years before the date hereof, a director or executive officer of any company (including the Company) that, while that person was acting in that capacity, or within a year of that person ceasing to act in that capacity, became bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency or was subject to or instituted any proceedings, arrangement or compromise with creditors or had a receiver, receiver manager or trustee appointed to hold its assets, other than Mr. Monteith who was a director and officer of Alfacon Solutions Limited made an assignment in bankruptcy in 2018; or
- (ii) has, within the ten years before the date hereof, become bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, or become subject to or instituted any proceedings, arrangement or compromise with creditors, or had a receiver, receiver manager or trustee appointed to hold the assets of the director, executive officer or shareholder.

To the Company's knowledge, no director or executive officer of the Company, or a shareholder holding a sufficient number of securities of the Company to affect material control of the Company, has been subject to:

- (i) any penalties or sanctions imposed by a court relating to securities legislation or by a securities regulatory authority or has entered into a settlement agreement with a securities regulatory authority, or
- (ii) any other penalties or sanctions imposed by a court or regulatory body that would likely be considered important to a reasonable investor in making an investment decision.

## **10.3 Conflicts of Interest**

To the best of the Company's knowledge, and other than as disclosed in this AIF, there are no known existing or potential conflicts of interest between the Company and any director or

officer of the Company, except that certain of the directors and officers serve as directors and officers of other public companies, and therefore it is possible that a conflict may arise between their duties as a director or officer of the Company and their duties as a director or officer of such other companies. In one specific example, Mr. Benny Loix is a director of the Company, and also an employee of SCR-Sibelco NV, which is the 60% owner and operator of Separation Rapids Ltd., of which the Company owns the other 40%. See "Risk Factors".

## **11. Promoters**

Not applicable.

## **12. Legal Proceedings and Regulator Actions**

### **12.1 Legal Proceedings**

Not applicable.

### **12.2 Regulatory Actions**

Not applicable.

## **13. Interest of Management and Others in Material Transactions**

Not applicable.

## **14. Transfer Agent and Registrar**

The Company's transfer agent and registrar is TSX Trust Company, with its principal office at 100 Adelaide Street West, Suite 301, Toronto, ON M5H 1S3.

## **15. Material Contracts**

The following are the material contracts of the Company that are in effect as of the date of this AIF:

- Investor Rights Agreement, dated June 14, 2023 between the Company and SCR-Sibelco NV
- Purchase and Sale Agreement, dated November 2 2023, between the Company and SCR-Sibelco NV, pursuant to which the Company transferred its Separation Rapids and Lilypad projects to Separation Rapids Ltd.
- Joint Venture Shareholders Agreement between the Company, SCR-Sibelco NV and Separation Rapids Ltd., dated November 9, 2023
- Convertible Security Funding Agreement, dated March 17, 2024, between the Company and Lind Global Fund II, LP for a private placement of up to \$15,000,000 by way of convertible securities
- Amended and Restated Convertible Debenture, dated November 18, 2024, for \$6,500,000 between the Company and SCR-Sibelco NV

All other contracts entered into by the Company (or still in effect) during the Fiscal 2024, were in the ordinary course of business for the Company. Such contracts are not material when considered in the context of the Company's business and the industry within which it operates.

Certain contracts which have been entered into in the ordinary course of business and which relate to the operations of the Company are described elsewhere in this AIF.

## **16. Interests of Experts**

### **16.1 Names of Experts**

Unless otherwise stated, the technical information set forth herein relating to the Nechalacho Project, is substantially derived from and in some instances extracted from the Nechalacho Technical Report prepared by Tudorel Ciuculescu, M.Sc., P.Geo. of RPA, Kevin Hawton, P.Eng. of Knight Piesold Limited, and Bernard Foo, P.Eng., Richard Gowans, P.Eng., Christopher Jacobs, C.Eng., MIMMM, and Jane Spooner, P.Geo., all of Micon, each of whom is a qualified person pursuant to NI 43-101.

Unless otherwise stated, the technical information set forth herein relating to the East Kemptville Tin-Indium Project is substantially derived from and in some instances extracted from the technical report entitled "The East Kemptville Tin Production and Site Remediation Project Preliminary Economic Assessment, Nova Scotia, Canada" dated August 30, 2018, effective July 24, 2018 and prepared by Richard Gowans, P.Eng., Christopher Jacobs, CEng, MIMMM, Dayan Anderson, M.S., MMSA and Jane Spooner, P.Geo, all of Micon, Donald H. Hains, BSc, MBA, P. Geo of Hains Engineering Company Limited, Reid Smith, M.A.Sc. P.Geo. of Stantec Consulting Ltd. and William Mercer, Ph.D., P.Geo, each of whom is a qualified person pursuant to NI 43-101.

Unless otherwise stated, Rickardo Welyhorsky, P. Eng., Vice-President, Operations of the Company, is the Qualified Person who prepared or supervised the preparation of, or reviewed and approved, as applicable, the technical information (including the technical information relating to mineral processing and metallurgy) contained in this AIF.

### **16.2 Interests of Experts**

The aforementioned firms and persons held either less than one percent or no securities of the Company or of any associate or affiliate of the Company at or following the time when they prepared the technical reports, or prepared or supervised the preparation of, or approved, as applicable, the technical information contained in this AIF, and either did not receive any or received less than a one percent direct or indirect interest in any securities of the Company or of any associate or affiliate of the Company in connection with the preparation, supervision of the preparation, or approval, of such disclosure.

Other than Mr. Welyhorsky, who is currently an officer of the Company, none of the aforementioned persons, nor any directors, officers or employees of such aforementioned firms, is currently expected to be elected, appointed or employed as a director, officer or employee of the Company or of any associate or affiliate of the Company.

Ernst & Young LLP, Chartered Professional Accountants ("Ernst & Young") is the independent auditor of the Company in respect of the audited consolidated financial statements of the Company for the year ended August 31, 2023, and the auditor's report thereon. Ernst & Young has advised the Company that it is independent within the meaning of the Rules of Professional Conduct of the Chartered Professional Accountants of Ontario.

## **17. Additional Information**

Additional information relating to the Company can be found under the Company's profile on

the SEDAR website at [www.sedarplus.ca](http://www.sedarplus.ca). Additional information, including directors' and officers' remuneration and indebtedness, principal holders of the Company's securities and securities authorized for issuance under equity compensation plans, if applicable, is contained in the Company's information circular for its most recent annual meeting of shareholders. Additional financial information is provided in the Company's audited consolidated financial statements and management's discussion and analysis for its most recently completed financial year.

## 18. Audit Committee Information

### 18.1 Charter

The responsibilities and duties of the audit committee (the "Audit Committee") of the Board of Directors of the Company are set out in the Audit Committee's Charter (the "Charter"), the text of which is set forth in Appendix A to this AIF.

### 18.2 Composition

Name	Independent Yes/No	Financially Literate Yes/No
Alan Ferry, Chair	Yes	Yes
Timothy Haig	Yes	Yes
Alec Kodatsky	Yes	Yes

### 18.3 Relevant Education and Experience

Mr. Ferry is a retired Chartered Financial Analyst with over 25 years of experience as a mining analyst with various investment dealers. He holds a B.Sc. in Geology and serves on the board of directors of one publicly traded company and the audit committee of one publicly traded company.

Mr. Haig is currently the CEO and founder of FORGE Hydrocarbon Corporation. He has raised over \$500m in growth capital for several companies both public and private, and holds expertise in industrial process optimization, early-stage financing and technology scaleup. He also served as a board member and interim CEO of GreenMantra Technologies from 2013-15, where he raised capital to commercialize the company's molecular recycling technology that transforms plastics into specialty polymer additives for industrial applications. Prior to that, Mr. Haig was co-founder of BIOX Corp., a renewable fuels company that was founded on a technology developed at the University of Toronto. The executive successfully took an idea from lab patent in 2000 to a public company in 2010. Mr. Haig subsequently helped take BIOX Corp. private in 2017, merging the enterprise with the second-largest renewable fuels producer in North America. Mr. Haig holds an industrial engineering degree (PEng.) from the Royal Military College of Canada, and Master of Business Administration (MBA) from London City University. He served for more than a decade in the Canadian Armed Forces and the Canadian Special Operations Forces Command, in various officer positions.

Mr. Kodatsky has been a financial industry professional for over 20 years. He has spent the

past six years as a founding member and Co-President of Forthlane Partners, a family office investment firm based in Toronto. Prior to this he spent nearly 15 years as an institutional equity research analyst at both global and domestic banks covering the mining sector. He has received several industry awards: recognized as Canada's Top Stock Picker – Large Cap by StarMine in 2006 and ranked "Top Gun Analyst" by Brendan Wood International several times. He is a mining engineer by trade and holds a Bachelor of Science in Mining Engineering from Queen's University and MBA from the Schulich School of Business.

#### 18.4 Reliance on Certain Exemptions

Not applicable.

#### 18.5 Reliance on the Exemption in Subsection 3.3(2) or Section 3.6

Not applicable.

#### 18.6 Reliance on Section 3.8

Not applicable.

#### 18.7 Audit Committee Oversight

Not applicable.

#### 18.8 Pre-Approval Policies and Procedures

The Audit Committee is required to pre-approve all non-audit engagements of the external auditors prior to the commencement of the engagement.

#### 18.9 External Auditor Service Fees

The following table provides details in respect of audit, audit related, tax and other fees paid by the Company to Ernst & Young, LLP for professional services:

Reporting Period	Audit Fees <sup>(1)</sup>	Audited-Related Fees <sup>(2)</sup>	Tax Fees <sup>(3)</sup>	All Other Fees <sup>(4)</sup>
August 31, 2024	\$138,665	\$Nil	\$Nil	\$Nil
August 31, 2023	\$105,000	\$Nil	\$Nil	\$Nil
Notes: (1) "Audit Fees" include the aggregate professional fees billed by the Company's auditor for the audit of the annual financial statements and other regulatory audits and filings. (2) "Audit-Related Fees" include professional fees billed by the Company's auditor related to assurances and related services related to the performance of the audit or review of financial statements not included in "Audit Fees". (3) "Tax Fees" include the aggregate fees billed for professional services rendered for tax compliance, tax advice and tax planning. (4) "All Other Fees" include the aggregate fees billed for products and services other than as set out under the headings "Audit Fees", "Audit Related Fees" and "Tax Fees".				

## Appendix A - Charter of the Audit Committee

### AVALON ADVANCED MATERIALS INC. Audit Committee Charter

#### 1. PURPOSE

- (a) The Audit Committee ("Committee") is a committee of the board of directors (the "Board") of Avalon Advanced Materials Inc. (the "Company"). Its primary function shall be to assist the Board in fulfilling its oversight responsibilities with respect to:
  - (i) the financial reporting process and the quality, transparency and integrity of the Company's financial statements and other related public disclosures;
  - (ii) the Company's internal controls over financial reporting;
  - (iii) the Company's compliance with legal and regulatory requirements relevant to the financial statements and financial reporting;
  - (iv) ensuring that there is an appropriate standard of corporate conduct for senior financial personnel and employees including, if necessary, adopting a corporate code of ethics;
  - (v) the external auditors' qualifications and independence; and
  - (vi) the performance of the internal audit function (if any) and the external auditors.
- (b) The function of the Committee is oversight. The members of the Committee are not full-time employees of the Company. The Company's management is responsible for the preparation of the Company's financial statements in accordance with applicable accounting standards and applicable laws and regulations. The Company's external auditors are responsible for the audit or review, as applicable, of the Company's financial statements in accordance with applicable auditing standards and laws and regulations.

#### 2. COMPOSITION

- (a) The Committee shall be appointed by the Board annually on the recommendation of the Compensation, Governance and Nominating Committee and shall be comprised of a minimum of three directors. If an appointment of members of the Committee is not made as prescribed, the members shall continue as such until their successors are appointed. The Board may remove a member of the Committee at any time in its sole discretion by resolution of the Board.
- (b) All members of the Committee shall be directors whom the Board has determined are independent and "financially literate", taking into account the applicable rules and regulations of securities regulatory authorities and/or stock exchanges.
- (c) The Chair of the Committee will be designated by the Board from among the members of the Board appointed to the Committee. Such Chair shall serve as a liaison between members and senior management. If for any reason a Chair of the Committee is not appointed by the full Board, members of the Committee



may designate a Chair of the Committee by majority vote of the full membership of the Committee.

### **3. MEETINGS**

- (a) The Committee shall have a minimum of four meetings per year, to coincide with the Company's financial reporting cycle. Additional meetings will be scheduled as considered necessary or appropriate, including considering specific matters at the request of the external auditors or the head of internal audit.
- (b) The time and place of the meetings of the Committee, the calling of meetings and the procedure in all things at such meetings shall be determined by the Chair of the Committee. A meeting of the Committee may be called by notice, which may be given by written notice, telephone, facsimile, email or other communication equipment, given at least 48 hours prior to the time of the meeting provided that no notice of a meeting will be necessary if all of the members are present either in person or by means of conference telephone or if those absent waive notice or otherwise signify their consent to the holding of such meeting.
- (c) A majority of members of the Committee will constitute a quorum at each meeting.
- (d) The Committee will hold an in-camera session without any senior officers present at each meeting, as required.
- (e) The Committee will keep minutes of its meetings, which shall be available for review by the Board.
- (f) The Committee may appoint any individual, who need not be a member, to act as the secretary at any meeting.
- (g) The Committee may invite such directors, senior officers and other employees of the Company and such other advisors and persons as is considered appropriate to attend any meeting of the Committee.
- (h) Any matter to be determined by the Committee will be decided by a majority of the votes cast at a meeting of the Committee called for such purpose. Each Member will have one vote and decisions of the Committee will be made by an affirmative vote of the majority. The Chair will not have a deciding or casting vote in the case of an equality of votes. Any action of the Committee may be taken by an instrument or instruments in writing signed by all of the members of the Committee (including in counterpart) and any such action will be as effective as if it had been decided by a majority of the votes cast at a meeting of the Committee called for such purpose.
- (i) The Committee will report its determinations and recommendations to the Board.

### **4. RESOURCES AND AUTHORITY**

- (a) The Committee has the authority to:

- (i) engage, at the expense of the Company, independent counsel, accounting and other experts or advisors as considered advisable in its sole discretion which shall provide adequate funding for such purposes;
- (ii) determine and pay the compensation for any independent counsel, accounting and other experts or advisors retained by the Committee;
- (iii) conduct any investigation in the Company's business or affairs that it considers appropriate; and
- (iv) request unrestricted access to the books and records of the Company, management, the external auditors and the head of internal audit, including private meetings, as it considers necessary or appropriate to discharge its duties and responsibilities.

## 5. DUTIES AND RESPONSIBILITIES

- (a) The responsibilities of a member of the Committee shall be in addition to such Member's duties as a member of the Board.

### Financial Reporting and Disclosure

- (b) The Committee has the duty to determine whether the Company's financial disclosures are complete, accurate, are in accordance with applicable generally accepted accounting principles and auditing standards, including international financial reporting standards, and fairly present the financial position and risks of the organization. The Committee should, where it deems appropriate, resolve disagreements, if any, between management and the external auditor, and review compliance with laws and regulations and the Company's own policies.
- (c) Review and discuss with management and the external auditor at the completion of the annual examination:
  - (i) the Company's audited financial statements and related notes;
  - (ii) the external auditor's audit of the annual financial statements and their report thereon;
  - (iii) any significant changes required in the external auditor's audit plan;
  - (iv) any serious difficulties or disputes with management encountered during the course of the audit; and
  - (v) other matters related to the conduct of the audit, which are to be communicated to the Committee under generally accepted auditing standards.
- (d) Review and discuss with management and, where authorized by the Board, the external auditor at the completion of any review engagement or other examination of the Company's quarterly unaudited financial statements:
  - (i) the Company's unaudited financial statements and related notes;
  - (ii) any significant changes required in the external auditor's audit plan resulting from the preparation of the unaudited financial statements;
  - (iii) any serious difficulties or disputes with management encountered during the course of the preparation of the unaudited financial statements; and
  - (iv) other matters related to the preparation of the unaudited financial statements, which are to be communicated to the Committee.

- (e) Make recommendations to the Board regarding the approval of the unaudited financial statements and the notes thereto and the Company's management discussion and analysis with respect to such financial statements.
- (f) Review and discuss with management the annual reports, the quarterly reports, the related Management Discussion and Analysis, the annual information form, any prospectus and other disclosures and, if thought advisable, recommend the acceptance of such documents to the Board for approval.
- (g) Review disclosure respecting the activities of the Committee included in the Company's annual filings.
- (h) Review and discuss with management any guidance being provided to shareholders on the expected future results and financial performance of the Company and provide their recommendations on such documents to the Board.
- (i) Inquire of the auditors the quality and acceptability of the Company's accounting principles, including the clarity of financial disclosure and the degree of conservatism or aggressiveness of the accounting policies and estimates.
- (j) Meet independently with the external auditor and management in separate executive sessions, as necessary or appropriate.
- (k) Ensure that management has the proper systems in place so that the Company's financial statements, financial reports and other financial information satisfy legal and regulatory requirements. Based upon discussions with the external auditor and the financial statement review, if it deems appropriate, provide the Board with such recommendations and reports with respect to the financial disclosures of the Company.
- (l) Review and approve any significant amendments to the Company's Disclosure Policy and periodically assess the procedures in place for the review of public disclosure of financial information extracted or derived from the issuer's financial statements.
- (m) Review and if appropriate, ratify the mandate of the Disclosure Committee.

#### **External Auditor**

- (n) Retaining and terminating, and/or making recommendations to the Board and the shareholders with respect to the retention or termination of, an external auditing firm to conduct review engagements on a quarterly basis and an annual audit of the Company's financial statements.
- (o) Communicating to the external auditors that they are ultimately accountable to the Board and the Committee as representatives of the shareholders and that they must report directly to the Committee.
- (p) Obtaining and reviewing an annual report prepared by the external auditors describing: the firm's internal quality-control procedures; any material issues raised by the most recent internal quality-control review, or peer review, of the firm, or by any inquiry or investigation by governmental or professional authorities, within the preceding five years, respecting one or more

independent audits carried out by the firm, and any steps taken to deal with any such issues.

- (q) Evaluating the independence of the external auditor and any potential conflicts of interest and (to assess the auditors' independence) all relationships between the external auditors and the Company, including obtaining and reviewing an annual report prepared by the external auditors describing all relationships between the external auditors and the Company.
- (r) Approving, or recommending to the Board for approval, all audit engagement fees and terms, as well as pre-approving all non-audit engagements of the external auditors prior to the commencement of the engagement.
- (s) Reviewing with the external auditors the plan and scope of the quarterly review and annual audit engagements.
- (t) Setting hiring policies with respect to the employment of current or former employees and partners of the current or former external auditors.

#### **Internal Controls and Audit**

- (u) Reviewing and discussing with management, the external auditors and the head of internal audit (if any) the effectiveness of the Company's internal controls over financial reporting, including reviewing and discussing any significant deficiencies in the design or operation of internal controls, and any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal controls over financial reporting.
- (v) Discussing the Company's process with respect to risk assessment (including fraud risk), risk management and the Company's major financial risks and financial reporting exposures, all as they relate to internal controls over financial reporting, and the steps management has taken to monitor and control such risks.
- (w) Reviewing and discussing with management the Company's Code of Business Conduct and Ethics and anti-fraud program (if any) and the actions taken to monitor and enforce compliance.
- (x) Establishing procedures for:
  - (i) the receipt, retention and treatment of complaints regarding accounting, internal controls or auditing matters, including reviewing and discussing Whistleblower Policy with management; and
  - (ii) the confidential, anonymous submission by employees of the Company of concerns regarding questionable accounting, internal controls or auditing matters.
- (y) Reviewing and discussing with management, the external auditors and the head of internal audit (if any) the responsibilities and effectiveness of the Company's internal audit function (if any), including reviewing the internal audit mandate, independence, organizational structure, internal audit plans and adequacy of

resources, receiving periodic internal audit reports and meeting privately with the head of internal audit on a periodic basis.

- (z) Approving in advance the retention and dismissal of the head of internal audit.

**Other**

- (aa) Reporting regularly to the Board, as applicable.
- (bb) Reviewing and assessing its mandate and recommending any proposed changes to the Compensation, Governance and Nominating Committee of the Board on an annual basis.
- (cc) Evaluating the functioning of the Committee on an annual basis, including with reference to the discharge of its mandate, with the results to be reported to the Compensation, Governance and Nominating Committee, which shall report to the Board.
- (dd) Review periodically, together with the Compensation, Governance and Nominating Committee, the directors' and officers' liability insurance and indemnities of the Company and consider the adequacy of such coverage.

Approved by the Board of Directors on October 21, 2020