

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

**FORM 10-Q**

**QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended **March 31, 2019**  
**OR**

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 001-35312

**CHF SOLUTIONS, INC.**

(Exact Name of Registrant as Specified in its Charter)

Delaware  
(State or Other Jurisdiction of Incorporation or Organization)

No. 68-0533453  
(I.R.S. Employer Identification No.)

12988 Valley View Road, Eden Prairie, MN 55344  
(Address of Principal Executive Offices) (Zip Code)

(952) 345-4200  
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

| Title of each class                        | Trading Symbol(s) | Name of each exchange on which registered |
|--------------------------------------------|-------------------|-------------------------------------------|
| Common Stock, par value \$0.0001 per share | CHFS              | Nasdaq Capital Market                     |

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes  No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

|                                                           |                                                               |
|-----------------------------------------------------------|---------------------------------------------------------------|
| Large accelerated filer <input type="checkbox"/>          | Accelerated filer <input type="checkbox"/>                    |
| Non-accelerated filer <input checked="" type="checkbox"/> | Smaller reporting company <input checked="" type="checkbox"/> |
| Emerging growth company <input type="checkbox"/>          |                                                               |

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes  No

The number of outstanding shares of the registrant's common stock, \$0.0001 par value, as of May 6, 2019 was 2,268,320

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PART I—FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

CHF SOLUTIONS, INC. AND SUBSIDIARIES  
*Condensed Consolidated Balance Sheets*  
(In thousands, except share and per share amounts)

|                                                                                                                                                                                                                  | March 31,<br>2019<br>(unaudited) | December 31,<br>2018 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|
| <b>ASSETS</b>                                                                                                                                                                                                    |                                  |                      |
| <b>Current assets</b>                                                                                                                                                                                            |                                  |                      |
| Cash and cash equivalents                                                                                                                                                                                        | \$ 11,489                        | \$ 5,480             |
| Accounts receivable                                                                                                                                                                                              | 622                              | 786                  |
| Inventory                                                                                                                                                                                                        | 1,790                            | 1,658                |
| Other current assets                                                                                                                                                                                             | 350                              | 203                  |
| <b>Total current assets</b>                                                                                                                                                                                      | <b>14,251</b>                    | <b>8,127</b>         |
| Property, plant and equipment, net                                                                                                                                                                               | 518                              | 536                  |
| Operating lease right-of-use asset                                                                                                                                                                               | 574                              | —                    |
| Other assets                                                                                                                                                                                                     | 20                               | 113                  |
| <b>TOTAL ASSETS</b>                                                                                                                                                                                              | <b>\$ 15,363</b>                 | <b>\$ 8,776</b>      |
| <b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>                                                                                                                                                                      |                                  |                      |
| <b>Current liabilities</b>                                                                                                                                                                                       |                                  |                      |
| Accounts payable                                                                                                                                                                                                 | \$ 1,202                         | \$ 1,133             |
| Accrued compensation                                                                                                                                                                                             | 831                              | 1,498                |
| Current portion of operating lease liability                                                                                                                                                                     | 171                              | —                    |
| Other current liabilities                                                                                                                                                                                        | 228                              | 209                  |
| <b>Total current liabilities</b>                                                                                                                                                                                 | <b>2,432</b>                     | <b>2,840</b>         |
| Operating lease liability                                                                                                                                                                                        | 403                              | -                    |
| <b>Total liabilities</b>                                                                                                                                                                                         | <b>2,835</b>                     | <b>2,840</b>         |
| Commitments and contingencies                                                                                                                                                                                    | —                                | —                    |
| <b>Stockholders' equity</b>                                                                                                                                                                                      |                                  |                      |
| Series A junior participating preferred stock as of March 31, 2019 and December 31, 2018, par value \$0.0001 per share; authorized 30,000 shares, none outstanding                                               | —                                | —                    |
| Series F convertible preferred stock as of March 31, 2019 and December 31, 2018, par value \$0.0001 per share; authorized 535 and 535 shares, respectively, issued and outstanding 535 and 535, respectively     | —                                | —                    |
| Series G convertible preferred stock as of March 31, 2019 and December 31, 2018, par value \$0.0001 per share; authorized 810,142 and 0 shares, respectively, issued and outstanding 810,142 and 0, respectively | —                                | —                    |
| Preferred stock as of March 31, 2019 and December 31, 2018, par value \$0.0001 per share; authorized 39,159,323 and 39,969,465 shares, none outstanding                                                          | —                                | —                    |
| Common stock as of March 31, 2019 and December 31, 2018, par value \$0.0001 per share; authorized 100,000,000 shares, issued and outstanding 2,069,020 and 513,445, respectively                                 | —                                | —                    |
| Additional paid-in capital                                                                                                                                                                                       | 215,422                          | 204,101              |
| Accumulated other comprehensive income:                                                                                                                                                                          |                                  |                      |
| Foreign currency translation adjustment                                                                                                                                                                          | 1,221                            | 1,223                |
| Accumulated deficit                                                                                                                                                                                              | (204,115)                        | (199,388)            |
| <b>Total stockholders' equity</b>                                                                                                                                                                                | <b>12,528</b>                    | <b>5,936</b>         |
| <b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>                                                                                                                                                                | <b>\$ 15,363</b>                 | <b>\$ 8,776</b>      |

See notes to the condensed consolidated financial statements.

**CHF SOLUTIONS, INC. AND SUBSIDIARIES**  
*Condensed Consolidated Statements of Operations and Comprehensive Loss*  
**(Unaudited)**  
(In thousands, except per share amounts)

|                                                         | <b>Three months ended</b> |                   |
|---------------------------------------------------------|---------------------------|-------------------|
|                                                         | <b>March 31,</b>          |                   |
|                                                         | <b>2019</b>               | <b>2018</b>       |
| <b>Net sales</b>                                        | \$ 1,215                  | \$ 1,037          |
| <b>Costs and Expenses:</b>                              |                           |                   |
| Cost of goods sold                                      | 612                       | 901               |
| Selling, general and administrative                     | 4,018                     | 4,011             |
| Research and development                                | 1,310                     | 479               |
| Total costs and expenses                                | <u>5,940</u>              | <u>5,391</u>      |
| Loss from operations                                    | <u>(4,725)</u>            | <u>(4,354)</u>    |
| Loss before income taxes                                | (4,725)                   | (4,354)           |
| Income tax expense                                      | (2)                       | —                 |
| <b>Net loss</b>                                         | <u>\$ (4,727)</u>         | <u>\$ (4,354)</u> |
| <b>Basic and diluted loss per share</b>                 | <u>\$ (11.47)</u>         | <u>\$ (15.12)</u> |
| Weighted average shares outstanding – basic and diluted | 805                       | 288               |
| <b>Other comprehensive income:</b>                      |                           |                   |
| Foreign currency translation adjustments                | \$ (2)                    | \$ 1              |
| <b>Total comprehensive loss</b>                         | <u>\$ (4,729)</u>         | <u>\$ (4,353)</u> |

See notes to the condensed consolidated financial statements.

CHF SOLUTIONS, INC. AND SUBSIDIARIES

*Condensed Consolidated Statements of Stockholders' Equity*

(In thousands, except share amounts)

|                                                 | Outstanding<br>Shares of<br>Common<br>Stock | Common<br>Stock | Additional<br>Paid in<br>Capital | Accumulated<br>Other<br>Comprehensive<br>Income | Accumulated<br>Deficit | Stockholders'<br>Equity |
|-------------------------------------------------|---------------------------------------------|-----------------|----------------------------------|-------------------------------------------------|------------------------|-------------------------|
| <b>Balance December 31, 2017</b>                | <b>271,357</b>                              | <b>\$ —</b>     | <b>\$ 197,367</b>                | <b>\$ 1,227</b>                                 | <b>\$ (182,356)</b>    | <b>\$ 16,238</b>        |
| Net loss                                        | —                                           | —               | —                                | —                                               | (4,354)                | (4,354)                 |
| Foreign currency translation adjustment         | —                                           | —               | —                                | 1                                               | —                      | 1                       |
| Stock-based compensation and stock awards, net  | 3                                           | —               | 501                              | —                                               | —                      | 501                     |
| Conversion of preferred stock into common stock | 32,365                                      | —               | —                                | —                                               | —                      | —                       |
| <b>Balance March 31, 2018</b>                   | <b>303,725</b>                              | <b>\$ —</b>     | <b>\$ 197,868</b>                | <b>\$ 1,228</b>                                 | <b>\$ (186,710)</b>    | <b>\$ 12,386</b>        |

|                                                 | Outstanding<br>Shares of<br>Common<br>Stock | Common<br>Stock | Additional<br>Paid in<br>Capital | Accumulated<br>Other<br>Comprehensive<br>Income | Accumulated<br>Deficit | Stockholders'<br>Equity |
|-------------------------------------------------|---------------------------------------------|-----------------|----------------------------------|-------------------------------------------------|------------------------|-------------------------|
| <b>Balance December 31, 2018</b>                | <b>513,445</b>                              | <b>\$ —</b>     | <b>\$ 204,101</b>                | <b>\$ 1,223</b>                                 | <b>\$ (199,388)</b>    | <b>\$ 5,936</b>         |
| Net loss                                        | —                                           | —               | —                                | —                                               | (4,727)                | (4,727)                 |
| Foreign currency translation adjustment         | —                                           | —               | —                                | (2)                                             | —                      | (2)                     |
| Stock-based compensation, net                   | 3                                           | —               | 362                              | —                                               | —                      | 362                     |
| Issuance of common and preferred stock, net     | 455,178                                     | —               | 10,959                           | —                                               | —                      | 10,959                  |
| Conversion of preferred stock into common stock | 1,100,394                                   | —               | —                                | —                                               | —                      | —                       |
| <b>Balance March 31, 2019</b>                   | <b>2,069,020</b>                            | <b>\$ —</b>     | <b>\$ 215,422</b>                | <b>\$ 1,221</b>                                 | <b>\$ (204,115)</b>    | <b>\$ 12,528</b>        |

See notes to the condensed consolidated financial statements

**CHF SOLUTIONS, INC. AND SUBSIDIARIES**  
**Condensed Consolidated Statements of Cash Flows**  
**(Unaudited)**  
(in thousands)

|                                                                               | <b>Three months ended</b> |                  |
|-------------------------------------------------------------------------------|---------------------------|------------------|
|                                                                               | <b>March 31,</b>          |                  |
|                                                                               | <b>2019</b>               | <b>2018</b>      |
| <b>Operating Activities:</b>                                                  |                           |                  |
| Net loss                                                                      | \$ (4,727)                | \$ (4,354)       |
| Adjustments to reconcile net loss to cash flows used in operating activities: |                           |                  |
| Depreciation and amortization                                                 | 59                        | 54               |
| Stock-based compensation expense, net                                         | 362                       | 500              |
| Changes in operating assets and liabilities:                                  |                           |                  |
| Accounts receivable                                                           | 164                       | (113)            |
| Inventory                                                                     | (132)                     | (937)            |
| Other current assets                                                          | (147)                     | 6                |
| Other assets and liabilities                                                  | 112                       | —                |
| Accounts payable and accrued expenses                                         | (598)                     | (192)            |
| <b>Net cash used in operating activities</b>                                  | <b>(4,907)</b>            | <b>(5,036)</b>   |
| <b>Investing Activities:</b>                                                  |                           |                  |
| Purchases of property and equipment                                           | (41)                      | (57)             |
| <b>Net cash used in investing activities</b>                                  | <b>(41)</b>               | <b>(57)</b>      |
| <b>Financing Activities:</b>                                                  |                           |                  |
| Net proceeds from public stock offering, net                                  | 10,959                    | —                |
| <b>Net cash provided by financing activities</b>                              | <b>10,959</b>             | <b>—</b>         |
| Effect of exchange rate changes on cash                                       | (2)                       | 2                |
| Net increase (decrease) in cash and cash equivalents                          | 6,009                     | (5,091)          |
| Cash and cash equivalents - beginning of period                               | 5,480                     | 15,595           |
| <b>Cash and cash equivalents - end of period</b>                              | <b>\$ 11,489</b>          | <b>\$ 10,504</b> |
| <b>Supplemental cash flow information</b>                                     |                           |                  |
| Cash paid for income taxes                                                    | \$ —                      | \$ —             |

See notes to the condensed consolidated financial statements.

**CHF SOLUTIONS, INC. AND SUBSIDIARIES**  
**Notes to Condensed Consolidated Financial Statements**  
(Unaudited)

**Note 1 – Nature of Business and Basis of Presentation**

*Nature of Business:* CHF Solutions, Inc. (the “Company”) is a medical device company focused on commercializing the Aquadex FlexFlow® system for aquapheresis therapy. The Aquadex FlexFlow system (Aquadex) is indicated for temporary (up to eight hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and extended (longer than 8 hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and require hospitalization. CHF Solutions, Inc. is a Delaware corporation headquartered in Minneapolis with wholly owned subsidiaries in Australia, Ireland and Delaware. The Company has been listed on Nasdaq since February 2012.

Previously, the Company was focused on developing the C-Pulse® Heart Assist System for treatment of Class III and ambulatory Class IV heart failure. In August 2016, the Company acquired the business associated with the Aquadex FlexFlow system (herein referred to as the “Aquadex Business”) from a subsidiary of Baxter International, Inc. (“Baxter”), and refocused its strategy to fully devote its resources to the Aquadex Business.

In December 2018, the Company’s stockholders approved a reverse split of its outstanding common stock at a ratio in the range of 1-for-2 to 1-for 14 and, in January 2019, the board of directors approved a 1-for-14 reverse split of the Company’s outstanding common stock that became effective after trading on January 2, 2019. In addition, during 2017, the Company’s stockholders and board of directors approved two reverse stock splits. The first reverse stock split was a 1-for-30 reverse split of the Company’s outstanding common stock that became effective after trading on January 12, 2017. The second reverse stock split was a 1-for-20 reverse split of the Company’s outstanding common stock that became effective after trading on October 12, 2017. These reverse stock splits did not change the par value of the Company’s common stock or the number of common or preferred shares authorized by the Company’s Fourth Amended and Restated Certificate of Incorporation. All share and per-share amounts have been retroactively adjusted to reflect the reverse stock splits for all periods presented.

*Principles of Consolidation:* The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) for interim financial information and with the instructions to Form 10-Q and Article 8 of Regulation S-X. Certain information and note disclosures normally included in the audited annual consolidated financial statements have been condensed or omitted pursuant to those rules and regulations. Accordingly, they do not include all of the information necessary for a fair presentation of results of operations, comprehensive loss, financial condition, and cash flows in conformity with U.S. GAAP. In the opinion of management, the condensed consolidated financial statements reflect all adjustments (consisting of normal recurring adjustments) considered necessary for a fair presentation of the results of the Company for the periods presented. Operating results for interim periods are not necessarily indicative of results that may be expected for the year as a whole. The preparation of the financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and the related disclosures at the date of the financial statements and during the reporting period. Actual results could materially differ from these estimates.

For further information, refer to the consolidated financial statements and notes thereto included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2018.

*Going Concern:* The Company’s financial statements have been prepared and presented on a basis assuming it continues as a going concern. During the years ended December 31, 2018 and 2017 and through March 31, 2019, the Company incurred losses from operations and net cash outflows from operating activities as disclosed in the consolidated statements of operations and cash flows, respectively. As of March 31, 2019, the Company had an accumulated deficit of \$204.1 million and it expects to incur losses for the immediate future. To date, the Company has been funded by debt and equity financings, and although the Company believes that it will be able to successfully fund its operations, there can be no assurance that it will be able to do so or that it will ever operate profitably. These factors raise substantial doubt about the Company’s ability to continue as a going concern through the next twelve months.

The Company became a revenue generating company after acquiring the Aquadex Business in August 2016. The Company expects to incur additional losses in the near-term as it grows the Aquadex Business, including investments in expanding its sales and marketing capabilities, purchasing inventory, manufacturing components, and complying with the requirements related to being a U.S. public company. To become and remain profitable, the Company must succeed in expanding the adoption and market acceptance of the Aquadex FlexFlow. This will require the Company to succeed in training personnel at hospitals and effectively and in efficiently manufacturing, marketing and distributing the Aquadex FlexFlow and related components. There can be no assurance that the Company will succeed in these activities, and it may never generate revenues sufficient to achieve profitability.

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On April 24, 2017, November 27, 2017, July 3, 2018, and March 12, 2019, the Company closed on underwritten public equity offerings for aggregate net proceeds of approximately \$39.8 million after deducting the underwriting discounts and commissions and other costs associated with the offerings (see Note 4 – Equity). The Company will require additional funding to grow its Aquadex Business, which may not be available on terms favorable to the Company, or at all. The Company may receive those funds from the proceeds from future warrant exercises, issuances of equity securities, or other financing transactions. Should warrant exercises not materialize or future capital raising be unsuccessful, the Company may not be able to continue as a going concern. No adjustments have been made relating to the recoverability and classification of recorded asset amounts and classification of liabilities that might be necessary should the Company not continue as a going concern.

*Revenue Recognition:* The Company recognizes revenue in accordance with Accounting Standards Codification (“ASC”), Topic 606, *Revenue from Contracts with Customers*, which the Company adopted effective January 1, 2018. Accordingly, the Company recognizes revenue when its customers obtain control of its products or services, in an amount that reflects the consideration that the Company expects to receive in exchange for those goods and services. See Note 2 – Revenue Recognition, for disclosures.

*Accounts Receivable:* Accounts receivable are unsecured, are recorded at net realizable value, and do not bear interest. The Company makes judgments as to its ability to collect outstanding receivables based upon significant patterns of collectability, historical experience, and managements’ evaluation of specific accounts and will provide an allowance for credit losses when collection becomes doubtful. The Company performs credit evaluations of its customers’ financial condition on an as-needed basis. Payment is generally due 30 days from the invoice date and accounts past 30 days are individually analyzed for collectability. When all collection efforts have been exhausted, the account is written off against the related allowance. To date the Company has not experienced any write-offs or significant deterioration of the aging of its accounts receivable, and therefore, no allowance for doubtful accounts was considered necessary as of March 31, 2019 or December 31, 2018.

*Inventories:* Inventories represent finished goods purchased from the Company’s supplier and are recorded as the lower of cost or net realizable value using the first-in-first out method. Overhead is allocated to manufactured finished goods inventory based on the normal capacity of the company’s production facilities. Abnormal amounts of overhead, if any, are expensed as incurred. Inventories consisted of the following:

| <i>(in thousands)</i> | <b>March 31,<br/>2019</b> | <b>December 31,<br/>2018</b> |
|-----------------------|---------------------------|------------------------------|
| Finished Goods        | \$ 623                    | \$ 517                       |
| Work in Process       | 91                        | 34                           |
| Raw Materials         | 1,076                     | 1,107                        |
| Total                 | <u>\$ 1,790</u>           | <u>\$ 1,658</u>              |

*Contingent consideration:* In connection with the Company’s purchase of the Aquadex Business in August 2016, the Company has an obligation to pay additional consideration that is contingent upon the occurrence of certain future events (see Note 9 - Commitments and Contingencies). Contingent consideration was recognized at the acquisition date at the estimated fair value of the contingent milestone payments. The fair value of the contingent consideration is remeasured to its estimated fair value at the end of each reporting period, with changes recorded to earnings. The fair value of the contingent consideration is recorded in current liabilities in the accompanying balance sheets to reflect its maturity during 2019.

*Loss per share:* Basic loss per share is computed based on the net loss for each period divided by the weighted average number of common shares outstanding. The net loss allocable to common stockholders for the three months ended March 31, 2019, reflects a \$4.5 million increase for the net deemed dividend to preferred stockholders provided in connection with the close of the public offering of Series G Convertible Preferred Stock on March 12, 2019 (see Note 4 - Equity), representing the intrinsic value of the shares at the time of issuance.

Diluted earnings per share is computed based on the net loss allocable to common stockholders for each period divided by the weighted average number of common shares outstanding, increased by the number of additional shares that would have been outstanding had the potentially dilutive common shares been issued, and reduced by the number of shares the Company could have repurchased from the proceeds from issuance of the potentially dilutive shares. Potentially dilutive shares of common stock include shares underlying outstanding convertible preferred stock, warrants, stock options and other stock-based awards granted under stock-based compensation plans.

The following table sets forth the potential shares of common stock that are not included in the calculation of diluted net loss per share because to do so would be anti-dilutive as of the end of each period presented:

|                                      | <b>March 31</b>  |                |
|--------------------------------------|------------------|----------------|
|                                      | <b>2019</b>      | <b>2018</b>    |
| Warrants to purchase common stock    | 5,330,721        | 608,787        |
| Series G convertible preferred stock | 810,142          | -              |
| Series F convertible preferred stock | 102,185          | 59,432         |
| Stock options                        | 138,104          | 142,537        |
| Restricted stock units               | -                | 12             |
| Total                                | <u>6,381,152</u> | <u>810,768</u> |

The following table reconciles reported net loss with reported net loss per share for the three months ended March 31, 2019:

| <i>(in thousands, except per share amounts)</i>        | <b>Three months</b> |
|--------------------------------------------------------|---------------------|
| Net loss                                               | \$ (4,727)          |
| Deemed dividend to preferred shareholders (see Note 4) | (4,508)             |
| Net loss after deemed dividend                         | (9,235)             |
| Weighted average shares outstanding                    | 805                 |
| Basic and diluted loss per share                       | <u>\$ (11.47)</u>   |

**New Accounting Pronouncements:** In February 2016, the Financial Accounting Standards Board (“FASB”) issued updated guidance to improve financial reporting about leasing transactions. This guidance required organizations that lease assets to recognize on the balance sheet the assets and liabilities for the rights and obligations created by those leases. The original guidance required application on a modified retrospective basis with the earliest period presented. In August 2018, the FASB issued new guidance which included an option to not restate comparative periods in transition. The Company’s adopted this new standard on January 1, 2019 with no retrospective adjustments to prior comparative periods. The adoption of this standard resulted in an increase of approximately \$0.6 million in the Company’s other long-term assets and in short and long-term liabilities recorded on its March 31, 2019 consolidated balance sheet. In addition, the Company elected the package of practical expedients permitted under the transition guidance within the new standard which allowed it to carry forward the historical lease classification. See Note 7 –Operating Leases for additional qualitative and quantitative disclosures

## **Note 2 – Revenue Recognition**

### **Net Sales**

The Company sells its products in the United States primarily through a direct sales force. Customers who purchase the Company’s products include hospitals and clinics throughout the United States. In countries outside the United States, the Company sells its products through a limited number of specialty healthcare distributors in the United Kingdom, Italy, Spain, Germany, Southeast Asia, Brazil and India. These distributors resell the Company’s products to hospitals and clinics in their respective geographies.

Revenue from product sales are recognized when the customer or distributor obtains control of the product, which occurs at a point in time, most frequently upon shipment of the product or receipt of the product, depending on shipment terms. The Company’s standard shipping terms are FOB shipping point, unless the customer requests that control and title to the inventory transfer upon delivery. Revenue includes shipment and handling fees charged to customers.

Revenue is measured as the amount of consideration we expect to receive, adjusted for any applicable estimates of variable consideration and other factors affecting the transaction price, which is based on the invoiced price, in exchange for transferring products. All revenue is recognized when we satisfy our performance obligations under the contract. The majority of our contracts have a single performance obligation and are short term in nature. The Company has entered into extended service plans with customers which are recognized over time. This revenue represents less than 1% of net sales for the three months ended March 31, 2019 and 2018. The unfulfilled performance obligations related to these extended service plans is included in deferred revenue, which is included in other current liabilities on the condensed consolidated balance sheet. The majority of the deferred revenue is expected to be recognized within one year.

Sales taxes and value added taxes in foreign jurisdictions that are collected from customers and remitted to governmental authorities are accounted for on a net basis and therefore are excluded from net sales. Revenue includes shipment and handling fees charged to customers. Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of goods sold.

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*Product Returns:* The Company offers customers a limited right of return for its product in case of non-conformity or performance issues. The Company estimates the amount of its product sales that may be returned by its customers and records this estimate as a reduction of revenue in the period the related product revenue is recognized. The Company currently estimates product return liabilities using available industry data and its own historical sales and returns information. The Company has not received any returns to date and believes that future returns of its products will be minimal. Therefore, revenue recognized is not currently impacted by variable consideration related to product returns.

**Note 3 - Debt**

On August 5, 2016, the Company entered into a loan and security agreement with Silicon Valley Bank (the Bank). Under this agreement, the Bank agreed to provide the Company with up to \$5.0 million in debt financing, consisting of a term loan in an aggregate original principal amount not to exceed \$4.0 million (the "Term Loan") and a revolving line of credit in an aggregate principal amount not to exceed \$1.0 million outstanding at any time (the "Revolving Line"). Proceeds from the loans were to be used for general corporate and working capital purposes. Advances under the Term Loan were available to the Company until November 30, 2016 and were subject to the Company's compliance with liquidity covenants. The Term Loan expired unused on November 30, 2016 and the Term Loan is no longer available to be drawn. Advances under the Revolving Line are available to the Company until March 31, 2020 and accrue interest at a floating annual rate equal to 1.75% or 1.0% above the prime rate, depending on liquidity factors. Outstanding borrowings, if any, are collateralized by all of the Company's assets, excluding intellectual property which is subject to a negative pledge. There were no borrowings outstanding under this facility as of March 31, 2019 or December 31, 2018.

**Note 4 - Equity**

*Series F Convertible Preferred Stock:* On November 27, 2017, the Company closed on an underwritten public offering of Series F convertible preferred stock and warrants to purchase shares of common stock for gross proceeds of \$18.0 million. Net proceeds totaled approximately \$16.2 million after deducting the underwriting discounts and commissions and other costs associated with the offering.

The offering was comprised of Series F convertible preferred stock, convertible into shares of the Company's common stock at an initial conversion price of \$63.00 per share. Each share of Series F preferred stock was accompanied by a Series 1 warrant, which was to expire on the first anniversary of its issuance, to purchase 16 shares of the Company's common stock at an exercise price of \$63.00 per share, and a Series 2 warrant, which expires on the seventh anniversary of its issuance, to purchase 16 shares of the Company's common stock at an exercise price of \$63.00 per share. The Series F preferred stock and the warrants were immediately separable and were issued separately. The conversion price of the Series F preferred stock will be adjusted in the event of a stock split, combination, reclassification or stock dividend or if the Company consummates a fundamental transaction. The Series F preferred stock also has full ratchet price based anti-dilution protection, subject to customary carve outs, in the event of a down-round financing at a price per share below the conversion price of the Series F preferred stock (which protection will expire if, during any 20 of 30 consecutive trading days, the volume weighted average price of the Company's common stock exceeds 300% of the then-effective conversion price of the Series F preferred stock and the daily dollar trading volume for each trading day during such period exceeds \$200,000). The exercise price of the warrants is fixed and does not contain any variable pricing features, nor any price based anti-dilutive features, apart from customary adjustments for stock splits, combinations, reclassifications, stock dividends or fundamental transactions. A total of 18,000 shares of Series F Convertible Preferred Stock initially convertible into 286,714 shares of common stock and warrants to purchase approximately 573,310 shares of common stock were issued in the offering.

As noted below, effective July 3, 2018, the conversion price of the Series F convertible preferred stock was reduced from \$63.00 to \$29.68, the per share price to public in the July 2018 Offering described below. Effective March 12, 2019, the conversion price of the Series F convertible preferred stock was reduced again from \$29.68 to \$5.25, the per share price to the public of the Series G convertible preferred stock which closed in an underwritten public offering on March 12, 2019, and each share of the remaining Series F convertible preferred stock is convertible into 191 shares of the Company's common stock. As of March 31, 2019, and December 31, 2018, 535 shares of the Series F convertible preferred stock remained outstanding, respectively.

*July 2018 Offering:* On July 3, 2018, the Company closed on an underwritten public offering of 181,941 shares of its common stock at a public offering price of \$29.68 per share, for gross proceeds of \$5.4 million, including the full exercise of the underwriters' over-allotment option to purchase additional shares of the Company's common stock (the "July 2018 Offering"). Net proceeds totaled approximately \$4.6 million after deducting underwriting discounts and commissions and offering expenses.

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In connection with the July 2018 Offering, and to induce certain institutional investors who hold warrants issued by the Company in November 2017 (“November 2017 Warrants”) to participate in the July 2018 Offering, the Company entered into letter agreements with such institutional investors. Pursuant to the terms of these agreements, the Company agreed, effective July 3, 2018, to reduce the per share exercise price of the November 2017 Warrants held by such institutional investors to \$29.68 and to extend the expiration date of the warrants that were to expire on November 27, 2018 to November 27, 2019. The number of common shares underlying the warrants that were repriced did not change. The repriced warrants are exercisable for 554,322 shares of common stock in the aggregate, of which, following such amendment, half expire on November 27, 2019 and half expire on November 27, 2024. The repricing of the warrants was accounted as an equity financing cost, with no impact to net proceeds from the offering.

As noted above, the Company’s outstanding Series F preferred stock is subject to full-ratchet anti-dilution protection in the event the Company sells any common stock at a price lower than the then-conversion price of the Series F preferred stock. As a result of the July 2018 Offering, effective July 3, 2018, the conversion price of the Series F preferred stock was reduced from \$63.00 to \$29.68, the per share price to public in the July 2018 Offering.

*Series G Convertible Preferred Stock and March 2019 Offering:* On March 12, 2019, the Company closed on an underwritten public offering of common stock, Series G convertible preferred stock and warrants to purchase shares of common stock for gross proceeds of \$12.4 million, which included the full exercise of the underwriter’s over-allotment option to purchase additional shares and warrants (“March 2019 Offering”). Net proceeds totaled approximately \$11.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering. The Series G convertible preferred stock included a beneficial conversion amount of \$4.5 million, representing the intrinsic value of the shares at the time of issuance. This amount is reflected as an increase to the loss per share allocable to common stockholders in the three months ended March 31, 2019.

The March 2019 Offering was comprised of 455,178 shares of common stock priced at \$5.25 per share and 1,910,536 shares of Series G convertible preferred stock, convertible into common stock at \$5.25 per share. Each share of Series G convertible preferred stock and each share of common stock was accompanied by a Series 1 warrant and a Series 2 warrant. The Series 1 warrants are exercisable into 2,365,714 shares of common stock and the Series 2 warrants are exercisable into 2,365,714 shares of common stock. Series 1 warrants expire on the fifth anniversary of the date of issuance and are exercisable at \$5.25 to purchase one share of common stock. Series 2 warrants expire on the earlier of: (i) the eighteen-month anniversary of the date of issuance and (ii) the 30th trading day following the public announcement of the receipt from the U.S. Food and Drug Administration of clearance or approval of a modification to the product label for the Aquadex FlexFlow system to include pediatric patients. Series 2 warrants are exercisable at \$5.25 per share of common stock. The conversion price of the Series G convertible preferred stock as well as the exercise price of the warrants are fixed and do not contain any variable pricing features, nor any price based anti-dilutive features apart from customary adjustments for splits and reverse splits of common stock. The Series G convertible preferred stock included a beneficial ownership limitation of 4.99% but had no dividend preference (except to extent dividends are also paid on the common stock), liquidation preference or other preferences over common stock. The securities comprising the units were immediately separable and were issued separately.

As of March 31, 2019, 1,100,394 shares of the Series G convertible preferred stock had been converted into common stock and 810,142 remained outstanding.

As noted above, the Company’s outstanding Series F convertible preferred stock is subject to full-ratchet anti-dilution protection in the event the Company sells any common stock at a price lower than the then-conversion price of the Series F convertible preferred stock. As a result of the March 2019 offering, the conversion price of the Series F convertible preferred stock was reduced from \$29.68, to \$5.25, the per share price to public of the Series G convertible preferred stock.

*Placement Agent Fees:* In connection with the issuance of the Series F convertible preferred stock, the July 2018 offering, and the March 2019 Offering, the Company paid the placement agent an aggregate cash placement fee equal to 9%, 8% and 8%, respectively, of the aggregate gross proceeds raised in the offering and issued no warrants to the placement agent.

## **Note 5 - Stock-Based Compensation**

Under the fair value recognition provisions of U.S. GAAP for accounting for stock-based compensation, the Company measures stock-based compensation expense at the grant date based on the fair value of the award and recognizes the compensation expense over the requisite service period, which is generally the vesting period.

The following table presents the classification of stock-based compensation expense recognized for the periods below:

| (in thousands)                                | Three-months ended March 31, |               |
|-----------------------------------------------|------------------------------|---------------|
|                                               | 2019                         | 2018          |
| Selling, general and administrative expense   | \$ 326                       | \$ 450        |
| Research and development expense              | 36                           | 50            |
| <b>Total stock-based compensation expense</b> | <b>\$ 362</b>                | <b>\$ 500</b> |

#### Note 6 - Fair Value of Financial Instruments

The Company's financial instruments consist of cash and cash equivalents, warrants, and contingent consideration.

Pursuant to the requirements of ASC Topic 820 "Fair Value Measurement," the Company's financial assets and liabilities measured at fair value on a recurring basis are classified and disclosed in one of the following three categories:

- *Level 1* - Financial instruments with unadjusted quoted prices listed on active market exchanges.
- *Level 2* - Financial instruments lacking unadjusted, quoted prices from active market exchanges, including over the counter traded financial instruments. The prices for the financial instruments are determined using prices for recently traded financial instruments with similar underlying terms as well as directly or indirectly observable inputs, such as interest rates and yield curves that are observable at commonly quoted intervals.
- *Level 3* - Financial instruments that are not actively traded on a market exchange. This category includes situations where there is little, if any, market activity for the financial instrument. The prices are determined using significant unobservable inputs or valuation techniques.

The fair value of the Company's contingent consideration, as described in Note 1, was initially measured based on the consideration expected to be transferred (probability-weighted), discounted back to present value, and it is considered a Level 3 instrument. The discount rate used was determined at the time of measurement in accordance with accepted valuation methods. The Company measures the liability on a recurring basis using Level 3 inputs including probabilities of payment and projected payment dates. Changes to any of the inputs may result in significantly higher or lower fair value measurements. There were no changes in the fair value of the contingent consideration subsequent to the initial measurement.

All cash equivalents are considered Level 1 measurements for all periods presented. The Company does not have any financial instruments classified as Level 2 or any other classified as Level 3 and there were no movements between these categories during the periods ended March 31, 2019 and December 31, 2018. The Company believes that the carrying amounts of all remaining financial instruments approximate their fair value due to their relatively short maturities.

#### Note 7 – Operating Leases

The Company leases office and manufacturing space under a non-cancelable operating lease that expires in March 2022. In August 2018, the Company entered into a third amendment to the lease, extending the term of the lease from March 31, 2019 to March 31, 2022. Beginning on April 1, 2019, the annual base rent is \$9.00 per square foot, subject to annual increases of \$0.25 per square foot.

The cost components of the Company's operating lease were as follows for the three-month period ended March 31, 2019:

| (in thousands)       |           |           |
|----------------------|-----------|-----------|
| Operating lease cost | \$        | 49        |
| Variable lease cost  |           | 26        |
| <b>Total</b>         | <b>\$</b> | <b>75</b> |

Variable lease costs consist primarily of taxes, insurance, and common area or other maintenance costs for our leased office and manufacturing space.

Maturities of our lease liability for our operating lease are as follows as of March 31, 2019:

| <b>(in thousands)</b>                   |               |
|-----------------------------------------|---------------|
| 2019                                    | \$ 157        |
| 2020                                    | 213           |
| 2021                                    | 219           |
| 2022                                    | 55            |
| Total lease payments                    | 644           |
| Less: Interest                          | (70)          |
| <b>Present value of lease liability</b> | <b>\$ 574</b> |

As of March 31, 2019, the remaining lease term was 3 years and discount rate was 7.5%. For the three months ended March 31, 2019, the operating cash outflows from our operating lease for office and manufacturing space was \$49,000.

Rent expense related to operating leases for office and manufacturing space and office equipment was approximately \$52,000 for the three months ended March 31, 2018. Future minimum lease payments, under non-cancelable operating leases as of December 31, 2018, were approximately \$217,000, \$220,000, \$219,000, \$55,000, and \$0 for each of the years ended December 31, 2019, through 2023, respectively.

#### **Note 8 – Income Taxes**

The Company provides for a valuation allowance when it is more likely than not that it will not realize a portion of the deferred tax assets. The Company has established a full valuation allowance for U.S. and foreign deferred tax assets due to the uncertainty that enough taxable income will be generated in those taxing jurisdictions to utilize the assets. Therefore, the Company has not reflected any benefit of such deferred tax assets in the accompanying condensed consolidated financial statements.

As of March 31, 2019, there were no material changes to what the Company disclosed regarding tax uncertainties or penalties in its Annual Report on Form 10-K for the year ended December 31, 2018.

#### **Note 9—Commitments and Contingencies**

*Employee Retirement Plan:* The Company has a 401(k)-profit sharing plan that provides retirement benefit to substantially all full-time U.S. employees. Eligible employees may contribute a percentage of their annual compensation, subject to Internal Revenue Service (“IRS”) limitations, with the Company matching a portion of the employee’s contributions at the discretion of the Company.

*Contingent Consideration:* As part of the acquisition of the Aquadex Business from Baxter in August 2016, the Company agreed that if it disposes of any of the Aquadex assets for a price that exceeds \$4.0 million within three years of the closing, it will pay Baxter 40% of the amount of such excess. In addition, it also agreed that if shares of its common stock cease to be publicly traded on the Nasdaq Capital Market, Baxter has the option to require the Company to repurchase, in cash, all or any part of the common shares held by Baxter at a price equal to their fair market value, as determined by a third-party appraiser.

## **ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

*The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our interim condensed consolidated financial statements and related notes included in Part I, Item 1 of this Quarterly Report and the audited consolidated financial statements and related notes and Management’s Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K for the year ended December 31, 2018. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a variety of factors, including those discussed in Part I, Item 1A “Risk Factors,” in our Annual Report on Form 10-K for the year ended December 31, 2018 and in our subsequent filings with the Securities and Exchange Commission (SEC).*

Unless otherwise specified or indicated by the context, CHF Solutions, Company, we, us and our, refer to CHF Solutions, Inc. and its subsidiaries.

## OVERVIEW

### About CHF Solutions

We are a medical device company focused on commercializing the Aquadex FlexFlow® system for aquapheresis therapy. Aquadex FlexFlow System is indicated for temporary (up to eight hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and extended (longer than 8 hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and require hospitalization. In the United States, we hold 501(k) clearance from the FDA to market and sell the Aquadex FlexFlow system. In the European Union, we are required to hold a CE Mark to import our product into the EU. The CE Mark for the Aquadex FlexFlow system has expired; however, we expect to receive renewal by the latter half of 2019, which would allow us to import additional inventory into the EU. We believe that we currently have sufficient inventory already available for sale in the EU market and the timing of the receipt of the CE Mark will not have a material impact on our revenue.

Previously, the Company was focused on developing the C-Pulse® Heart Assist System for treatment of Class III and ambulatory Class IV heart failure. In August 2016, the Company acquired the business associated with the Aquadex FlexFlow system (herein referred to as the “Aquadex Business”) from a subsidiary of Baxter International, Inc. (“Baxter”) and refocused its strategy to fully devote its resources on the Aquadex Business.

On May 23, 2017, we announced that we were changing our name from Sunshine Heart, Inc. to CHF Solutions, Inc. to more appropriately reflect the direction of our business.

### Recent Developments

#### *Reverse Stock Splits*

In December 2018, our stockholders approved a reverse split of our outstanding common stock at a ratio in the range of 1-for-2 to 1-for-14 and, in January 2019, our board of directors approved a 1-for-14 reverse split of our outstanding common stock that became effective after trading on January 2, 2019. In addition, during 2017, our stockholders and board of directors approved two reverse stock splits. The first reverse stock split was a 1-for-30 reverse split of our outstanding common stock that became effective after trading on January 12, 2017. The second reverse stock split was a 1-for-20 reverse split of our outstanding common stock that became effective after trading on October 12, 2017. These reverse stock splits did not change the par value of our common stock or the number of common or preferred shares authorized by the Company’s Fourth Amended and Restated Certificate of Incorporation. All share and per-share amounts have been retroactively adjusted to reflect the reverse stock splits for all periods presented.

#### *Public Offering*

On March 12, 2019, we closed on an underwritten public offering of 455,178 shares of common stock, approximately 1.9 million shares of Series G Convertible Preferred Stock, and warrants to purchase approximately 4.7 million shares of common stock, which includes the full exercise of the underwriter’s over-allotment option, for gross proceeds of \$12.4 million. Net proceeds totaled approximately \$11.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering.

See Note 4 to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

## CRITICAL ACCOUNTING POLICIES AND ESTIMATES

We have adopted various accounting policies to prepare the condensed consolidated financial statements in accordance with accounting principles generally accepted in the United States. (U.S. GAAP). Our most significant accounting policies are disclosed in Note 1 to the consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2018.

The preparation of the condensed consolidated financial statements, in conformity with U.S. GAAP, requires us to make estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Our estimates and assumptions, including those related to stock-based compensation, valuation of equity and debt securities, and income tax reserves are updated as appropriate, which in most cases is quarterly. We base our estimates on historical experience, valuations, or various assumptions that are believed to be reasonable under the circumstances. There have been no material changes to our critical accounting policies and estimates from the information provided in Part II, Item 7, *Management’s Discussion and Analysis of Financial Condition and Results of Operations* included in our Annual Report on Form 10-K for the year ended December 31, 2018.

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*Revenue Recognition:* We recognize revenue in accordance with Accounting Standards Codification (“ASC”), Topic 606, *Revenue from Contracts with Customers*, which we adopted effective January 1, 2018. Accordingly, we recognize revenue when our customers obtain control of its products or services, in an amount that reflects the consideration that we expect to receive in exchange for those goods and services. See Note 2 – Revenue Recognition, included in Part I, Item 1 of this Quarterly Report, for additional accounting policies and transition disclosures.

*Accounts Receivable:* Our accounts receivable have terms that require payment in 30 days. We did not establish an allowance for doubtful accounts as of March 31, 2019 as we have not experienced any write offs or a deterioration in the aging of our receivables to date and do not expect to experience in the future.

*Inventories:* Inventories consist of finished goods, raw materials and subassemblies and are recorded as the lower of cost or net realizable value using the first-in-first out method.

*Contingent consideration:* In connection with the purchase of the Aquadex Business, we have an obligation to pay additional consideration that is contingent upon the occurrence of certain future events (see Note 9 to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q). Contingent consideration was recognized at the acquisition date at the estimated fair value of the contingent milestone payments. The fair value of the contingent consideration is remeasured to its estimated fair value at the end of each reporting period, with changes recorded to earnings.

*Stock-Based Compensation:* We recognize all share-based payments to employees and directors, including grants of stock options, restricted stock units (RSUs), warrants and common stock awards in the income statement as an operating expense based on their fair values over the requisite service period.

We compute the estimated fair values of stock options and warrants using the Black-Scholes option pricing model. Market price at the date of grant is used to calculate the fair value of restricted stock units and common stock awards.

Stock-based compensation expense is based on awards ultimately expected to vest and is reduced for estimated forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

Equity instruments issued to non-employees include RSUs, warrants or options to purchase shares of our common stock. These RSUs, warrants or options are either fully-vested and exercisable at the date of grant or vest over a certain period during which services are provided. We expense the fair market value of fully vested awards at the time of grant, and of unvested awards over the period in which the related services are received. Unvested awards are remeasured to fair value until they vest.

*Loss per share:* We compute basic loss per share based on the net loss allocable to common stockholders for each period divided by the weighted average number of common shares outstanding. The net loss allocable to common stockholders for the three months ended March 31, 2019, reflects a \$4.5 million increase for the net deemed dividend to preferred stockholders provided in connection with the close of the March 2019 public offering, representing the intrinsic value of the preferred shares at the time of issuance. Diluted earnings per share is computed based on the net loss allocable to common stockholders for each period divided by the weighted average number of common shares outstanding, increased by the number of additional shares that would have been outstanding had the potentially dilutive common shares been issued, and reduced by the number of shares the Company could have repurchased from the proceeds from issuance of the potentially dilutive shares. Potentially dilutive shares of common stock include warrants, stock options and other stock-based awards granted under stock-based compensation plans. These potentially dilutive shares were excluded from the computation of loss per share as their effect was antidilutive due to our net loss in each of those periods.

*Going Concern:* Our financial statements have been prepared and presented on a basis assuming we continue as a going concern. During the years ended December 31, 2018 and 2017, and through March 31, 2019, we incurred losses from operations and net cash outflows from operating activities as disclosed in the condensed consolidated statements of operations and cash flows, respectively. As of March 31, 2019, we had an accumulated deficit of \$204.1 million and we expect to incur losses for the immediate future. To date, we have been funded primarily by various debt and equity financings, and although we believe that we will be able to successfully fund our operations, there can be no assurance that we will be able to do so or that we will ever operate profitably. These factors raise substantial doubt about our ability to continue as a going concern through the next twelve months.

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We became a revenue generating company only after acquiring the Aquadex Business in August 2016. We expect to incur additional losses in the near-term as we grow the Aquadex Business, including investments in expanding our sales and marketing capabilities, purchasing inventory, manufacturing components, and complying with the requirements related to being a U.S. public company. To become and remain profitable, we must succeed in expanding the adoption and market acceptance of the Aquadex FlexFlow system. This will require us to succeed in training personnel at hospitals and in effectively and efficiently manufacturing, marketing and distributing the Aquadex FlexFlow system and related components. There can be no assurance that we will succeed in these activities, and we may never generate revenues sufficient to achieve profitability.

During 2017, 2018 and 2019, we closed on underwritten public equity offerings for net proceeds of approximately \$39.8 million after deducting the underwriting discounts and commissions and other costs associated with the offering. We may be required to seek additional funding to grow our Aquadex Business, which may not be available on terms favorable to us, or at all. We may receive those funds from the proceeds from future warrant exercises, issuances of equity securities, or other financing transactions. Should warrant exercises not materialize or future capital raising be unsuccessful, we may not be able to continue as a going concern. We have made no adjustments relating to the recoverability and classification of recorded asset amounts and classification of liabilities that might be necessary should we not continue as a going concern.

## NEW ACCOUNTING PRONOUNCEMENTS

Information regarding new accounting pronouncements is included in Note 1 to the condensed consolidated financial statements included in this Quarterly Report.

## FINANCIAL OVERVIEW

We are a medical device company focused on commercializing the Aquadex system for ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy. Activities since inception have consisted principally of raising capital, performing research and development and conducting preclinical and clinical studies. During 2016, we acquired the Aquadex Business and announced that we were halting all clinical evaluations of our prior technology, the C-Pulse System. Since then, our activities have consisted mainly of expanding our sales and marketing capabilities and transferring manufacturing capabilities from Baxter to our facilities in Eden Prairie, Minnesota. As of March 31, 2019, we had an accumulated deficit of \$204.1 million and we expect to incur losses for the foreseeable future. To date, we have been funded by public and private equity financings and debt. Although we believe that we will be able to successfully fund our operations, there can be no assurance that we will be able to do so or that we will ever operate profitably.

## Results of Operations

### Comparison of Three Months Ended March 31, 2019 to Three Months Ended March 31, 2018

#### Net Sales

(in thousands)

|    | Three Months Ended<br>March 31, 2019 | Three Months Ended<br>March 31, 2018 | Increase (Decrease) | % Change |
|----|--------------------------------------|--------------------------------------|---------------------|----------|
| \$ | 1,215                                | \$ 1,037                             | \$ 178              | 17.2%    |

Revenue is generated mainly from the sale of disposable blood filters and catheters used in conjunction with the Aquadex FlexFlow consoles. We sell primarily in the United States to hospitals and clinics through our direct salesforce. We sell outside of the United States to independent specialty distributors who in turn sell to hospitals and clinics in their geographic regions. The change in net sales compared to the same period of 2018 is driven by the execution of our commercialization strategy which includes continued expansion of our commercial footprint by the hiring of new sales representatives, clinical specialists, and marketing personnel.

#### Costs and Expenses

Our costs and expenses were as follows:

(in thousands)

|                                     | Three<br>Months Ended<br>March 31, 2019 | Three<br>Months Ended<br>March 31, 2018 | Increase (Decrease) | % Change |
|-------------------------------------|-----------------------------------------|-----------------------------------------|---------------------|----------|
| Cost of goods sold                  | \$ 612                                  | \$ 901                                  | \$ (289)            | (32.1)%  |
| Selling, general and administrative | \$ 4,018                                | \$ 4,011                                | \$ 7                | 0.2%     |
| Research and development            | \$ 1,310                                | \$ 479                                  | \$ 831              | 173.5%   |

### ***Cost of Goods Sold***

In connection with the acquisition of the Aquadex product line, we entered into a manufacturing and supply agreement with Baxter. We provided notice to Baxter to cease the manufacturing of the Aquadex product line in 2017, and we began transitioning activities in house. As part of the manufacturing transition, we agreed to continue to purchase inventory from Baxter through February 1, 2018. We began manufacturing our products in house in the fourth quarter of 2017, and in August 2018, we announced that the transfer of all manufacturing activities was complete.

Cost of sales in 2018 reflects the agreed-upon price paid to Baxter for the manufacturing of the disposables and consoles, as well as startup costs associated with the transfer of manufacturing activities to our facilities in Eden Prairie, Minnesota. In the first quarter of 2019, we transitioned to selling our internally manufactured inventory, driving the improvement in our gross margins. In 2019, we expect our gross margins will continue to improve as volumes increase and we achieve larger efficiencies of scale.

### ***Selling, General and Administrative***

The increase in selling, general and administrative expense reflect primarily on-going investment in our commercial organization as we continue to expand our outreach in the field with incremental sales specialists, clinical specialists and marketing support. Our general and administrative costs have remained consistent with the prior year.

As we continue to increase our distribution footprint, we expect that our selling expenses will continue to increase in future quarters, and that general and administrative expenses will remain consistent to the current quarter.

### ***Research and Development***

The increase in research and development expenses relate to investments we are making to improve the functionality of our Aquadex system, including console software updates and catheter improvements. We expect that our research and development expenditures will increase slightly in future quarters as we continue to make improvements to our product offerings.

### **Liquidity and Capital Resources**

#### ***Sources of Liquidity***

We have funded our operations primarily through cash on hand and a series of equity and debt issuances.

On July 26, 2016, pursuant to a Securities Purchase Agreement dated July 20, 2016, we completed an equity financing with an institutional investor of shares of Series B Convertible Preferred Stock and warrants for gross cash proceeds of approximately \$3.5 million in a registered direct offering and simultaneous private placement. Also, on October 30, 2016, we entered into securities purchase agreement with an institutional investor pursuant to which we agreed to issue shares of Series C Convertible Preferred Stock, Series D Convertible Preferred Stock and warrants with an aggregate purchase price of \$3.8 million in a registered direct offering and simultaneous private placement. The first closing occurred on November 3, 2016, whereby we received \$3.6 million in gross proceeds and issued and sold shares of Series C Convertible Preferred Stock, shares of Series D Convertible Preferred Stock and warrants. At the second closing in January 2017, which was subject to receipt of shareholder approval of the transactions, we received \$0.2 million in gross proceeds and issued and sold shares of Series D Convertible Preferred Stock and warrants.

In February 2017, we entered into an agreement with the holder of the majority of our outstanding warrants to incent their exercise of warrants for cash on or before March 31, 2017. In exchange for any such exercise, we agreed to provide the investors a replacement warrant to purchase the same number of shares of common stock as were issued upon exercise of each exercised warrants with an exercise price equal to the consolidated closing bid price of our common stock on the date of issuance. In connection with this agreement, the investors exercised all of the original warrants for gross cash proceeds to us of \$2.0 million, and we issued 3,105 replacement warrants with exercise prices ranging from \$484.40 per share to \$1,397.20 per share.

On April 24, 2017, we closed on an underwritten public offering for net proceeds of approximately \$8.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering, which included the full exercise of the underwriter's over-allotment option to purchase additional shares and warrants. In connection with this offering, we issued a total of 10,000 shares of common stock, 6,400 shares of Series E Convertible Preferred Stock (which were convertible into 22,857 shares of common stock) and warrants to purchase 32,165 shares of common stock.

On November 27, 2017, we closed on another underwritten public offering for net proceeds of approximately \$16.2 million after deducting the underwriting discounts and commissions and other costs associated with the offering. In connection with this offering we issued 18,000 shares of Series F Convertible Preferred stock (which were convertible into 286,714 shares of common stock) and warrants to purchase 573,310 shares of common stock. See Note 4 – Equity, to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

On July 3, 2018, we closed on an underwritten public offering of 181,941 shares of common stock, for gross proceeds of \$5.4 million. Net proceeds totaled approximately \$4.6 million after deducting the underwriting discounts and commissions and other costs associated with the offering. See Note 4 – Equity, to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

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On March 12, 2019, we closed on an underwritten public offering for net proceeds totaling approximately \$11.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering, which included the full exercise of the underwriter's over-allotment option to purchase additional shares and warrants. In connection with this offering, we issued a total of 455,178 shares of common stock, approximately 1.9 million shares of Series G convertible preferred stock and warrants to purchase approximately 4.7 million shares of common stock. See Note 4 – Equity, to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

On August 5, 2016, we entered into a loan agreement with Silicon Valley Bank for proceeds of up to \$5.0 million, including a \$1.0 million revolving line of credit and a \$4.0 million term loan. The term loan expired unused on November 30, 2016 and the term loan is no longer available to be drawn. Under the revolving line, we may borrow the lesser of \$1 million or 80% of our eligible accounts (subject to customary exclusions), minus the outstanding principal balance of any advances under the revolving line. Advances under the revolving line, if any, will accrue interest at a floating per annum rate equal to 1.75% or 1.0% above the prime rate, depending on liquidity factors. The loan agreement contains customary representations, as well as customary affirmative and negative covenants. Our obligations under the new loan agreement are secured by a security interest in our assets, excluding intellectual property and certain other exceptions. We are subject to a negative pledge covenant with respect to our intellectual property. Advances under the revolving line are subject to various conditions precedent, including our compliance with financial covenants relating to net liquidity relative to monthly cash burn. The revolving line of credit expires on March 31, 2020. We had no borrowings outstanding under the Silicon Valley Bank facility as of March 31, 2019 or December 31, 2018.

As of March 31, 2019, and December 31, 2018, cash and cash equivalents were \$11.5 million and \$5.5 million, respectively. Prior to our acquisition of the Aquadex Business in August 2016, we did not have a product approved for commercial sale and focused our resources on developing, manufacturing, and commercializing our C-Pulse System. Our business strategy and ability to fund our operations in the future depends in part on our ability to grow our Aquadex Business by establishing a sales force, selling our products to hospitals and other healthcare facilities and controlling costs. We believe that our cash on hand and proceeds from future warrant exercises will fund our operations until we reach profitability, although we may need to seek financing in the future.

### ***Cash Flows from Operating Activities***

Net cash used in operating activities was \$4.9 million for each of the three months ended March 31, 2019 and 2018, respectively. The net cash used in each of these periods primarily reflects the net loss for those periods, offset in part by stock-based compensation, depreciation and amortization, and the effects of changes in operating assets and liabilities.

### ***Cash Flows from Investing Activities***

Net cash used in investing activities was \$41,000 and \$57,000 for the three months ended March 31, 2019 and March 31, 2018, respectively. The majority of cash used in investing activities was for the purchase of manufacturing, laboratory and office equipment.

### ***Cash Flows from Financing Activities***

As described above, net cash provided by financing activities was \$11.0 million for the three months ended March 31, 2019. There was no net cash provided by financing activities during the three months ended March 31, 2018.

### ***Capital Resource Requirements***

As of March 31, 2019, we did not have any material commitments for capital expenditures.

### ***Off-Balance Sheet Arrangements***

On August 5, 2016, we entered into an asset purchase agreement for the Aquadex Business with Baxter, whereby we agreed that if we dispose of any of the acquired assets for a price that exceeds \$4.0 million within three years of the closing, we will pay Baxter 40% of the amount of such excess; and if shares of our common stock cease to be publicly traded on Nasdaq, Baxter has the option to require us to repurchase, in cash, all or any part of the common shares held by Baxter at a price equal to their fair market value, as determined by a third-party appraiser.

Except as disclosed above, we have no off-balance sheet transactions, arrangements, obligations (including contingent obligations), or other relationships with unconsolidated entities or other persons that have, or may have, a material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources

## **Forward-Looking Statements and Risk Factors**

Certain statements in this report are forward-looking statements that are based on management's beliefs, assumptions and expectations and information currently available to management. All statements that address future operating performance, events or developments that we expect or anticipate will occur in the future are forward-looking statements, including without limitation, our ability to execute on our recently announced strategic realignment, our post-market clinical data collection activities, benefits of our products to patients, our expectations with respect to product development and commercialization efforts, our ability to increase market and physician acceptance of our products, potentially competitive product offerings, intellectual property protection, our ability to integrate acquired businesses and our expectations regarding anticipated synergies with and benefits from acquired businesses. The risk factors described in our filings with the SEC could cause actual events to adversely differ from the expectations indicated in these forward-looking statements. Management believes that these forward-looking statements are reasonable as and when made. However, you should not place undue reliance on forward-looking statements because they speak only as of the date when made. CHF Solutions does not assume any obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. CHF Solutions may not actually achieve the plans, projections or expectations disclosed in forward-looking statements, and actual results, developments or events could differ materially from those disclosed in the forward-looking statements. Forward-looking statements are subject to a number of risks and uncertainties, including without limitation, the possibility that regulatory authorities do not accept our application or approve the marketing of our products, the possibility we may be unable to raise the funds necessary for the development and commercialization of our products, and those described in our filings with the SEC. We may update our risk factors from time to time.

## **ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

Not applicable.

## **ITEM 4. CONTROLS AND PROCEDURES**

### **Evaluation of Disclosure Controls and Procedures**

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer (together, the "*Certifying Officers*"), as appropriate, to allow for timely decisions regarding required disclosure.

In designing and evaluating disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable, not absolute, assurance of achieving the desired objectives. Also, the design of a control system must reflect the fact that there are resource constraints and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. The design of any system of controls is based, in part, upon certain assumptions about the likelihood of future events and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

As of March 31, 2019, the end of the period covered by this report, we conducted an evaluation, under the supervision and with the participation of management, including the Certifying Officers, of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended (the "*Exchange Act*"). Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their stated objectives. Based on their evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at a reasonable assurance level as of March 31, 2019.

### **Changes in Internal Controls over Financial Reporting**

There was no change in our internal control over financial reporting during our most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

**PART II—OTHER INFORMATION**

**ITEM 1. LEGAL PROCEEDINGS**

We are not currently subject to any material legal proceedings.

**ITEM 1A. RISK FACTORS**

You should carefully consider the risks and uncertainties we describe in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, and in other reports filed thereafter with the SEC, before deciding to invest in or retain shares of our common stock. We do not believe there are any material changes to the risk factors discussed in Item 1A. “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

**ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS**

Not applicable.

**ITEM 3. DEFAULTS UPON SENIOR SECURITIES**

Not applicable.

**ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.

**ITEM 5. OTHER INFORMATION**

None.

**ITEM 6. EXHIBITS**

The exhibits filed as part of this Quarterly Report on Form 10-Q are listed in the Exhibit Index below.

**Exhibit Index**  
**CHF Solutions, Inc.**  
**Form 10-Q for the Quarterly Period Ended March 31, 2019**

| <b>Exhibit Number</b> | <b>Exhibit Description</b>                                                                                                          | <b>Incorporated By Reference</b> |                    |                             | <b>Exhibit Number</b> | <b>Filed Herewith</b> | <b>Furnished Herewith</b> |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------|-----------------------------|-----------------------|-----------------------|---------------------------|
|                       |                                                                                                                                     | <b>Form</b>                      | <b>File Number</b> | <b>Date of First Filing</b> |                       |                       |                           |
| <a href="#">3.1</a>   | Fourth Amended and Restated Certificate of Incorporation                                                                            | 10                               | 001-35312          | February 1, 2012            | 3.1                   |                       |                           |
| <a href="#">3.2</a>   | Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation                                            | 8-K                              | 001-35312          | January 13, 2017            | 3.1                   |                       |                           |
| <a href="#">3.3</a>   | Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation                                            | 8-K                              | 001-35312          | May 23, 2017                | 3.1                   |                       |                           |
| <a href="#">3.4</a>   | Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation                                            | 8-K                              | 001-35312          | October 12, 2017            | 3.1                   |                       |                           |
| <a href="#">3.5</a>   | Form of Certificate of Designation of Preferences, Rights and Limitations of Series F Convertible Preferred Stock                   | S-1/A                            | 333-221010         | November 17, 2017           | 3.7                   |                       |                           |
| <a href="#">3.6</a>   | Certificate of Amendment to Fourth Amended and Restated Certificate of Incorporation, as amended, of CHF Solutions, Inc             | 8-K                              | 001-35312          | January 2, 2019             | 3.1                   |                       |                           |
| <a href="#">3.7</a>   | Certificate of Designation of Preferences, Rights and Limitations of Series G Convertible Preferred Stock                           | 8-K                              | 001-35312          | March 13, 2019              | 3.1                   |                       |                           |
| <a href="#">3.8</a>   | Second Amended and Restated Bylaws                                                                                                  | 8-K                              | 001-35312          | May 23, 2017                | 3.2                   |                       |                           |
| <a href="#">4.1</a>   | Form of Series 1 and Series 2 Warrant to purchase shares of common stock                                                            | S-1/A                            | 333-209102         | February 25, 2019           | 4.10                  |                       |                           |
| <a href="#">4.2</a>   | Warrant Agency Agreement, dated as of March 12, 2019, between CHF Solutions, Inc. and American Stock Transfer & Trust Company, LLC, | 8-K                              | 001-35312          | March 13, 2019              | 4.2                   |                       |                           |
| <a href="#">10.1</a>  | Underwriting Agreement, dated as of March 8, 2019, by and between CHF Solutions, Inc. and Ladenburg Thalmann & Co. Inc.             | 8-K                              | 001-35312          | March 13, 2019              | 1.1                   |                       |                           |

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| Exhibit Number       | Exhibit Description                                                                                                                                      | Incorporated By Reference |             |                      | Exhibit Number | Filed Herewith | Furnished Herewith |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------|----------------------|----------------|----------------|--------------------|
|                      |                                                                                                                                                          | Form                      | File Number | Date of First Filing |                |                |                    |
| <a href="#">10.2</a> | Consulting Agreement, dated as of January 28, 2019, between CHF Solutions, Inc. and Steve Brandt†                                                        | 10-K                      | 001-35312   | February 21, 2019    | 10.44          |                |                    |
| <a href="#">10.3</a> | Form of Employee Proprietary Information, Inventions Assignment and Non-Competition Agreement for the Company's employees, including executive officers† |                           |             |                      |                | X              |                    |
| <a href="#">10.4</a> | Offer Letter, by and between, CHF Solutions, Inc. and Claudia Drayton, dated December 9, 2014†                                                           |                           |             |                      |                | X              |                    |
| <a href="#">10.5</a> | Offer Letter, by and between, CHF Solutions, Inc. and Nestor Jaramillo, dated May 7, 2019†                                                               |                           |             |                      |                | X              |                    |
| <a href="#">31.1</a> | Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002                                                       |                           |             |                      |                | X              |                    |
| <a href="#">31.2</a> | Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002                                                       |                           |             |                      |                | X              |                    |
| <a href="#">32.1</a> | Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002                                                       |                           |             |                      |                |                | X                  |
| <a href="#">32.2</a> | Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002                                                       |                           |             |                      |                |                | X                  |
| 101.INS              | XBRL Instance Document                                                                                                                                   |                           |             |                      |                | X              |                    |
| 101.SCH              | XBRL Taxonomy Extension Schema Document                                                                                                                  |                           |             |                      |                | X              |                    |
| 101.CAL              | XBRL Taxonomy Extension Calculation Linkbase Document                                                                                                    |                           |             |                      |                | X              |                    |
| 101.DEF              | XBRL Taxonomy Extension Definition Linkbase Document                                                                                                     |                           |             |                      |                | X              |                    |
| 101.LAB              | XBRL Taxonomy Extension Label Linkbase Document                                                                                                          |                           |             |                      |                | X              |                    |
| 101.PRE              | XBRL Taxonomy Extension Presentation Linkbase Document                                                                                                   |                           |             |                      |                | X              |                    |

† Indicates management compensatory plan, contract or arrangement

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

CHF Solutions, Inc.

Date: May 9, 2019

By: /s/ John L. Erb  
John L. Erb  
Chief Executive Officer and Chairman of the Board  
(principal executive officer)

Date: May 9, 2019

By: /s/ Claudia Drayton  
Claudia Drayton  
Chief Financial Officer  
(principal financial officer)

**EMPLOYEE PROPRIETARY INFORMATION, INVENTIONS  
ASSIGNMENT AND NON-COMPETITION AGREEMENT**

THIS EMPLOYEE PROPRIETARY INFORMATION, INVENTIONS ASSIGNMENT AND NON-COMPETITION AGREEMENT (this “*Agreement*”) is made as of the date set forth below between CHF Solutions, Inc., a Delaware corporation (the “*Company*”), and the undersigned employee of the Company (“*Employee*”).

This Agreement confirms certain terms of Employee’s employment with the Company, which Employee acknowledges are a material part of the consideration for Employee’s employment by the Company, and the compensation received by Employee from the Company from time to time.

1. **Definitions.** The following capitalized terms used in this Agreement shall have the following meanings:

“*Company Documents and Materials*” means documents or other media, whether in tangible or intangible form, that contain or embody Proprietary Information or any other information concerning the business, operations or plans of the Company, whether such documents or media have been prepared by Employee or by others. Company Documents and Materials include, without limitation, blueprints, drawings, photographs, charts, graphs, notebooks, tests, test results, experiments, customer lists, computer disks, tapes or printouts, sound recordings and other printed, electronic, typewritten or handwritten documents or information, sample products, prototypes and models.

“*Inventions*” means, without limitation, all software programs or subroutines, source or object code, algorithms, improvements, inventions, works of authorship, trade secrets, technology, designs, formulas, ideas, processes, techniques, know-how and data, whether or not patentable or copyrightable, made or discovered or conceived or reduced to practice or developed by Employee, either alone or jointly with others.

“*Proprietary Information*” means information that was or will be developed, created, or discovered by or on behalf of the Company, or which became or will become known to, or was or is conveyed to the Company, which has commercial value in the Company’s business, whether or not patentable or copyrightable, including, without limitation, information about software programs and subroutines, source and object code, algorithms, trade secrets, designs, technology, know-how, processes, data, ideas, techniques, inventions, works of authorship, formulas, business and product development plans, customer lists, terms of compensation and performance levels of the Company’s employees and consultants, the Company’s customers and other information concerning the Company’s actual or anticipated business, research or development, or which is received in confidence by or for the Company from any other person or entity.

chf solutions

## 2. Confidentiality of Proprietary Information.

(a) **Nature of Information.** Employee understands that the Company possesses and will possess Proprietary Information which is important to its business. Employee understands that Employee's engagement creates a relationship of confidence and trust between the Company and Employee with respect to Proprietary Information.

(b) **Property of the Company.** Employee acknowledges and agrees that all Company Documents and Materials, Proprietary Information and all patents, patent rights, copyrights, trade secret rights, trademark rights and other rights (including, without limitation, intellectual property rights) anywhere in the world in connection therewith is and shall be the sole property of the Company. Employee hereby assigns to the Company any and all rights, title and interest Employee may have or acquire in the Proprietary Information or any Company Documents and Materials.

(c) **Confidentiality.** At all times, both during the term of Employee's engagement by the Company and after Employee's termination, Employee shall keep in confidence and trust and shall not use or disclose any Proprietary Information or anything relating to it without the prior written consent of the Chief Executive Officer of the Company or other duly designated officer of the Company, except as may be necessary in the ordinary course of performing Employee's duties for the Company; provided, however, that Employee shall have no such obligation with respect to Proprietary Information that (i) was already known to Employee at the time of its disclosure to Employee by or on behalf of the Company, as evidenced by written records (ii) at the time of disclosure to Employee was generally available to the public or otherwise in the public domain, or (iii) subsequent to such disclosure becomes generally available to the public without fault on Employee's part.

(d) **Compelled Disclosure.** In the event that Employee is requested in any proceeding to disclose any Proprietary Information, Employee shall give the Company prompt notice of such request so that the Company may seek an appropriate protective order. If, in the absence of a protective order, Employee is nonetheless compelled by any court or tribunal of competent jurisdiction to disclose Proprietary Information, Employee may disclose such information without liability hereunder; provided, however, that Employee gives the Company notice of the Proprietary Information to be disclosed as far in advance of its disclosure as is practicable and uses Employee's best efforts to obtain assurances that confidential treatment will be accorded to such Proprietary Information.

(e) **Records.** Employee agrees to make and maintain adequate and current written records, in a form specified by the Company, of all Inventions, trade secrets and works of authorship assigned or to be assigned to the Company pursuant to this Agreement.

(f) **Handling of the Company Documents and Materials.** Employee agrees that during Employee's employment by the Company, Employee shall not remove any Company Documents and Materials from the business premises of the Company or deliver any Company Documents and Materials to any person or entity outside the Company, except as Employee may be required to do in connection with performing the duties of Employee's employment. Employee further agrees that, immediately upon the termination of Employee's employment by Employee or by the Company for any reason, or during Employee's employment if so requested by the Company, Employee shall return all Company Documents and Materials, apparatus, equipment and other physical property, or any reproduction of such property, excepting only (i) Employee's personal copies of personnel records and records relating to Employee's compensation and benefits; and (ii) Employee's copy of all agreements between Employee and the Company including this Agreement.

### 3. Inventions.

(a) **Disclosure.** Employee shall promptly disclose in writing to Employee's immediate supervisor or to such other person designated by the Company all Inventions made during the term of Employee's employment. Employee shall also disclose to Employee's immediate supervisor or such designee all Inventions made, discovered, conceived, reduced to practice or developed by Employee either alone or jointly with others, within six (6) months after the termination of Employee's employment with the Company which resulted, in whole or in part, from Employee's prior employment by the Company. Such disclosures shall be received by the Company in confidence, to the extent such Inventions are not assigned to the Company pursuant to subsection (b) below, and do not extend the assignments made in such subsection.

(b) **Assignment of Inventions to the Company.** Except as provided in Sections 3(c) and 3(d), Employee agrees that all Inventions which Employee makes, discovers, conceives, reduces to practice or develops (in whole or in part, either alone or jointly with others) during Employee's employment, including, but not limited to, conceptions or ideas derived prior to employment and developed for the first time (in whole or in part, either alone or jointly with others) during employment, shall be the sole property of the Company to the maximum extent permitted by law and Employee agrees to assign and hereby does assign to the Company any right, title and interest Employee has to the Inventions.

(c) **Works Made for Hire.** Employee agrees that the Company shall be the sole owner of all patents, patent rights, copyrights, trade secret rights, trademark rights and all other intellectual property or other rights in connection with Inventions. Employee further acknowledges and agrees that such Inventions, including, without limitation, any computer programs, programming documentation and other works of authorship, are "works made for hire" for purposes of the Company's rights under copyright laws. Employee hereby assigns to the Company any and all rights, title and interest Employee may have or acquire in such Inventions. If in the course of Employee's employment with the Company, Employee incorporates into a Company product, process or a machine a prior Invention or improvement owned by Employee or in which Employee has an interest, and listed in Exhibit 1, the Company is hereby granted and shall have a non-exclusive, royalty-free, irrevocable, perpetual, sublicensable, worldwide license to make, have made, modify, use, market, sell and distribute such prior Invention as part of or in connection with such product process or machine. Pursuant to Section 3(d), if in the course of Employee's employment with the Company, Employee incorporates into a Company product, process or a machine a prior Invention or improvement owned by Employee or in which Employee has an interest, but not listed in Exhibit 1, Employee agrees to assign and hereby does assign all Employee's rights and interest in the Invention to the Company.

(d) **List of Inventions.** Employee has attached hereto as Exhibit B a complete list of all Inventions or improvements to which Employee claims ownership or in which Employee has an interest and that Employee desires to remove from the operation of this Agreement. Employee acknowledges and agrees that such list is complete. If no such list is attached to this Agreement or such Exhibit has not been completed and signed by Employee, Employee represents to the Company and agrees that Employee has no such Inventions or improvements at the time of signing this Agreement.

(e) **Cooperation.** Employee agrees to perform, during and after Employee's employment, all acts deemed necessary or desirable by the Company to permit and assist it, at the Company's expense, in further evidencing and perfecting the assignments made to the Company under this Agreement and in obtaining, maintaining, defending and enforcing patents, patent rights, copyrights, trademark rights, trade secret rights or any other rights in connection with such Inventions and improvements in any and all countries. Such acts may include, without limitation, execution of documents and reasonable assistance or cooperation in legal proceedings. Employee hereby irrevocably designates and appoints the Company and its duly authorized officers and agents, as Employee's agents and attorney-in-fact, coupled with an interest, to act for and on Employee's behalf and in Employee's place and stead, to execute and file any documents, applications or related findings and to do all other lawfully permitted acts to further the purposes set forth above in this Section, including, without limitation, the perfection of assignment and the prosecution and issuance of patents, patent applications, filing with the FDA, copyright applications and registrations, trademark applications and registrations or other rights in connection with such Inventions and improvements with the same legal force and effect as if executed by Employee.

(f) **Assignment or Waiver of Moral Rights.** Any assignment of copyright hereunder (and any ownership of a copyright as a work made for hire) includes all rights of paternity, integrity, disclosure and withdrawal and any other rights that may be known as or referred to as "Moral Rights" (collectively, "*Moral Rights*"). To the extent such Moral Rights cannot be assigned under applicable law and to the extent the following is allowed by the law in the various countries where Moral Rights exist, Employee hereby waives such Moral Rights and consents to any action of the Company that would violate such Moral Rights in the absence of such consent.

(g) **Holdover Assignment.**

(i) Employee agrees to, after the termination of Employee's employment with the Company for any reason, (1) disclose immediately to the Company all Inventions, patentable or not; (2) assist, at the Company's expenses such applications for United States patents and foreign patents covering such Inventions as the Company may request; (3) assign to the Company without further compensation to Employee the entire title and rights to all such Inventions and applications that Employee may have, and (4) execute, acknowledge, deliver, or act as otherwise necessary at the request of the Company all such papers, including but not limited to patent applications, assignments, power of attorney, as necessary to secure the Company the full rights to such Inventions and applications.

(ii) The Inventions which shall come under this Section 3(g) shall include all Inventions that (1) Employee conceives, reduces to practice, or otherwise makes or develops, either solely or jointly with others, within one year after the termination of Employee's employment with the Company; and (2) are in any way based on any trade secret or confidential or proprietary information that Employee learned during employment at the Company; or result from any work performed by Employee for the Company.

**4. Non-Solicitation or Hire of Company Employees.** During the term of Employee's employment and for one (1) year thereafter, Employee shall not encourage or solicit any employee of the Company to leave the Company for any reason or to accept employment with any other person or entity. As part of this restriction, Employee shall not (a) interview or provide any input to any third party regarding any such person during such time period, or (b) retain or hire in any capacity, either individually or for any company by which Employee may be employed or with which Employee may be affiliated, any person who is or was employed by the Company at any time during the time of Employee's employment with Company and six (6) months after the termination of Employee's employment with the Company. Notwithstanding the foregoing, the restrictions of this Section shall not apply with respect to the *bona fide* hiring and firing of the Company personnel to the extent such acts are part of Employee's duties for the Company.

**5. Non-Solicitation of Non-Employees.** During the term of this Agreement and for one (1) year thereafter, Employee shall not interfere with or attempt to impair the relationship between the Company and any of its non-employee consultants and advisors or customers, nor shall Employee attempt, directly or indirectly, to solicit, entice, hire or otherwise induce any non-employee consultant or advisor or customer of the Company to terminate association with Company

**6. Non-Competition.** During the term of Employee's employment and for one (1) year thereafter, Employee shall not, with or without consideration, render services in any capacity to any person, or the division or subsidiary of any business, firm or company engaged in any business which has a product competitive with a product of the Company which Employee was involved with at the time of Employee's employment by the Company, or the termination of Employee's employment. Employee shall not become interested in any portion of a business which has competitive product with a product of the Company which Employee was involved with while employed by the Company, either directly or indirectly, as partner, stockholder, principal, member, employee, agent, trustee, consultant, or any other relationship or capacity; provided, however, that such restriction shall not apply with respect to a less than or equal to a one percent (1%) of an entity which is publicly traded and listed on a recognized securities exchange. Nothing herein shall prevent Employee after termination of his Employment from being employed by a division or subsidiary of a company that does not have any products which compete with products developed or in the process of being developed by the Company at the time of the Employee's employment by the Company, even though such new employer has other divisions or subsidiaries which have products competitive with the Company's products.

7. **Reasonableness of Terms.** The Company and Employee agree that the terms contained in Sections 2-6 of this Agreement are reasonable in all respects and that the restrictions contained therein are designed to ensure that Employee does not engage in unfair competition with the Company. In the event a court determines that any of the terms or provisions of this Agreement are unreasonable, the court may limit the application of any provision or term, or modify any provision or term, and proceed to enforce this Agreement as so limited or modified.

8. **Remedies.** Employee acknowledges that a violation of the terms of this Agreement may give rise to irreparable injury to the Company inadequately compensable in damages, and accordingly, agrees that the Company may seek injunctive relief against such breach or threatened breach, in addition to any other legal remedies which may be available, including recovery of monetary damages. In any action successfully brought by the Company to enforce the rights of the Company against Employee under this Agreement, the Company shall also be entitled to recover reasonable attorneys' fees and costs of the action, and the period of the restrictions above shall be deemed to commence upon the entry of the court's order for relief.

9. **General.**

(a) **Severability.** Employee agrees that if one or more provisions of this Agreement are held to be unenforceable under applicable law, such provisions shall be excluded from this Agreement and the balance of the Agreement shall be interpreted as if such provision were so excluded and shall be enforceable in accordance with its terms.

(b) **Authorization to Notify New Employer.** Employee hereby authorizes the Company to notify Employee's new employer about Employee's rights and obligations under this Agreement following the termination of Employee's employment with the Company.

(c) **Entire Agreement.** This Agreement sets forth the entire agreement and understanding between the Company and Employee relating to the subject matter herein and supersedes all prior discussions between them, including but not limited to any and all statements made by any officer, employee or representative of the Company regarding the Company's financial condition or future prospects. Employee understands and acknowledges that, except as set forth in this Agreement and in the offer letter from the Company to Employee, (i) no other representation or inducement has been made to Employee, (ii) Employee has relied on Employee's own judgment and investigation in accepting Employee's employment with the Company, and (iii) Employee has not relied on any representation or inducement made by any officer, employee or representative of the Company.

(d) **Amendment.** No modification of or amendment to this Agreement nor any waiver of any rights under this Agreement shall be effective unless in a writing signed by the Company and Employee. Employee understands and agrees that any subsequent change or changes in Employee's duties, salary or compensation shall not affect the validity or scope of this Agreement.

(e) **Effective Date and Binding Effect.** This Agreement shall be effective as of the first day of Employee's employment with the Company and shall be binding upon Employee, Employee's heirs, executor, assigns and administrators and shall inure to the benefit of the Company, its subsidiaries, successors and assigns.

(f) **Governing Law; Consent to Jurisdiction, Waiver of Jury Trial.** This Agreement shall be governed by and construed in accordance with the internal laws of the State of Minnesota, without regard to its principles of conflicts of laws. Each of the parties hereto irrevocably submits to the exclusive jurisdiction of the courts of the State of Minnesota and the United States District Court for the District of Minnesota for the purpose of any suit, action, proceeding or judgment relating to or arising out of this Agreement and the transactions contemplated hereby. Service of process in connection with any such suit, action or proceeding may be served on each party hereto anywhere in the world by the same methods as are specified for the giving of notices under this Agreement. Each of the parties hereto irrevocably consents to the jurisdiction of any such court in any such suit, action or proceeding and to the laying of venue in such court. Each party hereto irrevocably waives any objection to the laying of venue of any such suit, action or proceeding brought in such courts and irrevocably waives any claim that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum.

EMPLOYEE HAS READ THIS AGREEMENT CAREFULLY AND UNDERSTANDS AND ACCEPTS THE OBLIGATIONS WHICH IT IMPOSES UPON EMPLOYEE WITHOUT RESERVATION. NO PROMISES OR REPRESENTATIONS HAVE BEEN MADE TO EMPLOYEE TO INDUCE EMPLOYEE TO SIGN THIS AGREEMENT. EMPLOYEE SIGNS THIS AGREEMENT VOLUNTARILY AND FREELY.

**THE COMPANY:**  
**CHF Solutions, Inc.**

**EMPLOYEE:**

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Sandra Eayrs  
Vice President Human Resources

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Date

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Date

**Exhibit B**

The following is a complete list of all Inventions or improvements relevant to the subject matter of Employee's employment by the Company that have been made or discovered or conceived or first reduced to practice by Employee either alone or jointly with others prior to Employee's employment by the Company that Employee desires to remove from the operation of the Company's Employee Proprietary Information, Inventions Assignment and Non-Competition Agreement: ***(check all that apply)***

- No Inventions or improvements.
- See below: Any and all Inventions regarding:
- Additional sheets attached.

Employee proposes to bring to Employee's employment the following materials and documents of a former employer:

- No materials or documents
- See below:

**EMPLOYEE:**

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Date

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SUNSHINE HEART, INC.  
12988 VALLEY VIEW ROAD  
EDEN PRAIRIE, MN 55346

December 9, 2014

Claudia Drayton

**Re: Employment Terms**

Dear Claudia:

We are pleased to offer you employment with SUNSHINE HEART, INC., a Delaware corporation (the "*Company*"). The terms of your offer are as follows:

Your initial position with us will be as Chief Financial Officer. Your annualized salary will be Two Hundred and Forty Thousand Dollars, \$240,000, paid in monthly installments in accordance with our normal payroll procedures. In addition to the above base salary, you will be eligible to earn a bonus of up to 25% of your base salary. Also, upon commencement of your employment, we will discuss and agree to a performance bonus based upon mutually agreed objectives.

The Company is also pleased to offer you stock options as detailed in the "*Stock Option Grant*" attachment. These options will vest 25%/year as long as you are an employee and in accordance with the Company's stock option program.

During your employment, you will be allowed to participate in the employee stock options program, benefit programs and arrangements that we make available to our employees, including contributory and non-contributory welfare and benefit plans. You will be eligible for an annual accrual of 160 hours of Personal Time Off which will be earned/accrued on a monthly basis. You may also participate in the Company's 401K plan.

Your job duties, title, responsibility and reporting level, compensation and benefits, as well as personnel policies and procedures, are subject to change.

Your employment is effective January 5, 2015. As discussed, any days you work prior to your employment effective date will be as a consultant status and your compensation will be paid at a daily rate equal to your full-time annual salary as stated above. By signing this letter of agreement, you acknowledge and agree that your employment with the Company is "at will," meaning that either you or the Company are entitled to terminate your employment at any time for any reason, with or without cause. Although your job duties, title, compensation and benefits, as well as the Company's personnel policies and procedures, may change from time to time, the "at will" nature of your employment may only be changed in an express writing signed by you and the Board of Directors of the Company. You also acknowledge that this job offer is contingent upon the successful completion of a background investigation which results in no findings which would preclude you from employment with Sunshine Heart Inc. Once the background check is completed with satisfactory results we will confirm the effective date of employment.

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You are required, as a condition to your employment with the Company, to sign the Company's standard Employee Proprietary Information, Inventions Assignment and Non- Competition Agreement in the form attached hereto as EXHIBIT B.

This letter agreement and its attachments contain all of the terms of your employment with the Company and supersede any prior understandings or agreements, whether oral or written, between you and the Company.

This letter agreement may not be amended or modified except by an express written agreement signed by you and a duly authorized member of the Company's Board of Directors. The terms of this Agreement shall be governed by and construed in accordance with the internal laws of the State of Minnesota, without regard to its principles of conflicts of laws. By signing this Agreement you irrevocably submit to the exclusive jurisdiction of the courts of the State of Minnesota for the purpose of any suit, action, proceeding or judgment relating to or arising out of this Agreement and the transactions contemplated hereby. BY SIGNING THIS AGREEMENT YOU ALSO WAIVE ANY RIGHT TO REQUEST A TRIAL BY JURY IN ANY LITIGATION WITH RESPECT TO THIS LETTER AGREEMENT AND REPRESENT THAT COUNSEL HAS BEEN CONSULTED SPECIFICALLY AS TO THIS WAIVER.

We hope that you find the foregoing terms acceptable. You may indicate your agreement with these terms and accept this offer by signing and dating duplicate original copies of this letter agreement and the enclosed Employee Proprietary Information, Inventions Assignment and Non- Competition Agreement and returning them to me. As required by law, your employment with the Company is also contingent upon you providing legal proof of your identity and authorization to work in the United States.

Sincerely,

/s/ Dave Rosa  
Dave Rosa  
CEO

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I have read and accept the employment offer as set forth in this Agreement. By signing this Agreement, I represent and want to the Company that I am under no contractual commitments inconsistent with my obligations to the Company.

/s/ Claudia Drayton

Date: 12/9/14

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CHF Solutions, Inc.

12988 VALLEY VIEW ROAD  
EDEN PRAIRIE, MN 55344

April 12, 2019

Nestor Jaramillo, Jr.

**Re: Employment Terms**

Dear Nestor,

We are pleased to offer you employment with CHF SOLUTIONS, INC., a Delaware corporation (the "*Company*"). The terms of your offer are as follows:

Your initial position with us will be as Chief Commercial Officer. Your annualized salary will be three hundred twenty thousand dollars (\$320,000.00), paid in semi-monthly installments in accordance with our normal payroll procedures. In addition to the above base salary, you will be eligible to earn a bonus of up to 40% of your base salary, applied on a pro-rata basis in 2019. One condition of receiving a bonus is that you must be employed in good standing with the Company as of the bonus payment date. In addition, the Company is pleased to offer you stock options as detailed in ATTACHMENT 1, "*Stock Option Grant*". One-fourth of the shares vest on the one year anniversary of the Vesting Commencement Date; the balance of the shares vest in a series of thirty-six (36) successive equal monthly installments measured from the first anniversary of the Vesting Commencement Date.

During your employment, you will be eligible to participate in the employee stock options program, benefit programs and arrangements that we make available to our employees, including contributory and non-contributory welfare and benefit plans. You will be eligible for an annual accrual of 168 hours of Personal Time Off which will be earned/accrued on a semi-monthly basis. You may also participate in the Company's 401(k) Plan.

Your job duties, title, responsibility and reporting level, compensation and benefits, as well as personnel policies and procedures, are subject to change.

Your employment is effective May 7, 2019 or other mutually agreed upon date. By signing this letter agreement, you acknowledge and agree that your employment with the Company is "at will," meaning that either you or the Company are entitled to terminate your employment at any time for any reason, with or without cause. Although your job duties, title, compensation and benefits, as well as the Company's personnel policies and procedures, may change from time to time, the "at will" nature of your employment may only be changed in an express writing signed by you and a duly authorized officer of the Company. You also acknowledge that this job offer is contingent upon the successful completion of a background investigation which results in no findings which would preclude you from employment with CHF Solutions, Inc. Once the background check is completed with satisfactory results we will confirm the effective date of employment.

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You are required, as a condition to your employment with the Company, to sign the Company's standard Employee Proprietary Information, Inventions Assignment and Non- Competition Agreement in the form attached hereto as EXHIBIT A. You are also required to read and acknowledge the attached CHF Solutions Code of Business Conduct and Ethics.

This letter agreement and its attachments contain all of the terms of your employment with the Company and supersede any prior understandings or agreements, whether oral or written, between you and the Company.

This letter agreement may not be amended or modified except by an express written agreement signed by you and a duly authorized officer of the Company. The terms of this Agreement shall be governed by and construed in accordance with the internal laws of the State of Minnesota, without regard to its principles of conflicts of laws. By signing this Agreement you irrevocably submit to the exclusive jurisdiction of the courts of the State of Minnesota for the purpose of any suit, action, proceeding or judgment relating to or arising out of this Agreement and the transactions contemplated hereby. By signing this agreement you also waive any right to request a trial by jury in any litigation with respect to this letter agreement and represent that counsel has been consulted specifically as to this waiver.

We hope that you find the foregoing terms acceptable. You may indicate your agreement with these terms and accept this offer by signing and dating duplicate original copies of this letter agreement and the enclosed Employee Proprietary Information, Inventions Assignment and Non- Competition Agreement and returning them to me. As required by law, your employment with the Company is also contingent upon you providing legal proof of your identity and authorization to work in the United States.

Sincerely,

/s/ John Erb

John Erb  
CEO and Chief Executive Officer

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I have read and accept the employment offer as set forth in this Agreement. By signing this Agreement, I represent and warrant to the Company that I am under no contractual commitments inconsistent with my obligations to the Company. I hereby acknowledge that I have received and read the Company's Code of Business Conduct and Ethics, and that I understand the Code and its application to my performance of services to the Company.

/s/ Nestor Jaramillo, Jr.

Date: 4/12/19

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ATTACHMENT 1

**Stock Option Grant**

Stock Option grant representing 1.0 % of fully diluted shares to be granted under the Company's New Hire Plan subject to approval by the Board of Directors.

**CHIEF EXECUTIVE OFFICER'S 302 CERTIFICATION**

I, John L. Erb, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of CHF Solutions, Inc. for the quarterly period ended March 31, 2019;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 9, 2019

/s/ John L. Erb  
John L. Erb  
Chief Executive Officer

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## CHIEF FINANCIAL OFFICER'S 302 CERTIFICATION

I, Claudia Drayton, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of CHF Solutions, Inc. for the quarterly period ended March 31, 2019.
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 9, 2019

/s/ Claudia Drayton  
Claudia Drayton  
Chief Financial Officer

**CERTIFICATION PURSUANT TO  
18 U.S.C. SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of CHF Solutions, Inc. (the "*Company*") on Form 10-Q for the quarterly period ended March 31, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "*Report*"), I, John L. Erb, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 9, 2019

/s/ John L. Erb  
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John L. Erb  
Chief Executive Officer

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**CERTIFICATION PURSUANT TO  
18 U.S.C. SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of CHF Solutions, Inc. (the "*Company*") on Form 10-Q for the quarterly period ended March 31, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "*Report*"), I, Claudia Drayton, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 9, 2019

/s/ Claudia Drayton  
Claudia Drayton  
Chief Financial Officer

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