Management's Discussion & Analysis

For the fiscal year ended May 31, 2019

BIOQUAL, INC.

Prepared by:

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MANAGEMENT'S DISCUSSION AND ANALYSIS

Newly adopted accounting pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers* (Topic 606), and related amendments, which superseded all prior revenue recognition methods and industry-specific guidance. The core principle of Topic 606 is that an entity should recognize revenue to depict the transfer of control for promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In applying the revenue principles, an entity is required to identify the contract(s) with a customer, identify the performance obligations, determine the transaction price, allocate the transaction price to the performance obligations and recognize revenue when the performance obligation is satisfied (i.e., either over time or point in time). Topic 606 further requires that companies disclose sufficient information to enable users of financial statements to understand the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers.

Topic 606 provides companies an option of two transition methods, the full retrospective method, in which case the standard would be applied to each prior reporting period presented and the cumulative effect of applying the standard would be recognized at the earliest period shown, or the modified retrospective method, in which case the cumulative effect of applying the standard would be recognized at the date of initial application. The ASU is effective for annual reporting periods beginning after December 15, 2017.

Effective June 1, 2018 (beginning of fiscal year 2019), the Company adopted the requirements of Topic 606 using the modified retrospective method. The guidance was not applied to contracts that were complete at May 31, 2018, and the comparative information for the prior fiscal year has not been retrospectively adjusted.

The adoption of Topic 606 did not have a material impact on the Company's financial statements. The Company recorded a $207,211 increase to its beginning retained earnings as the cumulative impact of adoption of the new revenue standard. The primary impact of the new standard was on certain fixed-price-milestone type contracts, on which the Company previously recognized revenue primarily using the latest milestone achieved and under Topic 606 are recognized using a different over-time output measure which was considered to more effectively measure the progress on uncompleted milestones. Additionally, certain fixed-price type contracts had previously recognized contract components on a separate basis and these components are now combined under Topic 606 into a single performance obligation, as they are not capable of being distinct under the new guidance. Furthermore, certain contract fulfillment costs associated with these fixed-price - milestone contracts are considered incremental and require capitalization and amortization over the expected customer life under Topic 606. The adoption of Topic 606 did not have a significant impact on the Company's revenue recognition policy for other types of contracts since revenues on the substantial majority of the Company's contracts continue to be recognized over time and use the same measure of progress that was applicable under prior standards. As a result of applying the modified retrospective method to adopt the new guidance, the following adjustments were made on the balance sheet as of June 1, 2018:

	As Reported May 31, 2018	Adjustments	As Adjusted June 1, 2018
Assets:			
Accounts receivable - unbilled	$ 1,924,063	$ (5,304)	$ 1,918,759
Prepaid expenses	400,026	328,804	728,830
Liabilities:			
Deferred revenue	$ 365,014	$ 116,289	$ 481,303
Stockholders' Equity:			
Retained earnings	$ 15,740,999	$ 207,211	$ 15,948,210

In adopting Topic 606, the Company elected to use certain practical expedients permitted by the standard including using the portfolio approach where contracts with similar characteristics were assessed collectively to evaluate risk over the impact of Topic 606. The Company also elected to adopt the right-to-invoice practical expedient on cost-reimbursable, time-and-materials, and fixed-price-per-unit contracts where the Company recognizes revenues as it is contractually able to invoice the customer based on the control transferred to the customer.

Items of Note

In fiscal year 2019, which ended on May 31, 2019, the Company realized net income of $2,830,875 compared to net income of $3,662,070 for fiscal year 2018, for reasons discussed in the results of operations section below.

During the first quarter of fiscal year 2019, the National Institute of Allergy and Infectious Diseases (the “NIAID”) notified the Company of the awards of Task Order “Immunogenicity Testing of A Salmonella Paratyphi A Vaccine in Mice” under Part A and Task Order “Refinement of a Pig-Tail Macaque Model of Gonococcal Infection” under Part B of the Pre-Clinical Models of Infectious Diseases Master Contract (the “PCMID Contract”). The Part A task order totals $125,064 and is funded to cover costs incurred through December 9, 2019. The Part B task order totals $1,705,236 and is funded to cover costs incurred through November 23, 2019.

During the second quarter of fiscal year 2019, the NIAID notified the Company of the award of Task Order “Ferret Models for the Evaluation Vaccines and Vaccination Strategies” under Part A of the PCMID Contract. This is the third task order awarded under the PCMID Contract, and totals $2,392,250 including all options. The current funding under the task order is $858,192 to cover costs incurred through March 16, 2020. There are, however, no assurances that the Company will be awarded any other task orders under the PCMID Master Contract or that any options will be exercised.

During the fourth quarter of fiscal year 2019, the Company was awarded its 15th task order under the NIAID contract entitled “Simian Vaccine Evaluation Unit”. The task order, which is a twelve-month task order, entitled “Maintenance of Thirty (30) Nonhuman Primates” totals $149,740. Additionally, NIAID provided additional funding of $940,724 on existing task orders. The added funds are to cover costs incurred from May 1, 2019, to April 30, 2020. There are, however, no assurances that the NIAID will exercise options for additional work under either task order, or that the Company will be awarded any other task orders under this contract.

During the fiscal year, the NIAID provided $6,018,117 of incremental funding for an existing and new task order under the contract entitled "Housing and Maintenance of Non-Human Primates for NIAID-VRC." Subsequent to the end of the fiscal year, $2,600,000 of additional funding was provided. The new funding covers costs incurred through September 27, 2019. The five-year contract (which expires on September 27, 2019) has a maximum potential funding amount of $43,077,850 including all options. The contract's current total funding is $33,647,424. The Company believes the remaining $9,430,426 of unobligated contract amount is not likely to be exercised due to the relatively short period of time remaining on the contract.

On April 17, 2019, the Company held its Annual Meeting of Shareholders (the "Annual Meeting"). Set forth below are the proposals voted upon at the Annual Meeting and the final voting results.

As of the close of business on February 26, 2019, the record date for the Annual Meeting, 894,416 shares of the Company's common stock, par value $0.01 per share (the "Common Stock"), were outstanding and entitled to vote. 760,009 shares of Common Stock were voted in person or by proxy at the Annual Meeting, representing 85.0% percent of the shares entitled to be voted.

Proposal 1 – Election of Directors. The Company's shareholders elected each of the directors listed below to serve on the Board until the Company's next Annual Meeting of shareholders or until their successors have been duly elected or appointed, as set forth below.

Director	For	Withheld	Non Votes
Mark G. Lewis, Ph.D.	528,912	163,916	67,181
Charles C. Francisco	528,912	163,916	67,181
Charles F. Gauvin	528,912	163,916	67,181
Michael P. O'Flaherty	528,912	163,916	67,181
David B. Landon, Ph.D.	692,162	666	67,181
Vivek R. Shinde Patil, Ph.D.	692,112	716	67,181

Proposal 2 – Ratification of Independent Auditors. The Company's shareholders ratified the Company's selection of Aronson LLC to serve as the Company independent auditors for the fiscal year ending May 31, 2019.

For	Against	Abstain
579,698	172,611	7,700

Based on fiscal year 2018 earnings, the Board of Directors declared a cash dividend of $.60 per share for shareholders of record on September 19, 2018. The dividend was paid on October 10, 2018. This amount is the same amount per share as the preceding cash dividend paid on October 11, 2017.

Results of Operations

Results of Operations 2019 versus 2018

The $3,593,114 increase in revenues to $39,478,079, for fiscal year 2019, compared to $35,884,965 for fiscal year 2019, is primarily the result of increased activity in commercial contracts of approximately $3,267,000 and an increase in government contracts of approximately $660,000 compared to the previous fiscal year. The increase in revenues from commercial and government contracts was partially offset by a decrease in revenue generated from federal grants of approximately $340,000.

The $4,908,274 increase in contract operating expenses for fiscal year 2019, primarily reflects increases in expenses incurred of approximately $3,200,000 related to the purchase of nonhuman primates and other research animals, an increase in depreciation expense (resulting from the increase in capital expenditures in the current and previous fiscal years), facility maintenance, utilities, temporary labor and materials and supplies. Additionally, labor costs increased approximately $1,200,000 (a third of which is indirect labor) compared to similar costs incurred in the previous fiscal year. The increase in labor is a result of hiring additional staff to manage increasingly complex operational and regulatory issues involved in performing services for our clients. These positions are being added to improve the management and operations of on-going research projects as well as to add additional support for the Company’s infrastructure.

The $373,692 increase in G&A expenses primarily reflects the increases in consulting costs related to the implementation of and staff training on a new accounting system, implementation of revenue recognition procedures related to Topic 606 and updating the Company’s IT infrastructure, implementation of an automated research management system, and implementation of a new payroll/human resource system, all cloud-based technology. The increase was also affected by the monthly subscription costs related to the new accounting system.

The $1,688,852 decrease in operating income primarily reflects the larger increase in contract and G&A expenses than revenues. Contract and G&A expenses increased in a disproportionate amount compared to revenue due to several factors. The updates and additions described in the previous paragraph required a complete overhaul of the Company’s IT infrastructure. Also during the fiscal year, to take full advantage of the ongoing IT infrastructure upgrade, it was determined to replace the obsolete, but still functioning, telephone and security systems. There was a significant amount of one-time implementation and training costs related to the new systems as well as new continuing monthly costs.

Lastly, as described above, due to increasingly complex operational and regulatory issues affecting the services provided by the Company, there were several new non-revenue generating employees hired during the fiscal year.

Liquidity and Capital Resources

During fiscal year 2019, the Company directed approximately $1,868,000 towards capital expenditures compared to approximately $2,072,000 in fiscal year 2018. These expenditures were necessary to provide additional equipment and nonhuman primate (NHP) and rodent cages for research being performed in the Company’s laboratories. The Company has been able to continue to fund all of these expenditures through the use of available cash provided by the Company's operations.

During fiscal year 2020, the Company estimates the aggregate purchase price of equipment to upgrade older equipment, enhance its capabilities, add NHP and small animal caging, and to continue renovating animal housing space will total approximately $2,000,000.

The Company is obligated, as lessee, under non-cancelable operating leases covering its facilities and certain equipment at various dates through 2026. Rent expense for the fiscal year 2019 was approximately $3,316,000. As of May 31, 2019, the total of the future minimum rental payments is approximately $16,749,000 through 2026.

In December 2018, the Company entered into an eight-year office and laboratory lease located in Maryland with total lease payments of approximately $4,045,000. Total future lease payments on this lease are not included in the amount shown in the paragraph above due to ongoing lease negotiations to amend the lease effective date to a later date reflecting when the space will be ready for occupancy.

Other than the items mentioned above, the Company does not anticipate substantial capital and other expenditures during fiscal year 2020. However, if the Company is awarded new contracts that require additional equipment or animal enclosures during that period, the Company believes it will have sufficient capital resources to provide for the purchase of the equipment.

BIOQUAL has a $2,000,000 line of credit with M&T Bank available to help cover costs of its daily operations. The line of credit is due on demand and renewable annually. As of May 31, 2019, there was no balance due on the line of credit. The interest rate on funds drawn on the line of credit is the prime rate plus .25%, which as of May 31, 2019, was 5.75%. On May 31, 2019, the Company had a balance of cash and cash equivalents of $9,207,608. As part of the funding of the February 2014 acquisition of the Advanced Biosciences Laboratories, Inc. *in-vivo* animal model services-related business, the Company obtained a $1,500,000 note from M&T Bank. The term note was payable in 60 monthly payments of $28,087.40. The final payment was made on February 28, 2019. With the above line of credit and the cash resources expected to be available as a result of collection of accounts receivable, the Company believes it will have sufficient capital resources to provide for daily operations and its capital needs through the end of fiscal year 2019.

The following provides additional information on select balance sheet items: 1) the $2,163,597 increase in accounts receivable primarily reflects an increase in unbilled accounts receivable reflecting completed contract services and milestones in certain contracts providing for payments that had not been billed as of May 31, 2019; 2) the $134,078 increase in prepaid expenses primarily reflects deposits for the purchase of nonhuman primate and ferret cages; 3) the $491,997 decrease in accounts payable primarily reflects lower balances due to subcontractors ($444,000) compared to similar balances due on May 31, 2018; and 4) the $95,382 decrease in deferred revenue primarily reflects decreases due to the adoption of Topic 606 and meeting certain milestones for which advance payments had previously been received on certain commercial contracts. Refer to the Statements of Consolidated Cash Flows on Pages 7 and 8 of the Audited Financial Statements for the years ended May 31, 2019 and 2018 for further detail related to the changes in cash and cash equivalents.

Forward Looking Information

Statements herein that are not descriptions of historical facts are forward-looking and subject to risks and uncertainties. Actual results could differ materially from those currently anticipated due to a number of factors including risks relating to the ability to continue to extend current government contracts; the Company’s ability to obtain new government or commercial contracts; continued demand for the use of animal models in scientific research; the Company’s ability to perform under its contracts in accordance with the requirements of the contracts; the actual costs incurred in performing the Company’s contracts and its ability to manage its costs, including its capital expenditures; dependence on third parties; future capital needs; the ability to fund its capital needs through the use of its cash on hand and line of credit; and the future availability and cost of financing/capital sources to the Company.