QuantumScape®

Q1 FISCAL 2023

LETTER TO SHAREHOLDERS

APRIL 26, 2023

Dear shareholders,

At the close of the first quarter of 2023, we're pleased to share an update on our progress toward commercialization of our solid-state lithium-metal battery technology.

Customer Prototype Testing

Last year, we shipped a variety of prototype cells for testing to prospective automotive and consumer electronics customers, including 24-layer A0s to the automotive sector and zero externally applied pressure single-layer cells to the consumer electronics sector.

We are happy to report that planned testing of 24-layer A0 prototype cells at one automotive customer is now complete, and final results are in line with what we reported in our last shareholder letter. Most cells performed very well, meeting performance targets on fast charge and generally showing good cycling capacity retention and high Coulombic efficiency, with capacity loss of less than 1% per 100 cycles; however, we have work to do to improve reliability as we transition from prototype to commercial product. We have already identified and begun executing a number of initiatives to improve the quality and uniformity of our materials and processes, which we believe will lead to better reliability as we continue to progress toward a commercial product.

Similarly, on the consumer electronics front, we're pleased that customer testing of zero externally applied pressure single-layer prototype cells is also complete, with the cells generally performing very well on a broad range of electrical performance and characterization tests, including cycle life, resistance, storage life, and tests at multiple rates and temperatures, though as previously discussed, we have work to do on reliability. As with the automotive 24-layer A0 tests, these single-layer cells displayed less than 1% capacity loss per 100 cycles. The results of these independent tests provide validation of what we have seen in our own labs.

We continue to see consumer electronics as an attractive market, and our zero externally applied pressure capability gives us optionality to pursue consumer electronics alongside our automotive development efforts. We believe our technology presents an attractive set of properties for consumer electronics applications, and we continue to engage with some of the largest consumer electronics players in the world.

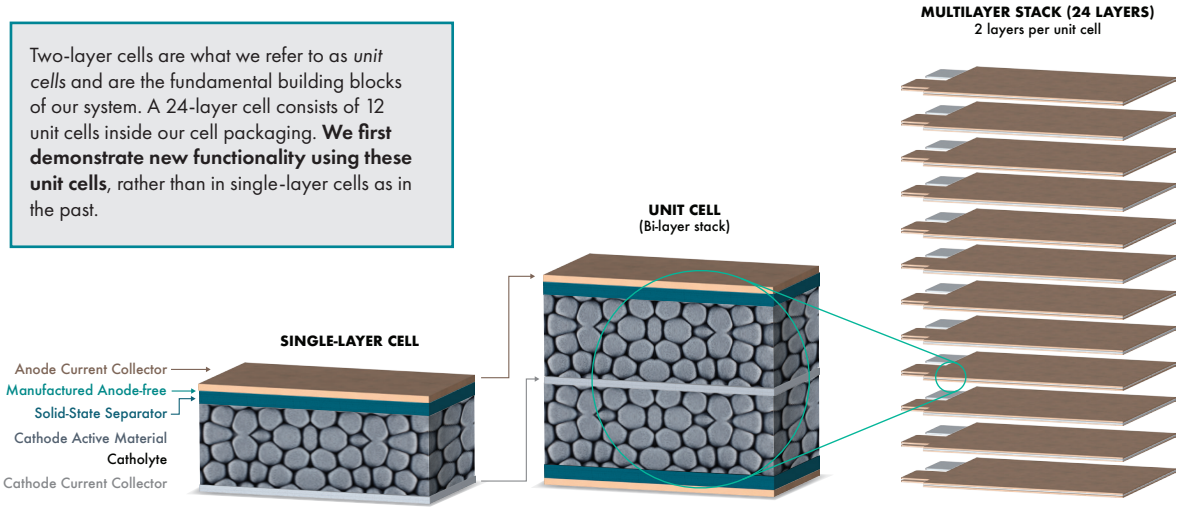
Technical Development

In our last shareholder letter, we laid out the key goals we have targeted this year, goals designed to facilitate our transition from technology demonstrations to commercial product. One of these goals was to introduce a higher cathode loading, which contributes to better energy density.

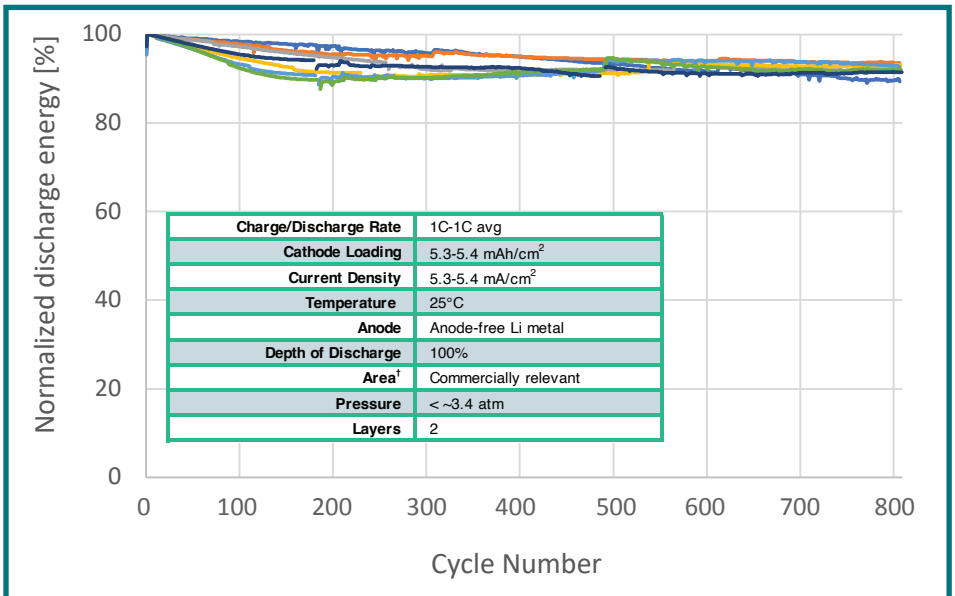
Previously, we have demonstrated cells with cathode loadings of approximately 3 mAh/cm^2. We expect to use a similar loading for our power cells, but believe we can achieve even higher cathode loading, in the range of 5 mAh/cm^2, for our energy cells.[1] We believe this level of cathode loading, together with other improvements such as enhanced packaging efficiency, would enable our cells to exceed the energy density of the conventional cells used in a number of leading EVs.[2]

[1] Based on loading of the cathode and its porosity, lithium-ion cells can be optimized either for power (i.e., charge/discharge rates) or for energy (i.e., in the automotive context, vehicle range; in the consumer electronics context, device runtime on a single charge).
[2] The 2170 cylindrical cell used in several leading EVs has an energy density of ~715-750 Wh/L, as reported by Batemo.

There are two main challenges with making higher-loading cathodes. The first is to manufacture these cathodes with the necessary quality and consistency while retaining the ability to deliver sufficient power. The second is to maintain performance even at the higher current densities that go along with higher cathode loading – approximately 60% higher than the previous ~3 mAh/cm^2 cathodes.



We are excited to report that we have already made and tested two-layer unit cells with these higher-loading cathodes and, as the following chart shows, these unit cells demonstrate very good cycling capacity retention at high, one-hour (1C) average charge/discharge rates – consistent with the data we have previously published from cells with ~3 mAh/cm^2 cathodes. These new results correspond to a current density of >5 mA/cm^2 – we are not aware of other lithium-metal, anode-free cells with such high capacity capable of cycling at these current densities for over 800 cycles at room temperature.

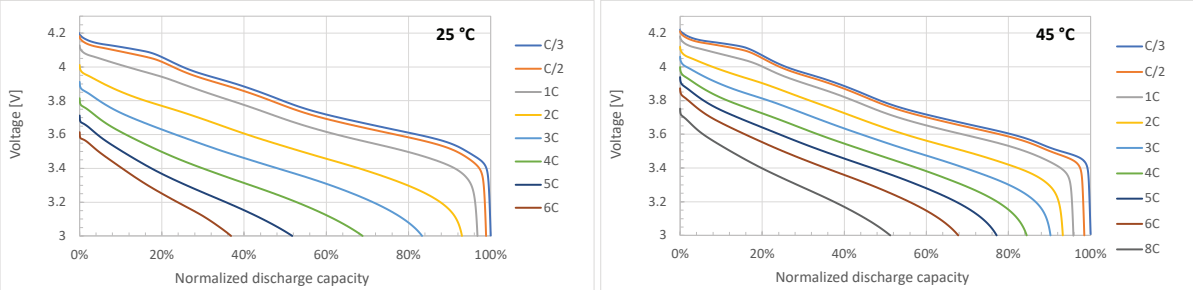


†Commercially relevant dimensions may vary from 60x75 mm to 70x85 mm depending on cell format

Energy retention remains high in unit cells cycling at 1C rates and room temperature with higher cathode loadings above 5mAh/cm^2.

We believe an important benefit of our solid-state lithium-metal system is the ability to increase cathode loading without imposing severe restrictions on power performance. Because our cells don't require an anode host material and instead strip lithium directly off the anode, we can bypass the diffusion bottlenecks associated with both pulling lithium out of a host material (such as graphite) and transporting it through the anode, as would be the case in conventional lithium-ion batteries. Therefore, we believe we can deliver high power even in a high-energy cell design, a combination that lends itself well to high-performance applications.

As the following charts show, in unit cells with high-loading cathodes, we've demonstrated sustained discharge rates of ~5C at 25 °C and as high as 8C at 45 °C while still accessing ~50% of the battery's nominal capacity. For context, in a vehicle with a 100 kWh battery pack and the voltage profile shown on the right-hand chart below, 8C translates to an average power of ~700 kW, the equivalent of more than 900 horsepower.[3]



Discharge curves from cells with high cathode loading (~ 5mAh/cm^2) at 25 °C and 45 °C at varying rates. The point at which each curve crosses the x-axis represents the amount of accessible capacity at that C-rate.

Product Development

As a result of our customer engagement across the automotive and consumer electronics sectors, we believe there is a significant market opportunity for a cell that combines high energy density and high power. To enable a commercial product that can serve either application on the shortest timetable, we are targeting a single-track, dual-purpose design that we believe presents an attractive value proposition for both automotive and consumer electronics applications.

We now have a target for our first commercial product: a 24-layer cell with a capacity of approximately 5 amp-hours. For reference, the 2170 battery used in several leading EV models has a typical capacity of ~4.5—5 Ah. We believe this initial product design makes the most efficient use of our resources and represents the fastest path to market, while delivering a product that presents a compelling combination of energy and power.

Importantly, this planned commercial product design uses the same layer count and similar separator area as the 24-layer A0 prototype cells we have already shipped to customers, de-risking these aspects of the product development process. This allows us to focus on integrating the key remaining functionality, including a higher loading cathode (~5 mAh/cm^2) and more efficient packaging, as well as improved reliability, all key goals we set out for 2023. We also expect this first product to take advantage of our new fast separator production process.

[3] The formula used to estimate power in this case is $\left(\frac{3.34V}{3.81V}\right) \times 100\ kWh \times \left(\frac{8}{hour}\right) = 701\ kW$, which is nominally equivalent to 940 horsepower.

Now that we have line of sight to this first commercial product, we can begin finalizing equipment designs for upgraded higher-volume production on our consolidated QS-0 pre-pilot line. There are several important development steps between now and our ultimate goal of commercial production, including the items we have laid out as goals for this year. As we incorporate these improvements, our near-term work will concentrate on a sequence of evolutionary builds and customer samples that are intended to serve as stepping stones between A0 and our final commercial design. Beyond this initial product, our longer-term roadmap includes higher-capacity designs with more layers and larger separator areas, which we expect to enable energy densities closer to the theoretical maximum of our system.

Manufacturing Progress

One key to our current production plan for QS-0 is our new fast separator production process, as discussed in our last shareholder letter. We currently plan to deploy this fast process in two stages: the first stage, targeted for later this year, is designed to triple throughput using similar equipment to our existing line, and will support production of additional A- and initial low-volume B-sample candidate cells on our QS-0 line. **Installation of this first-stage equipment is already underway, and we aim to complete installation, qualify the equipment, and deploy this first stage into initial production this year.** The second stage targets even higher throughput to support higher-volume QS-0 production and requires new equipment. We are already operating prototype versions of this second-stage equipment and are working toward final equipment specifications.

Improving the reliability of finished cells is another of our key goals for the year. We believe reliability in our system is a function of defect reduction, and our reliability effort is focused on improving the quality and consistency of our materials and processes. We have a number of initiatives underway to reduce defectivity and have incorporated many of these improvements in our system already. As an example, a material used during the separator heat treatment step was identified as a source of particle contamination. We have begun the transition to a different material and are already seeing encouraging results in reducing particle counts and improving quality and consistency.

We have also completed construction of our new safety testing facility. We believe our technology offers the potential for improved safety because it has a lower organic content than conventional cells and replaces the polymer separator with a noncombustible ceramic solid-electrolyte separator. Of course, safety can only be demonstrated through extensive testing. Our new facility will allow us to conduct a broad range of safety tests and collect data about our cells' performance under abuse conditions.

Financial Outlook

For the first quarter 2023, capital expenditures were $28M. GAAP operating expenses were $110M. Cash operating expenses, defined as operating expenses less stock-based compensation and depreciation, were $63M. For the full-year 2023, we reiterate our guidance on capital expenditures of $100M to $150M and cash operating expenses of $225M to $275M.

During Q1, our capex primarily went toward facility spend for our consolidated QS-0 pre-production line. We also procured equipment for our fast separator production process as well as our new cell safety test lab. For the remainder of the year, our capex will continue to be allocated toward facility work and equipment for our consolidated QS-0 pre-production line. On cash opex, we continue to make progress on ongoing cost savings initiatives.

We ended Q1 with just over $1B in liquidity. We continue to look for opportunities to optimize opex and capex spending and be prudent with our strong balance sheet. We reiterate our guidance that our cash runway is forecast to extend into the second half of 2025. Any funds raised from capital markets activity, including under our recently filed ATM prospectus supplement, would further extend this cash runway.

Strategic Outlook

2023 is about turning the corner from technology demonstrations toward a commercial product. This represents a phase transition, both in the history of our company and in the nature of our development work.

As always, we emphasize that continuing to improve quality, consistency and throughput of our manufacturing processes and increasing reliability of finished cells is not a trivial task. It requires an ongoing and systematic process of identifying and addressing issues, working with material and equipment suppliers, and iterating through new processes and cell designs.

Yet facing the challenges of scaling up is also a rare privilege. Historically, many incipient battery technologies failed well before this point, often because their basic electrochemical system did not have the intrinsic capabilities necessary to meet customer requirements. These intrinsic performance characteristics are not by themselves sufficient for commercialization, but they are necessary, and we believe attempting to scale before proving this core functionality is putting the cart before the horse.

Therefore, it's always motivating to see results from customer testing that validate the core capabilities of our technology. Based on results like these, we believe it's possible to produce a commercial product using our solid-state lithium-metal platform that simultaneously achieves high energy density and high power capability, starting with a 24-layer ~5 Ah cell.

Though we have much more work to do as we progress through our roadmap, we believe the work we have done so far has established a solid foundation and that we are closer than ever to our first-generation solid-state battery product.

Thank you for your support, and we look forward to reporting on our continued progress next quarter.

Jagdeep Singh
Founder, CEO & Chairman

Kevin Hettrich
CFO

QuantumScape Corporation
Condensed Consolidated Balance Sheets (Unaudited)
(In Thousands, Except per Share Amounts)

	March 31, 2023	December 31, 2022
Assets		
Current assets		
Cash and cash equivalents ($3,427 and $3,395 as of March 31, 2023 and December 31, 2022, respectively, for joint venture)	$ 241,210	$ 235,393
Marketable securities	741,939	826,340
Prepaid expenses and other current assets	11,476	10,591
Total current assets	994,625	1,072,324
Property and equipment, net	311,358	295,934
Right-of-use assets - finance lease	27,295	28,013
Right-of-use assets - operating lease	59,566	60,782
Other assets	18,330	18,353
Total assets	$ 1,411,174	$ 1,475,406
Liabilities, redeemable non-controlling interest and stockholders' equity		
Current liabilities		
Accounts payable	$ 17,195	$ 21,420
Accrued liabilities	10,395	7,477
Accrued compensation and benefits	9,269	13,061
Operating lease liability, short-term	3,987	3,478
Finance lease liability, short-term	2,677	1,373
Total current liabilities	43,523	46,809
Operating lease liability, long-term	61,481	62,560
Finance lease liability, long-term	37,300	38,005
Other liabilities	10,161	8,488
Total liabilities	152,465	155,862
Redeemable non-controlling interest	1,720	1,704
Stockholders' equity		
Preferred stock	—	—
Common stock	44	44
Additional paid-in-capital	3,809,459	3,771,181
Accumulated other comprehensive loss	(12,355)	(17,873)
Accumulated deficit	(2,540,159)	(2,435,512)
Total stockholders' equity	1,256,989	1,317,840
Total liabilities, redeemable non-controlling interest and stockholders' equity	$ 1,411,174	$ 1,475,406

QuantumScape Corporation
Condensed Consolidated Statements of Operations and Comprehensive Loss (Unaudited)
(In Thousands, Except per Share Amounts)

	Three Months Ended March 31,	
	2023	2022
Operating expenses:		
Research and development	$ 76,941	$ 61,345
General and administrative	33,037	29,312
Total operating expenses	109,978	90,657
Loss from operations	(109,978)	(90,657)
Other income (loss):		
Interest expense	(600)	(600)
Interest income	6,277	816
Other income (expense)	(330)	88
Total other income	5,347	304
Net loss	(104,631)	(90,353)
Less: Net income (loss) attributable to non-controlling interest, net of tax of $0	16	(1)
Net loss attributable to common stockholders	$ (104,647)	$ (90,352)
Net loss	$ (104,631)	$ (90,353)
Other comprehensive income (loss):		
Unrealized gain (loss) on marketable securities	5,518	(11,616)
Total comprehensive loss	(99,113)	(101,969)
Less: Comprehensive income (loss) attributable to non-controlling interest	16	(1)
Comprehensive loss attributable to common stockholders	$ (99,129)	$ (101,968)
Basic and Diluted net loss per share	$ (0.24)	$ (0.21)
Basic and Diluted weighted-average common shares outstanding	440,085	429,335

QuantumScape Corporation
Condensed Consolidated Statements of Cash Flows (Unaudited)
(In Thousands)

	Three Months Ended March 31,	
	2023	2022
Operating activities		
Net loss	$ (104,631)	$ (90,353)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	9,505	4,724
Amortization of right-of-use assets and non-cash lease expense	1,933	1,792
Amortization of premiums and accretion of discounts on marketable securities	(2,176)	2,185
Stock-based compensation expense	37,990	28,481
Other	599	560
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	(862)	2,082
Accrued compensation and benefits	(7,554)	(1,289)
Accounts payable and accrued liabilities	3,446	3,957
Operating lease liability and other	(569)	460
Net cash used in operating activities	(62,319)	(47,401)
Investing activities		
Purchases of property and equipment	(28,012)	(39,294)
Proceeds from maturities of marketable securities	191,043	218,500
Proceeds from sales of marketable securities	1,477	13,113
Purchases of marketable securities	(100,422)	(183,892)
Net cash provided by investing activities	64,086	8,427
Financing activities		
Proceeds from exercise of stock options	4,050	1,287
Net cash provided by financing activities	4,050	1,287
Net increase (decrease) in cash, cash equivalents and restricted cash	5,817	(37,687)
Cash, cash equivalents and restricted cash at beginning of period	252,916	338,223
Cash, cash equivalents and restricted cash at end of period	$ 258,733	$ 300,536
Supplemental disclosure of cash flow information		
Purchases of property and equipment, not yet paid	$ 13,437	$ 7,754

Net Loss to Adjusted EBITDA

Adjusted EBITDA is a non-GAAP supplemental measure of operating performance that does not represent and should not be considered an alternative to operating loss or cash flow from operations, as determined by GAAP. Adjusted EBITDA is defined as net income (loss) before interest expense, non-controlling interest, revaluations, impairments, stock-based compensation and depreciation and amortization expense. We use Adjusted EBITDA to measure the operating performance of our business, excluding specifically identified items that we do not believe directly reflect our core operations and may not be indicative of our recurring operations. Adjusted EBITDA may not be comparable to similarly titled measures provided by other companies due to potential differences in methods of calculations. A reconciliation of Adjusted EBITDA to net loss is as follows:

($ in Thousands)	Three Months Ended March 31,	
	2023	2022
GAAP net income (loss) attributable to Common Stockholders	**$ (104,647)**	**$ (90,352)**
Interest expense (income), net	(5,677)	(216)
Other expense (income), net	330	(88)
Net gain (loss) attributable to non-controlling interests	16	(1)
Stock-based compensation	37,990	28,481
Non-GAAP operating loss	**$ (71,988)**	**$ (62,176)**
Depreciation and amortization expense	9,505	4,724
Adjusted EBITDA	**$ (62,483)**	**$ (57,452)**

Management's Use of Non-GAAP Financial Measures

This letter includes certain non-GAAP financial measures as defined by SEC rules. These non-GAAP financial measures are in addition to, and not a substitute for or superior to, measures of financial performance prepared in accordance with U.S. GAAP. There are a number of limitations related to the use of these non-GAAP financial measures versus their nearest GAAP equivalents. For example, other companies may calculate non-GAAP financial measures differently or may use other measures to evaluate their performance, all of which could reduce the usefulness of our non-GAAP financial measures as tools for comparison. We urge you to review the reconciliations of our non-GAAP financial measures to the most directly comparable U.S. GAAP financial measures set forth in this letter, and not to rely on any single financial measure to evaluate our business.

Forward-Looking Statements

This letter contains forward-looking statements within the meaning of the federal securities laws and information based on management's current expectations as of the date of this letter. All statements other than statements of historical fact contained in this letter, including statements regarding the future development of the Company's battery technology, the anticipated benefits of the Company's technologies and the performance of its batteries, plans and objectives for future operations, forecasted cash usage, including spending and investment, are forward-looking statements. When used in this letter, the words "may," "will," "estimate," "aim," "pro forma," "expect," "plan," "believe," "focus," "potential," "predict," "target," "should," "would," "could," "continue," "project," "intend," "anticipates," "reiterate," "seek," "working toward," "progress toward," "prospective" the negative of such terms and other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. These forward-looking statements are based on management's current expectations, assumptions, hopes, beliefs, intentions, and strategies regarding future events and are based on currently available information as to the outcome and timing of future events.

These forward-looking statements involve significant risks and uncertainties that could cause the actual results to differ materially from the expected results. Many of these factors are outside the Company's control and are difficult to predict. Factors that may cause such differences include but are not limited to ones listed here. The Company faces significant challenges in its attempts to develop a solid-state battery cell and produce it at high volumes and may not be able to successfully develop its solid-state battery cell or build high volumes of multilayer cells in commercially relevant area and with higher layer count. The Company could encounter significant delays and/or technical challenges in replicating the performance seen in its single-layer and early multilayer cells, in achieving the high quality, consistency, reliability, safety, cost, and throughput required for commercial production and sale (e.g., unanticipated contamination issues), and in developing a cell architecture that meets all the technical requirements. The Company has encountered delays and other obstacles in acquiring, installing and operating new manufacturing equipment for automated and/or continuous-flow processes, including vendor delays and other supply chain disruptions and challenges in optimizing its complex manufacturing processes. The Company may encounter delays and cost overruns in hiring the engineers it needs to expand its development and production efforts, delays in building out or scaling up QS-0, and delays in establishing supply relationships for necessary materials, components or equipment. Delays in increasing production of engineering samples have slowed the Company's development efforts in the past. These or other sources of delay could impact our delivery of A-samples and B-samples and delay or prevent successful commercialization of our products. Delays or difficulties in meeting technical milestones or scaling up QS-0 could cause prospective customers and joint venture partners not to purchase cells from our pre-production line or not to proceed with a manufacturing joint venture. The Company may be unable to adequately control the costs associated with its operations and the components necessary to build its solid-state battery cells at competitive prices. The Company's spending may be higher than currently anticipated. The Company may not be successful in competing in the battery market industry or establishing and maintaining confidence in its long-term business prospects among current and future partners and customers. The Company is at an early stage of testing its battery technology for use in consumer electronics applications, and we may discover technical or other hurdles that impede our ability to serve that market. The Company cautions that the foregoing list of factors is not exclusive. The Company cautions readers not to place undue reliance upon any forward-looking statements, which speak only as of the date made.

Except as otherwise required by applicable law, the Company disclaims any duty to update any forward-looking statements. Should underlying assumptions prove incorrect, actual results and projections could differ materially from those expressed in any forward-looking statements. Additional information concerning these and other factors that could materially affect the Company's actual results can be found in the Company's periodic filings with the SEC. The Company's SEC filings are available publicly on the SEC's website at www.sec.gov.