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

FORM 10-Q

(Mark one)

☒ **Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the quarterly period ended September 30, 2018

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 No. 0-7099

CECO ENVIRONMENTAL CORP.
(Exact name of registrant as specified in its charter)

Delaware **(State or other jurisdiction of Incorporation or organization)**	**13-2566064** **(IRS Employer Identification No.)**
14651 North Dallas Parkway, Dallas, Texas **(Address of principal executive offices)**	**75254** **(Zip Code)**

Registrant's telephone number, including area code: (513) 458-2600

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 every Interactive Data File required to be submitted 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 files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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.

Large Accelerated Filer	☐	Accelerated Filer	☒
Non-Accelerated Filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

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 shares outstanding of each of the issuer's classes of common equity, as of the latest practical date: 34,950,463 shares of common stock, par value $0.01 per share, as of October 31, 2018.

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES
QUARTERLY REPORT ON FORM 10-Q
For the quarter ended September 30, 2018

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PART I – FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

CONDENSED CONSOLIDATED BALANCE SHEETS

(dollars in thousands, except per share data)	(unaudited) September 30, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 30,718	$ 29,902
Restricted cash	774	591
Accounts receivable, net	67,804	67,990
Costs and estimated earnings in excess of billings on uncompleted contracts	29,991	33,947
Inventories, net	22,276	20,969
Prepaid expenses and other current assets	11,943	10,760
Prepaid income taxes	2,008	1,930
Assets held for sale	4,847	7,853
Total current assets	170,361	173,942
Property, plant and equipment, net	21,889	23,400
Goodwill	152,362	166,951
Intangible assets – finite life, net	38,548	49,956
Intangible assets – indefinite life	18,286	19,691
Deferred charges and other assets	3,773	4,609
Total assets	$ 405,219	$ 438,549
LIABILITIES AND SHAREHOLDERS’ EQUITY		
Current liabilities:		
Current portion of debt	$ —	$ 11,296
Accounts payable and accrued expenses	78,750	70,786
Billings in excess of costs and estimated earnings on uncompleted contracts	28,605	20,469
Note payable	3,800	5,300
Total current liabilities	111,155	107,851
Other liabilities	29,542	30,382
Debt, less current portion	79,175	103,537
Deferred income tax liability, net	7,942	10,210
Total liabilities	227,814	251,980
Commitments and contingencies		
Shareholders’ equity:		
Preferred stock, $.01 par value; 10,000 shares authorized, none issued	—	—
Common stock, $.01 par value; 100,000,000 shares authorized, 34,950,463 and 34,707,924 shares issued and outstanding at September 30, 2018 and December 31, 2017, respectively	350	347
Capital in excess of par value	250,591	248,170
Accumulated loss	(60,355)	(52,673)
Accumulated other comprehensive loss	(12,825)	(8,919)
	177,761	186,925
Less treasury stock, at cost, 137,920 shares at September 30, 2018 and December 31, 2017	(356)	(356)
Total shareholders’ equity	177,405	186,569
Total liabilities and shareholders' equity	$ 405,219	$ 438,549

The notes to the condensed consolidated financial statements are an integral part of the above statements.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited)

(dollars in thousands, except per share data)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Net sales	$ 88,256	$ 84,987	$ 243,485	$ 271,508
Cost of sales	59,582	57,854	161,725	183,960
Gross profit	28,674	27,133	81,760	87,548
Selling and administrative expenses	22,216	21,958	66,147	66,690
Amortization and earnout expenses (income)	1,998	(455)	7,394	4,623
Loss on divestitures, net of selling costs	15,074	—	3,970	—
Restructuring income, net	(173)	—	(23)	—
(Loss) income from operations	(10,441)	5,630	4,272	16,235
Other income (expense), net	592	(110)	(119)	141
Interest expense	(1,729)	(1,595)	(5,442)	(4,951)
(Loss) income before income taxes	(11,578)	3,925	(1,289)	11,425
Income tax expense	1,337	889	6,764	2,865
Net (loss) income	$ (12,915)	$ 3,036	$ (8,053)	$ 8,560
(Loss) earnings per share:				
Basic	$ (0.37)	$ 0.09	$ (0.23)	$ 0.25
Diluted	$ (0.37)	$ 0.09	$ (0.23)	$ 0.25
Weighted average number of common shares outstanding:				
Basic	34,779,125	34,518,622	34,681,262	34,403,720
Diluted	34,779,125	34,621,883	34,681,262	34,665,053

The notes to the condensed consolidated financial statements are an integral part of the above statements.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(unaudited)

(dollars in thousands)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Net (loss) income	$ (12,915)	$ 3,036	$ (8,053)	$ 8,560
Other comprehensive (loss) income, net of tax:				
Interest rate swap	(26)	3	222	31
Foreign currency translation	(1,779)	1,396	(3,060)	3,565
Comprehensive (loss) income	$ (14,720)	$ 4,435	$ (10,891)	$ 12,156

The notes to the condensed consolidated financial statements are an integral part of the above statements.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)

(dollars in thousands)	Nine Months Ended September 30, 2018	2017
Cash flows from operating activities:		
Net (loss) income	$ (8,053)	$ 8,560
Adjustment to reconcile net (loss) income to net cash provided by (used in) operating activities:		
Depreciation and amortization	10,097	12,105
Unrealized foreign currency loss (gain)	763	(2,030)
Net gain on interest rate swaps	(130)	(186)
Fair value adjustments to earnout liabilities	(330)	(5,689)
Earnout payments	(2,862)	(7,797)
(Gain) / loss on sale of property and equipment	(214)	87
Loss on divestitures	3,970	—
Debt discount amortization	862	753
Share-based compensation expense	2,342	1,179
Bad debt expense	1,225	2,184
Inventory reserve expense	554	829
Deferred income tax expense	(1,079)	(164)
Changes in operating assets and liabilities, net of divestitures:		
Accounts receivable	(20,056)	12,718
Costs and estimated earnings in excess of billings on uncompleted contracts	(4,446)	(183)
Inventories	(3,161)	(606)
Prepaid expense and other current assets	(1,584)	1,720
Deferred charges and other assets	(736)	1,414
Accounts payable and accrued expenses	19,183	(9,072)
Billings in excess of costs and estimated earnings on uncompleted contracts	8,355	(14,526)
Income taxes payable	(23)	(857)
Other liabilities	(991)	(1,528)
Net cash provided by (used in) operating activities	3,686	(1,089)
Cash flows from investing activities:		
Acquisitions of property and equipment	(1,897)	(806)
Net cash proceeds from divestitures	33,064	—
Proceeds from sale of property and equipment	6,311	367
Net cash provided by (used in) investing activities	37,478	(439)
Cash flows from financing activities:		
Net (repayments) borrowings on revolving credit lines	(3,754)	2,197
Repayments of debt	(34,256)	(9,161)
Deferred financing fees paid	—	(171)
Earnout payments	—	(7,396)
Proceeds from lease financing transaction	800	—
Payments on capital leases and sale-leaseback transactions	(508)	(542)
Proceeds from employee stock purchase plan, exercise of stock options, and dividend reinvestment plan	82	1,372
Dividends paid to common shareholders	(44)	(7,787)
Net cash used in financing activities	(37,680)	(21,488)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(1,433)	881
Net increase (decrease) in cash, cash equivalents and restricted cash	2,051	(22,135)
Cash, cash equivalents and restricted cash at beginning of period	30,659	48,006
Cash, cash equivalents and restricted cash at end of period	$ 32,710	$ 25,871
Cash paid during the period for:		
Interest	$ 4,288	$ 4,176
Income taxes	$ 8,567	$ 3,328

The notes to the condensed consolidated financial statements are an integral part of the above statements.

1. Basis of Reporting for Consolidated Financial Statements

The accompanying unaudited condensed consolidated financial statements of CECO Environmental Corp. and its subsidiaries (the "Company", "we", "us", or "our") have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"). Certain information and footnote disclosures normally included in annual financial statements have been condensed or omitted pursuant to those rules and regulations. In the opinion of management, the accompanying unaudited condensed consolidated financial statements of the Company contain all adjustments (consisting only of normal recurring adjustments) necessary to present fairly the financial position as of September 30, 2018 and the results of operations and cash flows for the three-month and nine-month periods ended September 30, 2018 and 2017. The results of operations for the three-month and nine-month periods ended September 30, 2018 are not necessarily indicative of the results to be expected for the full year. The balance sheet as of December 31, 2017 has been derived from the audited consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2017 as filed with the SEC.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

These financial statements and accompanying notes should be read in conjunction with the audited financial statements and the notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2017 filed with the SEC.

Unless otherwise indicated, all balances within tables are in thousands, except per share amounts.

2. New Financial Accounting Pronouncements

Accounting Standards Adopted in Fiscal 2018

In March 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2018-05, "Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118." The standard relates to the accounting and disclosures around the issuance of the SEC's Staff Accounting Bulletin No. 118, "Income Tax Accounting Implications of the Tax Cuts and Jobs Act" ("SAB 118"), which the Company has adopted. See Note 12 – Income Taxes for the disclosures related to this amended guidance.

In February 2018, the FASB issued ASU No. 2018-02, "Income Statement — Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." The standard allows for reclassification of stranded tax effects on items resulting from the Tax Cuts and Jobs Act (the "Tax Act") from accumulated other comprehensive income to retained earnings. Tax effects unrelated to the Tax Act are released from accumulated other comprehensive income based on the nature of the underlying item. The Company adopted this ASU in the first quarter of 2018, under the prospective method resulting in accumulated loss in the Condensed Consolidated Balance Sheets decreasing by $1.2 million, with a corresponding increase in accumulated other comprehensive loss in the Condensed Consolidated Balance Sheets due to the reduction in the corporate tax rate from 35% to 21%. See Note 12 — Income Taxes for additional information about the Tax Act.

In May 2017, the FASB issued ASU 2017-09, "Compensation – Stock Compensation (Topic 718): Scope of Modification Accounting." ASU 2017-09 clarifies when changes to the terms or conditions of a share-based award must be accounted for as a modification. The new guidance will reduce diversity in practice and result in fewer changes to the terms of an award being accounted for as a modification. Under ASU 2017-09, an entity will not apply modification accounting to a share-based payment award if the award's fair value, vesting conditions and classification as an equity or liability instrument are the same immediately before and after the change. We adopted ASU 2017-09 on January 1, 2018, under the prospective method. The adoption had no impact on our consolidated financial statements as there were no events requiring management to evaluate for a potential modification to a share-based payment award.

In March 2017, the FASB issued ASU 2017-07, "Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." Under existing GAAP, an entity is required to present all components of net periodic pension cost and net periodic postretirement benefit cost aggregated as a net amount in the income statement, and this net amount may be capitalized as part of an asset where appropriate. ASU 2017-07 requires that the service cost component is reported in the same line item or items as other compensation costs arising from services rendered by the employees during the period, and requires the other components of net periodic pension cost and net periodic postretirement benefit cost to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. We adopted ASU 2017-07 on January 1, 2018, under the retrospective method for the presentation of the service cost component and the other components of net periodic pension cost and net periodic postretirement benefit cost in the income statement and prospectively, on and after the effective date, for the capitalization of the service cost component of net periodic pension cost and net periodic postretirement benefit in assets. The adoption resulted in reclassification of the other components of net periodic pension cost outside of operating income the impact of which was not material. See Note 11 – Pension and Employee Benefit Plans for additional disclosures related to the adoption of the standard.

In January 2017, the FASB issued ASU 2017-01, "Business Combinations (Topic 805): Clarifying the Definition of a Business." ASU 2017-01 clarifies the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The definition of a business affects many areas of accounting including acquisitions, disposals, goodwill, and consolidation. We adopted ASU 2017-01 on January 1, 2018, under the prospective method. The adoption of the standard's definition of a business was followed for the Company's two divestitures that occurred in the first quarter of fiscal year 2018. The divestitures would have been considered a business both before and after the adoption of the standard and, therefore, the provisions of ASU 2017-01 did not have a material effect on the Company's consolidated financial statements.

In November 2016, the FASB issued ASU 2016-18, "Statement of Cash Flows (Topic 230): Restricted Cash." ASU 2016-18 requires the change during the period in the total of cash, cash equivalents, and restricted cash to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. We adopted ASU 2016-18 on January 1, 2018, under the retrospective method. The prior year statement of cash flows has been reclassified to conform with the standard. The impact of the adoption was not material to the Company. The adoption resulted in the Company classifying restricted cash in Cash, Cash Equivalents and Restricted Cash in the Condensed Consolidated Statements of Cash Flows for each period presented.

We consider all highly liquid investments with original maturities of three months or less to be cash and cash equivalents. Restricted cash represents cash that is restricted as to withdrawal or usage and consists primarily of cash in support of letters of credit issued by various foreign subsidiaries of the Company. The Company occasionally enters into letters of credit with durations in excess of one year.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the Condensed Consolidated Statements of Cash Flows.

	September 30, 2018	September 30, 2017
Cash and cash equivalents	$ 30,718	$ 24,567
Restricted cash	774	873
Cash and cash equivalents included in assets held for sale	1,218	—
Restricted cash included within deferred charges and other assets	—	431
Total cash, cash equivalents and restricted cash	$ 32,710	$ 25,871

In August 2016, the FASB issued ASU 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments." ASU 2016-15 provides guidance on how certain cash receipts and cash payments are presented and classified in the statement of cash flows. We adopted ASU 2016-15 on January 1, 2018, under the retrospective method. The adoption will result in the reclassification of $1.0 million in the 2016 Statement of Cash Flows from financing activities to investing activities on the Company's Annual Report on Form 10-K for the year ending December 31, 2018.

In May 2014, the FASB issued ASU 2014-09, "Revenue From Contracts With Customers." ASU 2014-09 supersedes nearly all existing revenue recognition principles under GAAP. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration an entity expects to be entitled to for those goods or services using a defined five-step process. In 2016, the FASB issued accounting standards updates to address implementation issues and to clarify the guidance for identifying performance obligations, licenses and determining if a company is the principal or agent in a revenue arrangement.

We adopted ASU 2014-09 on January 1, 2018, under the modified retrospective method where the cumulative effect is recognized through retained earnings as of the date of adoption. Under the new standard, certain contract arrangements that were historically recognized over time under our previous policies will now be recognized at a point in time upon completion of the contracts. Based on the Company's evaluation of existing contracts that were not substantially complete as of January 1, 2018, the cumulative effect adjustment to the opening balance of retained earnings was not material.

Within the Energy Solutions and Industrial Solutions Segments, a significant portion of the Company's revenue is derived from fixed-price contracts. For each contract, we assess the goods and services promised to a customer and identify each distinct performance obligation for each promised good or service. The typical life of our contracts is generally less than 12 months and each contract generally contains only one performance obligation, to provide goods or services to the customer. We recognize revenue over time for the majority of our contracts within the Energy Solutions and Industrial Solutions Segments.

Within the Fluid Handling Solutions Segment, a significant portion of our revenue is derived from sales of inventory product and is recognized at the point in time control passes to the customer, which occurs generally upon shipment of the product.

The revenue streams within the Company are consistent with those disclosed for our reportable segments. For descriptions of our product offerings and segments, see Note 15 - Business Segment Information. For description of our updated revenue recognition policy, see Note 17 – Significant Accounting Policy Updates.

Accounting Standards Yet to be Adopted

In August 2018, the FASB issued ASU 2018-14, "Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans," that makes minor changes to the disclosure requirements for employers that sponsor defined benefit pension and/or other postretirement benefit plans. The new guidance eliminates requirements for certain disclosures that are no longer considered cost beneficial and requires new ones that the FASB considers pertinent. ASU 2018-14 is effective for the Company January 1, 2021. The Company is evaluating the impact of the adoption of ASU 2018-14 on its consolidated financial statements.

In August 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities." ASU 2017-12 expands an entity's ability to apply hedge accounting for nonfinancial and financial risk components and allows for a simplified approach for fair value hedging of interest rate risk. ASU 2017-12 eliminates the need to separately measure and report hedge ineffectiveness and generally requires the entire change in fair value of a hedging instrument to be presented in the same income statement line as the hedged item. Additionally, ASU 2017-12 simplifies the hedge documentation and effectiveness assessment under the previous guidance. The guidance is effective for annual periods, and interim periods within those annual periods, beginning after December 15, 2018. We plan to adopt the standard on January 1, 2019. We do not expect the adoption of this guidance to have a material impact on our consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, "Leases." ASU 2016-02 establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. In July 2018, the FASB issued ASU No. 2018-11, "Targeted Improvements - Leases (Topic 842)." This update requires a modified retrospective transition method that includes optional practical expedients. If elected, an entity would recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. This guidance is effective for annual periods beginning after December 15, 2018. We currently expect to adopt ASU 2016-02 as of January 1, 2019, under the modified prospective method. Our evaluation of ASU 2016-02 is ongoing and not complete. The Company believes that the new standard will have a material impact on its consolidated balance sheet due to the recognition of ROU assets and liabilities for the Company's operating leases but it will not have a material impact on its statement of operations or liquidity. We expect our accounting for capital leases to remain substantially unchanged. The ASU also will require disclosures to help investors and other financial statement users to better understand the amount, timing and uncertainty of cash flows arising from leases. These disclosures include qualitative and quantitative requirements, providing additional information about the amounts recorded in the financial statements. Our leasing activity is primarily related to buildings and as well as various sale-leaseback transactions. The Company is continuing to evaluate potential impacts to its consolidated financial statements.

3. Accounts Receivable

(Table only in thousands)	September 30, 2018	December 31, 2017
Contract receivables	$ 62,787	$ 60,543
Trade receivables	7,900	11,603
Allowance for doubtful accounts	(2,883)	(4,156)
Total accounts receivable	$ 67,804	$ 67,990

Balances billed but not paid by customers under retainage provisions in contracts within the Condensed Consolidated Balance Sheets amounted to approximately $1.3 million and $2.5 million at September 30, 2018 and December 31, 2017, respectively. Retainage receivables on contracts in progress are generally collected within a year after contract completion.

Bad debt expense was $0.6 million and $1.2 million for the three-month periods ended September 30, 2018 and 2017, respectively, and $1.2 million and $2.2 million for the nine-month periods ended September 30, 2018 and 2017, respectively.

The decrease in the allowance for doubtful accounts is primarily due to divested businesses and classification of the Zhongli balance to held for sale.

4. Costs and Estimated Earnings on Uncompleted Contracts

Our contracts have various lengths to completion ranging from a few days to several months. We anticipate that a majority of our current contracts will be completed within the next twelve months. A significant amount of our revenue within the Energy Solutions and Industrial Solutions segments is recognized over a period of time as we perform under the contract because control of the work in process transfers continuously to the customer. The assets and liabilities recognized in association with these contracts are as follows:

(Table only in thousands)	September 30, 2018	December 31, 2017
Costs incurred on uncompleted contracts	$ 164,400	$ 169,665
Estimated earnings	60,561	61,556
Total costs and estimated earnings on uncompleted contracts, gross	224,961	231,221
Less billings to date	(223,575)	(217,743)
Total costs and estimated earnings on uncompleted contracts, net	$ 1,386	$ 13,478
Included in the accompanying condensed consolidated balance sheets under the following captions:		
Costs and estimated earnings in excess of billings on uncompleted contracts	$ 29,991	$ 33,947
Billings in excess of costs and estimated earnings on uncompleted contracts	(28,605)	(20,469)
Total costs and estimated earnings on uncompleted contracts, net	$ 1,386	$ 13,478

Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. Changes to job performance, job conditions, and estimated profitability may result in revisions to contract revenue and costs, and are recognized in the period in which the revisions are made. No provision for estimated losses on uncompleted contracts was required as of September 30, 2018 or December 31, 2017.

5. Inventories

(Table only in thousands)	September 30, 2018	December 31, 2017
Raw materials	$ 15,500	$ 18,444
Work in process	7,520	3,182
Finished goods	787	940
Obsolescence allowance	(1,531)	(1,597)
Total inventories	$ 22,276	$ 20,969

Amounts credited to the allowance for obsolete inventory and charged to cost of sales amounted to $0.1 million and $0.5 million for the three-month periods ended September 30, 2018 and 2017, respectively, and $0.6 million and $0.8 million for the nine-month periods ended September 30, 2018 and 2017, respectively.

6. Goodwill and Intangible Assets

(Table only in thousands) **Goodwill / Tradename**	**For the Nine Months Ended September 30, 2018** Goodwill	Tradename	**Year ended December 31, 2017** Goodwill	Tradename
Balance, beginning of period	$ 166,951	$ 19,691	$ 170,153	$ 22,042
Divestitures	(14,317)	(1,340)	—	—
Impairment	—	—	(4,443)	(2,725)
Foreign currency translation	(272)	(65)	1,241	374
Balance, end of period	$ 152,362	$ 18,286	$ 166,951	$ 19,691

(Table only in thousands) **Intangible assets – finite life**	**As of September 30, 2018** Cost	Accum. Amort.	**As of December 31, 2017** Cost	Accum. Amort.
Technology	$ 14,457	$ 8,975	$ 15,867	$ 8,609
Customer lists	68,943	36,106	77,497	35,024
Noncompetition agreements	910	717	1,118	698
Tradename	1,390	544	1,390	440
Foreign currency adjustments	(1,107)	(297)	(1,214)	(69)
	$ 84,593	$ 46,045	$ 94,658	$ 44,702

Activity for the nine months ended September 30, 2018 and 2017 is as follows:

(Table only in thousands)	**2018**	**2017**
Intangible assets – finite life, net at beginning of period	$ 49,956	$ 60,728
Amortization expense	(7,355)	(8,666)
Divestitures	(4,083)	—
Foreign currency adjustments	30	687
Intangible assets – finite life, net at end of period	$ 38,548	$ 52,749

Amortization expense of finite life intangible assets was $2.3 million and $2.9 million for the three-month periods ended September 30, 2018 and 2017, respectively, and $7.4 million and $8.7 million for the nine-month periods ended September 30, 2018 and 2017, respectively. Amortization over the next five years for finite life intangibles is expected to be $2.3 million for the remainder of 2018, $8.1 million in 2019, $6.5 million in 2020, $5.4 million in 2021, and $4.5 million in 2022.

The Company did not identify any triggering events during the nine-month period ended September 30, 2018 that would require an interim impairment assessment of goodwill or indefinite life intangible assets.

7. Accounts Payable and Accrued Expenses

(Table only in thousands)	September 30, 2018		December 31, 2017	
Trade accounts payable, including due to subcontractors	$	51,447	$	45,409
Compensation and related benefits		5,911		5,246
Current portion of earnout liability		—		2,989
Accrued warranty		3,707		4,464
Contract liabilities		6,622		1,676
Other accrued expenses		11,063		11,002
Total accounts payable and accrued expenses	$	78,750	$	70,786

The activity in the Company's earnout liability was as follows for the nine months ended September 30, 2018 and 2017:

(Table only in thousands)	Energy Solutions Segment (a)	
Earnout liability as of December 31, 2017	$	4,475
Compensation expense adjustment		222
Fair value adjustment		(330)
Payment		(2,862)
Other reclassification		(1,440)
Foreign currency translation adjustment		(65)
Total earnout liability as of September 30, 2018	$	—

(Table only in thousands)	Energy Solutions Segment (a)	
Earnout liability as of December 31, 2016	$	24,214
Fair value adjustment		(5,689)
Compensation expense adjustment		918
Payment		(15,193)
Foreign currency translation adjustment		729
Total earnout liability as of September 30, 2017		4,979
Less: current portion of earnout		(3,514)
Balance of long-term portion of earnout recorded in other liabilities at September 30, 2017	$	1,465

(a) The Fluid Handling Solutions and Industrial Solutions segments do not have any earnout arrangements associated with the segments.

8. Senior debt

Debt consisted of the following at September 30, 2018 and December 31, 2017:

(Table only in thousands)	September 30, 2018	December 31, 2017
Outstanding borrowings under Credit Facility (defined below). Term loan balance due upon maturity in September 2020.		
- Term loan	$ 81,147	$ 113,903
- U.S. Dollar revolving loans	—	1,000
- Unamortized debt discount	(1,972)	(2,834)
Total outstanding borrowings under Credit Facility	79,175	112,069
Outstanding borrowings (U.S. dollar equivalent) under Foreign facility	—	2,764
Total outstanding borrowings	79,175	114,833
Less: current portion	—	11,296
Total debt, less current portion	$ 79,175	$ 103,537

During the nine-month period ended September 30, 2018, the Company made prepayments of $31.2 million on the outstanding balance of the term loan, in addition to the required payment of $1.6 million for a total repayment of $32.8 million on the outstanding balance of the term loan. Due to the additional prepayments made in 2018, there are no additional payments due on the term loan until the final scheduled principal payment of $81.1 million, in September 2020.

United States Debt

The Company has a senior secured term loan, senior secured U.S. dollar revolving loans with sub-facilities for letters of credit and swing-line loans and senior secured multi-currency revolving credit facility for U.S. dollar and specific foreign currency loans (collectively, the “Credit Facility”). On August 3, 2018, the Company amended its Credit Facility to allow for an additional $20 million in capacity for issuing letters of credit and bank guarantees in support of non-U.S. subsidiary customer contracts as well as letters of credit with maturity dates beyond the expiration date of the Credit Facility.

As of September 30, 2018 and December 31, 2017, $29.5 million and $24.4 million of letters of credit were outstanding, respectively. Total unused credit availability under the Company’s Credit Facility was $50.5 million and $54.6 million at September 30, 2018 and December 31, 2017, respectively. Revolving loans may be borrowed, repaid and reborrowed until September 3, 2020, at which time all outstanding balances of the Credit Facility must be repaid.

The weighted average stated interest rate on outstanding borrowings was 5.24% and 4.08% at September 30, 2018 and December 31, 2017, respectively.

In accordance with the Credit Facility terms, the Company entered into an interest rate swap to hedge against interest rate exposure related to a portion of the outstanding debt indexed to LIBOR market rates. The fair value of the interest rate swap was an asset of $0.8 million and $0.3 million as of September 30, 2018 and December 31, 2017, respectively, and is classified within the “Deferred charges and other assets” on the Condensed Consolidated Balance Sheets. The Company designated the interest rate swap as an effective hedge; therefore, the changes to the fair value of the interest rate swap have been recorded in other comprehensive income as the hedge is deemed effective.

Under the terms of the Credit Facility, the Company is required to maintain certain financial covenants, including the maintenance of a Consolidated Leverage Ratio as well as restricting the amount of capital expenditures the Company may make in 2018 and 2019. Through March 31, 2019, the maximum Consolidated Leverage Ratio is 3.75, after which time will decrease to 3.50 through September 30, 2019. The Consolidated Leverage Ratio will then decrease to 3.25 until the end of the term of the Credit Facility.

As of September 30, 2018 and December 31, 2017, the Company was in compliance with all related financial and other restrictive covenants under the Credit Facility.

Foreign Debt

The Company has a number of facilities and bilateral agreements in various countries currently supported by letters of credit issued by the Credit Facility. As of September 30, 2018, the borrowers of these facilities and agreements were in compliance with all related financial and other restrictive covenants.

A subsidiary of the Company located in the Netherlands has a Euro-denominated facilities agreement which as of September 30, 2018 had no outstanding borrowings. As of December 31, 2017, the borrowers were not in compliance with certain financial covenants under the facility and the Company settled the outstanding amount of the overdraft facility in the first quarter of 2018. The Company plans to exit this facility and consolidate it with the Credit Facility.

9. Earnings (loss) and Dividends per Share

The computational components of basic and diluted earnings (loss) per share for the three-month and nine-month periods ended September 30, 2018 and 2017 are below.

	For the Three Months Ended September 30, 2018		
	Numerator (Loss)	**Denominator (Shares)**	**Per Share Amount**
Basic net loss and loss per share	$ (12,915)	34,779	$ (0.37)
Effect of dilutive securities:			
Common stock equivalents arising from stock options, restricted stock awards, and employee stock purchase plan		—	
Diluted loss and loss per share	$ (12,915)	34,779	$ (0.37)

	For the Three Months Ended September 30, 2017		
	Numerator (Income)	**Denominator (Shares)**	**Per Share Amount**
Basic net income and earnings per share	$ 3,036	34,519	$ 0.09
Effect of dilutive securities:			
Common stock equivalents arising from stock options, restricted stock awards, and employee stock purchase plan		103	
Diluted earnings and earnings per share	$ 3,036	34,622	$ 0.09

	For the Nine Months Ended September 30, 2018		
	Numerator (Loss)	**Denominator (Shares)**	**Per Share Amount**
Basic net loss and loss per share	$ (8,053)	34,681	$ (0.23)
Effect of dilutive securities:			
Common stock equivalents arising from stock options, restricted stock awards, and employee stock purchase plan		—	
Diluted loss and loss per share	$ (8,053)	34,681	$ (0.23)

	For the Nine Months Ended September 30, 2017		
	Numerator (Income)	**Denominator (Shares)**	**Per Share Amount**
Basic net income and earnings per share	$ 8,560	34,404	$ 0.25
Effect of dilutive securities and notes:			
Common stock equivalents arising from stock options, restricted stock awards, and employee stock purchase plan		261	
Diluted earnings and earnings per share	$ 8,560	34,665	$ 0.25

Options, restricted stock units and warrants included in the computation of diluted earnings per share are calculated using the treasury stock method. For the three-month periods ended September 30, 2018 and 2017, 0.9 million and 0.8 million, and during the nine-month periods ended September 30, 2018 and 2017, 0.8 million and 0.7 million, respectively, of outstanding options and warrants were excluded from the computation of diluted earnings per share due to their having an anti-dilutive effect.

Once a restricted stock unit vests, it is included in the computation of weighted average shares outstanding for purposes of basic and diluted earnings per share.

10. Share-Based Compensation

The Company accounts for share-based compensation in accordance with ASC Topic 718, "Compensation – Stock Compensation," which requires the Company to recognize compensation expense for share-based awards, measured at the fair value of the awards at the grant date. The Company recognized $0.9 million and $0.5 million of share compensation related expense during the three-month periods ended September 30, 2018 and 2017, respectively, and $2.3 million and $1.2 million during the nine-month periods ended September 30, 2018 and 2017, respectively. Share based compensation expense was lower in 2017 primarily due to a large amount of forfeitures related to the former Chief Executive Officer's departure from the Company.

The Company granted no options during the three- and nine-month periods ended September 30, 2018 and granted zero and 128,000 options during the three- and nine-month period ended September 30, 2017, respectively.

The Company granted approximately 33,000 and zero restricted stock units during the three-month periods ended September 30, 2018 and 2017, respectively, and approximately 963,000 and 405,000 restricted stock units during the nine-month periods ended September 30, 2018 and 2017, respectively. The weighted-average fair value of restricted stock units was estimated at $5.21 and $9.87 per unit granted during the nine months ended September 30, 2018 and 2017, respectively. The fair value of the restricted stock units was determined by using the value of stock in the open market on the date of grant.

The fair value of the stock-based awards granted is recorded as compensation expense on a straight-line basis over the vesting periods of the awards.

There were approximately 16,000 and 287,000 options exercised during the nine months ended September 30, 2018 and 2017, respectively. The Company received $82,000 and $1.1 million in cash from employees and non-employee directors exercising options during the nine months ended September 30, 2018 and 2017, respectively. The intrinsic value of options exercised during the nine months ended September 30, 2018 and 2017 was $89,000 and $1.9 million, respectively.

11. Pension and Employee Benefit Plans

We sponsor a non-contributory defined benefit pension plan for certain union employees. The plan is funded in accordance with the funding requirements of the Employee Retirement Income Security Act of 1974.

We also sponsor a postretirement health care plan for office employees retired before January 1, 1990. The plan allowed retirees who attained the age of 65 to elect the type of coverage desired.

We present service cost within cost of sales and selling and administrative expenses depending on where the relevant employees compensation costs are recorded, and we present other components of net periodic benefit cost (gain) within other expense, net on the Condensed Consolidated Statements of Operations.

Retirement and health care plan expense is based on valuations performed by plan actuaries as of the beginning of each fiscal year. The components of the expense consisted of the following:

(Table only in thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Pension plan:				
Service cost	$ —	$ 101	$ —	$ 315
Interest cost	298	329	893	986
Expected return on plan assets	(378)	(431)	(1,134)	(1,292)
Amortization of net actuarial loss	59	57	178	170
Net periodic benefit cost (gain)	$ (21)	$ 56	$ (63)	$ 179
Health care plan:				
Interest cost	$ 1	$ 1	$ 2	$ 2
Amortization of loss	2	2	7	6
Net periodic benefit cost	$ 3	$ 3	$ 9	$ 8

We made contributions to our defined benefit plans during the nine months ended September 30, 2018 and 2017 totaling $0.6 million and $1.6 million, respectively. We anticipate $0.2 million and $24,000 of further contributions to fund the pension plan and the retiree health care plan, respectively, during the remainder of 2018. The unfunded liability of the plans of $9.1 million and $9.6 million as of September 30, 2018 and December 31, 2017, respectively, is included in Other liabilities on our Condensed Consolidated Balance Sheets.

12. Income Taxes

We calculate our provision for federal, state and international income taxes based on current tax law. The Tax Act, which was enacted on December 22, 2017, included several key provisions impacting accounting for and reporting of income taxes. The most significant provisions, effective for periods beginning after December 31, 2017, are the global intangible low-taxed income ("GILTI") provision and the reduction of the U.S. corporate statutory tax rate from 35% to 21%.

We file income tax returns in various federal, state and local jurisdictions. Tax years from 2014 forward remain open for examination by Federal authorities. Tax years from 2012 forward remain open for all significant state and foreign authorities.

We account for uncertain tax positions pursuant to ASC Topic 740, "Income Taxes." As of September 30, 2018 and December 31, 2017, the liability for uncertain tax positions totaled approximately $0.9 million, which is included in Other liabilities on our Condensed Consolidated Balance Sheets. We recognize accrued interest related to uncertain tax positions and penalties, if any, in income tax expense within the Condensed Consolidated Statements of Operations.

Certain of the Company's undistributed earnings of our foreign subsidiaries are not permanently reinvested. Our cash needs for operating, investing and financing activities have increased in the U.S. Since foreign earnings have already been subject to U.S. income tax in 2017 as a result of the Tax Act, we intend to repatriate foreign-held cash as needed. As of September 30, 2018, and December 31, 2017 we have recorded deferred income taxes of approximately $0.5 million and zero, respectively, on the undistributed earnings of our foreign subsidiaries. This amount is attributable primarily to the foreign withholding taxes that would become payable should we decide to repatriate cash held in our foreign operations.

We recognized the provisional tax impacts related to the deemed repatriation of foreign earnings and the benefit for the revaluation of deferred tax assets and liabilities during the year ended December 31, 2017. ASU 2018-05 allows a company to record a provisional amount when it does not have the necessary information available, prepared, or analyzed in reasonable detail to complete its accounting for the change in the tax law. We adjusted our provisional accounting for the impacts of the Tax Act as they relate to the repatriation of foreign cash. No other adjustments were made to these provisional amounts for the three-month and nine-month periods ended September 30, 2018. We continue to review and evaluate the provisions of the Tax Act. This review could result in changes to the amounts we have provisionally recorded. We will complete our accounting for the tax effects of the Tax Act before the end of the one-year measurement period allowed by ASU 2018-05, which will be in the fourth quarter of 2018. The amounts recorded in 2018 to account for the impact of the Tax Act for periods beginning after December 31, 2017 are the Company's best estimates based on the current data and guidance available. We have not yet determined our accounting policy election with respect to recording deferred taxes for basis differences related to the GILTI provisions or to continue to record as a period cost.

13. Financial Instruments

Our financial instruments consist primarily of investments in cash and cash equivalents, receivables and certain other assets, foreign debt and accounts payable, which approximate fair value at September 30, 2018 and December 31, 2017, due to their short-term nature or variable, market-driven interest rates.

The fair value of the debt issued under the Credit Facility was $81.1 million and $114.9 million at September 30, 2018 and December 31, 2017, respectively. The fair value of the note payable was $3.8 million and $5.3 million at September 30, 2018 and December 31, 2017, respectively.

In accordance with the terms of the Credit Facility, the Company entered into an interest rate swap on December 30, 2015 to hedge against interest rate exposure related to a portion of the outstanding debt indexed to LIBOR market rates. See Note 8 for further information regarding the interest rate swap.

At September 30, 2018 and December 31, 2017, the Company had cash and cash equivalents of $30.7 million and $29.9 million, respectively, of which $23.3 million and $19.7 million, respectively, was held outside of the United States, principally in the Netherlands, United Kingdom, China, and Canada.

14. Commitments and Contingencies – Legal Matters

Asbestos cases

Our subsidiary, Met-Pro Technologies LLC ("Met-Pro"), beginning in 2002, began to be named in asbestos-related lawsuits filed against a large number of industrial companies including, in particular, those in the pump and fluid handling industries. In management's opinion, the complaints typically have been vague, general and speculative, alleging that Met-Pro, along with the numerous other defendants, sold unidentified asbestos-containing products and engaged in other related actions which caused injuries (including death) and loss to the plaintiffs. Counsel has advised that more recent cases typically allege more serious claims of mesothelioma. The Company's insurers have hired attorneys who, together with the Company, are vigorously defending these cases. Many cases have been dismissed after the plaintiff fails to produce evidence of exposure to Met-Pro's products. In those cases, where evidence has been produced, the Company's experience has been that the exposure levels are low and the Company's position has been that its products were not a cause of death, injury or loss. The Company has been dismissed from or settled a large number of these cases. Cumulative settlement payments from 2002 through September 30, 2018 for cases involving asbestos-related claims were $2.9 million, of which, together with all legal fees other than corporate counsel expenses, $2.8 million has been paid by the Company's insurers. The average cost per settled claim, excluding legal fees, was approximately $38,000.

Based upon the most recent information available to the Company regarding such claims, there were a total of 197 cases pending against the Company as of September 30, 2018 (with Illinois, New York, Pennsylvania and West Virginia having the largest number of cases), as compared with 218 cases that were pending as of December 31, 2017. During the nine months ended September 30, 2018, 70 new cases were filed against the Company, and the Company was dismissed from 52 cases and settled 39 cases. Most of the pending cases have not advanced beyond the early stages of discovery, although a number of cases are on schedules leading to or scheduled for trial. The Company believes that its insurance coverage is adequate for the cases currently pending against the Company and for the foreseeable future, assuming a continuation of the current volume, nature of cases and settlement amounts. However, the Company has no control over the number and nature of cases that are filed against it, nor as to the financial health of its insurers or their position as to coverage. The Company also presently believes that none of the pending cases will have a material adverse impact upon the Company's results of operations, liquidity or financial condition.

Summary

The Company is also a party to routine contract and employment-related litigation matters and routine audits of state and local tax returns arising in the ordinary course of its business.

The final outcome and impact of open matters, and related claims and investigations that may be brought in the future, are subject to many variables, and cannot be predicted. In accordance with ASC 450, "Contingencies", and related guidance, we record accruals for estimated losses relating to claims and lawsuits when available information indicates that a loss is probable and the amount of the loss, or range of loss, can be reasonably estimated. The Company expenses legal costs as they are incurred.

We are not aware of any pending claims or assessments, other than as described above, which may have a material adverse impact on our liquidity, financial position, results of operations, or cash flows.

15. Business Segment Information

The Company's operations are organized and reviewed by management along its product lines or end market that the segment serves and presented in three reportable segments. During the first quarter of 2018, the Company finalized an overall assessment and recalibration of its strategy. As a part of the changes to its strategy, management determined that a realignment of the Company's segments was necessary to better reflect the technologies and solutions we provide, and the end markets we serve. As a result of this realignment, the reportable segments of the Company have been renamed and we reclassified the operating results of certain business units within the Energy Solutions and Industrial Solutions segments to have their reportable segment more closely align with our strategy.

Energy Solutions Segment

Our Energy Solutions segment, formerly known as the Energy segment, improves air quality and solves fluid handling needs with market leading, highly engineered and customized solutions for the power generation, oil & gas, and petrochemical industries. Our offerings in this space include solutions such as natural gas turbine exhaust systems, selective catalytic reduction ("SCR") and selective non-catalytic reduction ("SNCR") systems, acoustical components and silencers, silencer and precipitator applications, the design and manufacture of technologies for flue gas dampers, diverters, expansion joints, gas and liquid separation and filtration equipment, secondary separators (nuclear plant reactor vessels), and fluid catalytic cracking (“FCC”) unit cyclones for processing in power generation, refining, oil production and petrochemical plants, as well as a variety of other industries.

Industrial Solutions Segment

Our Industrial Solutions segment, formerly known as the Environmental segment, improves air quality with a compelling solution set of air pollution control technologies that enable our customers to reduce their carbon footprint, lower energy consumption, minimize waste and meet compliance targets for toxic emissions, fumes, volatile organic compounds, process and industrial odors. With a powerful suite of products and solutions to address air quality needs in the industrial markets, our offerings include chemical and biological scrubbers, fabric filters and cartridge collectors, thermal and catalytic oxidation systems, cyclones, separators, gas absorbers and industrial ventilation systems. This segment also provides component parts for industrial air systems and provides cost effective alternatives to traditional duct components, as well as custom metal engineered fabrication services. These products and services are applicable to a wide variety of industries.

Fluid Handling Solutions Segment

Our Fluid Handling Solutions segment, formerly known as the Fluid Handling and Filtration segment, provides solutions for mission-critical applications to a wide variety of industries including, but not limited to, chemical, petrochemical, pharmaceutical, wastewater treatment, desalination, aquarium and aquaculture, plating and metal finishing, and food and beverage. To meet the needs of these markets, we design and manufacture high quality pumps and specialty filtration solutions including centrifugal pumps for corrosive, abrasive and high-temperature liquids, filter products for air and liquid filtration, precious metal recovery systems, carbonate precipitators, and technologically advanced air movement and exhaust systems.

Interest income and expense are not included in the measure of segment profit reviewed by management. Income taxes are also not included in the measure of segment operating profit reviewed by management. The operating results of the segments are reviewed through to the “Income (loss) from operations” line on the Condensed Consolidated Statements of Operations.

The financial segment information is presented in the following tables:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(dollars in thousands)	2018	2017	2018	2017
Net Sales (less intra-, inter-segment sales)				
Energy Solutions Segment	$ 56,552	$ 44,279	$ 147,661	$ 150,487
Industrial Solutions Segment	20,258	21,638	56,379	67,737
Fluid Handling Solutions Segment	11,446	20,105	39,445	54,269
Corporate and Other(1)	—	(1,035)	—	(985)
Net sales	$ 88,256	$ 84,987	$ 243,485	$ 271,508

(1) Includes adjustment for revenue on intercompany jobs.

	Three Months Ended September 30,		Nine Months Ended September 30,	
(dollars in thousands)	2018	2017	2018	2017
(Loss) income from Operations				
Energy Solutions Segment	$ 8,156	$ 5,921	$ 17,682	$ 20,280
Industrial Solutions Segment	1,638	1,523	4,279	6,356
Fluid Handling Solutions Segment	1,836	4,299	7,234	11,756
Corporate and Other(2)	(21,911)	(5,403)	(24,691)	(20,349)
Eliminations	(160)	(710)	(232)	(1,808)
(Loss) income from operations	$ (10,441)	$ 5,630	$ 4,272	$ 16,235

(2) Includes loss on divestitures, net of selling costs (see Note 16 – Divestitures), corporate compensation, professional services, information technology, executive transition expenses, acquisition and integration expenses, and other general and administrative corporate expenses. This figure excludes earnout expenses, which are recorded in the segment in which the expense occurs. See Note 7 for the earnout expenses by segment.

(dollars in thousands)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Property and Equipment Additions				
Energy Solutions Segment	$ 6	$ 74	$ 38	$ 426
Industrial Solutions Segment	533	63	697	103
Fluid Handling Solutions Segment	767	17	1,051	236
Corporate and Other	—	11	111	41
Property and equipment additions	$ 1,306	$ 165	$ 1,897	$ 806

(dollars in thousands)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Depreciation and Amortization				
Energy Solutions Segment	$ 2,031	$ 2,379	$ 6,286	$ 7,314
Industrial Solutions Segment	225	361	795	1,143
Fluid Handling Solutions Segment	835	1,168	2,683	3,563
Corporate and Other	104	29	333	85
Depreciation and amortization	$ 3,195	$ 3,937	$ 10,097	$ 12,105

(dollars in thousands)	September 30, 2018	December 31, 2017
Identifiable Assets		
Energy Solutions Segment	$ 265,511	$ 258,218
Industrial Solutions Segment	55,511	66,723
Fluid Handling Solutions Segment	75,409	100,917
Corporate and Other(3)	8,788	12,691
Identifiable assets	$ 405,219	$ 438,549

(3) Corporate and Other assets consist primarily of cash and income tax related assets.

(dollars in thousands)	September 30, 2018	December 31, 2017
Goodwill		
Energy Solutions Segment	$ 98,137	$ 98,408
Industrial Solutions Segment	22,419	22,419
Fluid Handling Solutions Segment	31,806	46,124
Goodwill	$ 152,362	$ 166,951

Intra-segment and Inter-segment Revenues

The Company has multiple divisions that sell to each other within segments (intra-segment sales) and between segments (inter-segment sales) as indicated in the following tables:

	Three Months Ended September 30, 2018						
			Less Inter-Segment Sales				
(dollars in thousands)	Total Sales	Intra-Segment Sales	Industrial	Energy	Fluid	Corp and Other	Net Sales to Outside Customers
Net Sales							
Energy Solutions Segment	$ 58,561	$ (1,453)	$ (556)	$ —	$ —	$ —	$ 56,552
Industrial Solutions Segment	20,800	(574)	—	73	(41)	—	20,258
Fluid Handling Solutions Segment	11,836	(399)	16	(7)	—	—	11,446
Corporate and Other(4)	—	—	—	—	—	—	—
Net Sales	$ 91,197	$ (2,426)	$ (540)	$ 66	$ (41)	$ —	$ 88,256

(dollars in thousands)	Three Months Ended September 30, 2017						
			Less Inter-Segment Sales				
	Total Sales	Intra-Segment Sales	Industrial	Energy	Fluid	Corp and Other	Net Sales to Outside Customers
Net Sales							
Energy Solutions Segment	$ 45,387	$ (1,102)	$ (6)	$ —	$ —	$ —	$ 44,279
Industrial Solutions Segment	22,041	(396)	—	(1)	(6)	—	21,638
Fluid Handling Solutions Segment	20,768	(570)	(55)	(38)	—	—	20,105
Corporate and Other(4)	—	—	—	—	—	(1,035)	(1,035)
Net Sales	$ 88,196	$ (2,068)	$ (61)	$ (39)	$ (6)	$ (1,035)	$ 84,987

(dollars in thousands)	Nine Months Ended September 30, 2018						
			Less Inter-Segment Sales				
	Total Sales	Intra-Segment Sales	Environmental	Energy	FHF	Corp and Other	Net Sales to Outside Customers
Net Sales							
Engineered Equipment Segment	$ 155,011	$ (5,851)	$ (1,494)	$ —	$ (5)	$ —	$ 147,661
Air Quality Segment	59,198	(2,178)	—	(600)	(41)	—	56,379
Fluid Handling Solutions Segment	41,011	(1,208)	(351)	(7)	—	—	39,445
Corporate and Other(4)	—	—	—	—	—	—	—
Net Sales	$ 255,220	$ (9,237)	$ (1,845)	$ (607)	$ (46)	$ —	$ 243,485

(dollars in thousands)	Nine Months Ended September 30, 2017						
			Less Inter-Segment Sales				
	Total Sales	Intra-Segment Sales	Environmental	Energy	FHF	Corp and Other	Net Sales to Outside Customers
Net Sales							
Engineered Equipment Segment	$ 156,764	$ (6,249)	$ (28)	$ —	$ —	$ —	$ 150,487
Air Quality Segment	70,598	(2,086)	—	(730)	(45)	—	67,737
Fluid Handling Solutions Segment	56,620	(1,727)	(477)	(147)	—	—	54,269
Corporate and Other(4)	—	—	—	—	—	(985)	(985)
Net Sales	$ 283,982	$ (10,062)	$ (505)	$ (877)	$ (45)	$ (985)	$ 271,508

(4) Includes adjustment for revenue on intercompany jobs.

16. Divestitures

Strobic Air Corporation

On March 30, 2018, the Company completed the sale of Strobic Air Corporation ("Strobic") as part of its strategic decision to exit brands that do not align with the CECO portfolio to increase focus on better serving the energy and industrial solutions and fluid handling markets. The sales price was $28.5 million, subject to post-closing purchase price adjustments. The disposition resulted in an estimated gain of $6.9 million recorded in the first quarter of 2018, comprised of $27.9 million of net proceeds received as consideration after estimated post-closing purchase price adjustments less net assets disposed of $18.8 million and transaction costs of $2.2 million. The net assets disposed are primarily comprised of $13.0 million of goodwill, $2.3 million of definite-lived intangible assets and $1.2 million of indefinite-lived intangible assets allocated to the Strobic business. In 2017, Strobic reported $17.7 million in net sales and $1.6 million in income from operations. Strobic results through the date of disposition are included within income before income taxes in the Condensed Consolidated Statement of Operations and are reported within the Fluid Handling Solutions segment. The sale of Strobic did not constitute a significant strategic shift that will have a material impact on the Company's ongoing operations and financial results.

Keystone Filter

On February 28, 2018, the Company completed the sale of the Keystone Filter brand ("Keystone") as part of its strategic decision to exit brands that do not align with the CECO portfolio to increase focus on better serving energy and industrial solutions and fluid handling markets. The sales price was $7.5 million, subject to post-closing purchase price adjustments. The disposition resulted in an estimated gain of $4.3 million recorded in the first quarter of 2018, comprised of $7.2 million of net proceeds received as consideration after estimated post-closing purchase price adjustments less net assets disposed of $2.7

million and transaction costs of $0.2 million. Keystone results are reported within the Fluid Handling Solutions segment through the date of disposition.

Zhongli
During the third quarter of 2018, we began the process of divesting Jiangyin Zhongli Industrial Technology Co. Ltd ("Zhongli"), a business in our Energy Solutions segment operating in China. As of September 30, 2018, we have classified the net assets and liabilities of this business as held-for-sale in our Condensed Consolidated Balance Sheet. In connection with classifying this business as held-for-sale, GAAP required us to assess impairment by comparing the estimated selling price, less cost to sell to our carrying value in Zhongli. Based on this analysis, we have recorded a $15.1 million estimated loss in the 2018 third quarter. The loss is included in the loss on divestitures net of selling costs on the Condensed Consolidated Statement of Operations. On October 24, 2018, we entered in an agreement to sell Zhongli for $3.6 million. We expect to close the transaction 90 days from the signing of the sales agreement, subject to buyer closing conditions and regulatory approval. The disposal of this business does not constitute a significant strategic shift that will have a material impact on the Company's ongoing operations and financial results.

As of September 30, 2018, Assets Held for Sale includes the following for Zhongli:

Table only in thousands)		
Cash and cash equivalents	$	1,218
Accounts receivable, net		12,053
Other Assets		11,226
Total Assets		24,497
Accounts payable and other liabilities		(6,073)
Net assets		18,424
Impairment recorded		(15,074)
Net assets classified as assets held for sale	$	3,350

17. Significant Accounting Policy Updates

As described in Note 2 – New Financial Accounting Pronouncements, effective January 1, 2018, we adopted ASU 2014-09, which changed the way we recognize revenue for certain contracts. Accounting policies that were significantly affected by the adoption of ASU 2014-09 are discussed below.

Revenue Recognition

Energy Solutions and Industrial Solutions Segments
Within the Energy Solutions and Industrial Solutions segments, a significant portion of our revenue is derived from fixed-price contracts. We account for a contract after it has been approved by all parties to the arrangement, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

For each contract, we assess the goods and services promised to a customer and identify a performance obligation for each promised good or service that is distinct. The typical life of our contracts is generally less than 12 months and each contract generally contains only one performance obligation, to provide goods or services to the customer. We determine the transaction price for each contract based on the consideration we expect to receive for the products or services being provided under the contract.

We recognize revenue as performance obligations are satisfied and the customer obtains control of the products and services. A significant amount of our revenue within the Energy Solutions and Industrial Solutions segments is recognized over a period of time as we perform under the contract because control of the work in process transfers continuously to the customer. For performance obligations to deliver products with continuous transfer of control to the customer, revenue is recognized based on the extent of progress towards completion of the performance obligation. Progress is measured based on the ratio of costs incurred to date to the total estimated costs to complete the performance obligation. For these contracts, the cost-to-cost measure best depicts the continuous transfer of goods or services to the customer.

For contracts where the duration is short, total contract revenue is insignificant, or control does not continuously transfer to the customer, revenues are recognized at the point in time control passes to the customer, which occurs generally upon shipment of product.

Progress payments are generally made over the duration of the contract. Shipping and handling activities after control of the products has transferred to the customer are considered fulfillment activities. Sales taxes are recorded on a net basis.

Fluid Handling Solutions Segments
Within the Fluid Handling Solutions segment, a significant portion of our revenue is primarily derived from sales of inventory product and is recognized at the point in time control passes to the customer, which occurs generally upon shipment of the product.

Payments vary by customer but are typically due within 30 days. Shipping and handling activities after control of the products has transferred to the customer are considered fulfillment activities. Sales taxes are recorded on a net basis.

Point in Time Contract Assets and Contract Liabilities
Contract assets for contracts where revenue is recognized at a point in time are costs incurred on a contract for which revenue has not been recognized. Contract assets are recorded in inventories in the Condensed Consolidated Balance Sheet. Contract liabilities relate to advance payments received from customers for which revenue has not been recognized for contracts where revenue is recognized at a point in time. Contract liabilities are recorded in accounts payable and accrued expenses in the Condensed Consolidated Balance Sheet. Contract liabilities are reduced when the associated revenue from the contract is recognized.

ITEM 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The Company's Condensed Consolidated Statements of Operations for the three-month and nine-month periods ended September 30, 2018 and 2017 reflect the consolidated operations of the Company and its subsidiaries.

CECO Environmental ("CECO") is a global leader in air quality and fluid handling serving the energy, industrial and other niche markets. Providing innovative technology and application expertise, CECO helps companies grow their business with safe, clean and more efficient solutions that help protect our shared environment. In regions around the world, CECO works to improve air quality, optimize the energy value chain and provide custom engineered solutions for applications including oil and gas, power generation, water and wastewater, battery production, poly silicon fabrication, chemical and petrochemical processing along with a range of others.

Note Regarding Use of Non-GAAP Financial Measures

The Company's unaudited condensed consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). These GAAP financial statements include certain charges the Company believes are not indicative of its core ongoing operational performance.

As a result, the Company provides financial information in this Management's Discussion and Analysis that was not prepared in accordance with GAAP and should not be considered as an alternative to the information prepared in accordance with GAAP. The Company provides this supplemental non-GAAP financial information because the Company's management utilizes it to evaluate its ongoing financial performance and the Company believes it provides greater transparency to investors as supplemental information to its GAAP results.

The Company has provided the non-GAAP financial measures of non-GAAP operating income and non-GAAP operating margin as a result of items that the Company believes are not indicative of its ongoing operations. These include transactions associated with the Company's acquisitions, divestitures and the items described below in "Consolidated Results." The Company believes that evaluation of its financial performance compared with prior and future periods can be enhanced by a presentation of results that exclude the impact of these items. The Company has incurred substantial expense and income associated with the acquisition and divestitures. Additionally, the Company has incurred additional charges related to its restructuring program that was initiated in the fourth quarter of 2017. While the Company cannot predict the exact timing or amounts of such charges, it does expect to treat the financial impact of these transactions as special items in its future presentation of non-GAAP results.

Results of Operations

Consolidated Results

Our Condensed Consolidated Statements of Operations for the three-month and nine-month periods ended September 30, 2018 and 2017 are as follows:

(dollars in millions)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Net sales	$ 88.3	$ 85.0	$ 243.5	$ 271.5
Cost of sales	59.6	57.9	161.7	184.0
Gross profit	$ 28.7	$ 27.1	$ 81.8	$ 87.5
Percent of sales	*32.5%*	*31.9%*	*33.6%*	*32.2%*
Selling and administrative expenses	$ 22.2	$ 22.0	$ 66.1	$ 66.7
Percent of sales	*25.1%*	*25.9%*	*27.1%*	*24.6%*
Amortization and earnout expenses (income)	$ 2.0	$ (0.5)	$ 7.4	$ 4.6
Percent of sales	*2.3%*	*(0.6)%*	*3.0%*	*1.7%*
Loss on divestitures, net of selling costs	$ 15.1	$ —	$ 4.0	$ —
Percent of sales	*17.1%*	*0.0%*	*1.6%*	*0.0%*
Restructuring income, net	$ (0.2)	$ —	$ —	$ —
Percent of sales	*(0.2)%*	*0.0%*	*0.0%*	*0.0%*
Operating (loss) income	$ (10.4)	$ 5.6	$ 4.3	$ 16.2
Operating margin	*(11.8)%*	*6.6%*	*1.8%*	*6.0%*

To compare operating performance between the three-month and nine-month periods ended September 30, 2018 and 2017, the Company has adjusted GAAP operating income (loss) to exclude (1) loss on divestitures, net of selling costs necessary to complete the divestiture such as legal, accounting and compliance, (2) executive transition expenses, including severance for its former Chief Executive Officer, fees incurred in the search for its current Chief Executive Officer, and expenses associated with hiring its current Chief Financial Officer, (3) amortization and contingent acquisition expenses, including amortization of acquisition related intangibles, retention, severance, and earnout expenses, (4) facility exit expenses associated with the closure of certain leased facilities, (5) restructuring expenses primarily relating to severance, (6) legacy design repair expenses related to costs to rectify issues on products that are no longer in production and (7) plant, property and equipment valuation adjustments related to acquisitions. See “Note Regarding Use of Non-GAAP Financial Measures” above. The following table presents the reconciliation of GAAP operating income (loss) and GAAP operating margin to non-GAAP operating income and non-GAAP operating margin:

(dollars in millions)	Three Months Ended September 30, 2018	Three Months Ended September 30, 2017	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017
Operating (loss) income as reported in accordance with GAAP	$ (10.4)	$ 5.6	$ 4.3	$ 16.2
Operating margin in accordance with GAAP	*(11.8)%*	*6.6%*	*1.8%*	*6.0%*
Legacy design repairs	—	—	—	2.0
Plant, property and equipment valuation adjustment	—	0.2	—	0.5
Amortization and earnout expenses (income)	2.0	(0.5)	7.4	4.6
Loss on divestitures, net of selling costs	15.1	—	4.0	—
Restructuring income, net	(0.2)	—	—	—
Executive transition expenses	—		—	1.3
Facility exit expenses	—	—	—	0.2
Non-GAAP operating income	$ 6.5	$ 5.3	$ 15.7	$ 24.8
Non-GAAP operating margin	*7.4%*	*6.2%*	*6.4%*	*9.1%*

Consolidated sales for the third quarter of 2018 increased $3.3 million, or 3.9%, to $88.3 million compared with $85.0 million in the third quarter of 2017. The increase is primarily attributable to improved sales in our Energy Solutions segment. The increase was partially offset by the 2018 first quarter divestitures of Keystone and Strobic which contributed $6.9 million of sales in the third quarter of 2017 and none in the third quarter of 2018.

Consolidated sales for the first nine months of 2018 decreased $28.0 million, or 10.3%, to $243.5 million compared with $271.5 million in the first nine months of 2017. The decrease is attributable to the divestitures of the Keystone filter brand (“Keystone”) and Strobic Air Corporation (“Strobic”) in the first quarter of 2018, which contributed $16.7 million of sales in the first nine months of

2017 compared to $4.8 million in the first nine months of 2018. The decrease is also attributable to a sales volume decline period over period in the Company's Industrial Solutions segment.

Gross profit increased $1.6 million, or 5.9%, to $28.7 million in the third quarter of 2018 compared with $27.1 million in the same period of 2017. The increase in gross profit was primarily attributable to sales volume increases period over period. Gross profit as a percentage of sales increased to 32.5% in the third quarter of 2018 compared with 31.9% in the third quarter of 2017.

Gross profit decreased $5.7 million, or 6.5%, to $81.8 million in the first nine months of 2018 compared with $87.5 million in the same period of 2017. The decrease in gross profit was primarily attributable to a sales volume decline period over period due to the divestitures and other volume declines leading to decreased sales. This decrease was partially offset by $2.0 million in legacy design repairs occurring in the first nine months of 2017 that did not re-occur in the first nine months of 2018 and a decrease of $2.2 million in warranty expense period over period. Gross profit as a percentage of sales increased to 33.6% in the first nine months of 2018 compared with 32.2% in the first nine months of 2017.

Orders booked were $97.5 million during the third quarter of 2018 and $292.9 million during the first nine months of 2018 as compared with $71.0 million during the third quarter of 2017 and $242.2 million during the first nine months of 2017. The increase is primarily attributable to an increase in orders for the Company's refinery related products and NOx air quality emission control systems. The increase is partially offset due to the divestitures of Keystone and Strobic, which combined for orders of $5.3 million in the third quarter of 2017 compared to zero in the same period of 2018.

Selling and administrative expenses were $22.2 million for the third quarter of 2018 compared with $22.0 million for the third quarter of 2017. Selling and administrative expenses decreased as a percentage of sales from 25.9% in the third quarter of 2017 compared with 25.1% in the third quarter of 2018. The decrease in selling and administrative expenses as a percentage of sales is primarily attributable to the increase in sales.

Selling and administrative expenses were $66.1 million for the first nine months of 2018 compared with $66.7 million for the first nine months of 2017. Selling and administrative expenses increased as a percentage of sales from 24.6% in the first nine months of 2017 compared to 27.1% in the first nine months of 2018. The increase in selling and administrative expenses as a percentage of sales is primarily attributable to the decrease in sales.

Amortization and earnout expense (income) was expense of $2.0 million for the third quarter of 2018 compared with income of $(0.5) million for the third quarter of 2017. The increase in expense is primarily attributable to earnout adjustments resulting in income of $3.9 million in the third quarter of 2017 for the earnout incurred in connection with the acquisition of Jiangyin Zhongli Industrial Technology Co. Ltd. ("Zhongli") due to lower than expected operational profit in 2017. In the third quarter of 2018, there was an adjustment to the earnout resulting in income of $0.3 million.

Amortization and earnout expense was $7.4 million for the first nine months of 2018 compared with $4.6 million for the first nine months of 2017. The increase in expense was primarily attributable to earnout adjustments resulting in income of $5.7 million in the first nine months of 2017 for the Zhongli acquisition due to lower than expected earnings in 2017. In the first nine months of 2018, there was an adjustment to the earnout resulting in income of $0.3 million. The Zhongli earnout has been fully paid as of September 30, 2018.

During the third quarter of 2018, we began the process to divest of Zhongli, a business in our Energy Solutions segment operating in China. As of September 30, 2018, we have classified the assets of this business as held-for-sale and have recorded a $15.1 million impairment loss. The loss is included in the loss on divestitures net of selling costs on the Condensed Consolidated Statement of Operations. On October 24, 2018, we entered in an agreement to sell Zhongli for $3.6 million. We expect to close the transaction 90 days from the signing of the sales agreement, subject to buyer closing conditions and regulatory approval.

Operating (loss) income decreased $16.0 million to a loss of $(10.4) million in the third quarter of 2018 compared with income $5.6 million during the same quarter of 2017 as a result of the factors described above.

Operating income decreased $11.9 million to $4.3 million in the first nine months of 2018 compared with $16.2 million during the first nine months of 2017 as a result of the factors described above.

Non-GAAP operating income was $6.5 million for the third quarter of 2018 compared with $5.3 million for the third quarter of 2017. The increase in non-GAAP operating income is primarily attributable to higher sales, which led to an increase in gross profit. Non-GAAP operating income as a percentage of sales increased to 7.4% for the third quarter of 2018 from 6.2% for the third quarter of 2017.

Non-GAAP operating income was $15.7 million for the first nine months of 2018 compared with $24.8 million for the first nine months of 2017. The decrease in non-GAAP operating income is primarily due to lower sales, including the impact of divestitures, which led to a decrease in gross profit. Non-GAAP operating income as a percentage of sales decreased to 6.4% for the first nine months of 2018 from 9.1% for the first nine months of 2017.

Interest expense increased to $1.7 million in the third quarter of 2018 and $5.4 million for the first nine months of 2018 compared with $1.6 million in the third quarter of 2017 and $5.0 million in the first nine months of 2017. The increase is due to higher interest rates on our term loan in 2018 in comparison to 2017, which was partially offset by lower outstanding balances in 2018.

Income tax expense was $1.3 million for the third quarter of 2018 and $6.8 million for the first nine months of 2018, compared with $0.9 million for the third quarter of 2017 and $2.9 million for the first nine months of 2017. The effective income tax rate for the third quarter of 2018 was (11.5)% compared with 22.6% for third quarter of 2017. The effective income tax rate was (524.7)% for the first nine months of 2018, compared with 25.1% for the first nine months of 2017. The U.S. statutory tax rate decreased from 35% in 2017 to 21% in 2018 with the enactment of the Tax Cuts and Jobs Act (the “Tax Act”). There was tax expense for the three months ended September 30, 2018, despite a pre-tax loss, due primarily to the non-deductibility of the impairment charge taken on the Company’s investment in Zhongli. The effective tax rate for the nine months ended September 30, 2018 was also significantly impacted by permanent book-tax differences related to the first-quarter divesture of a business with goodwill recorded for financial reporting purposes. Our effective tax rate is affected by certain other permanent differences, including non-deductible incentive stock-based compensation, foreign return-to-provision adjustments, deferred tax expense recorded on unremitted foreign earnings, and differences in tax rates among the jurisdictions in which we operate.

Business Segments

The Company’s operations are organized and reviewed by management along its product lines or end market that the segment serves and are presented in three reportable segments. The results of the segments are reviewed through “Income from operations” on the unaudited Condensed Consolidated Statements of Operations.

	Three Months Ended September 30,		Nine Months Ended September 30,	
(dollars in thousands)	2018	2017	2018	2017
Net Sales (less intra-, inter-segment sales)				
Energy Solutions Segment	$ 56,552	$ 44,279	$ 147,661	$ 150,487
Industrial Solutions Segment	20,258	21,638	56,379	67,737
Fluid Handling Solutions Segment	11,446	20,105	39,445	54,269
Corporate and Other(1)	—	(1,035)	—	(985)
Net sales	$ 88,256	$ 84,987	$ 243,485	$ 271,508

(1) Includes adjustment for revenue on intercompany jobs.

	Three Months Ended September 30,		Nine Months Ended September 30,	
(dollars in thousands)	2018	2017	2018	2017
(Loss) income from Operations				
Energy Solutions Segment	$ 8,156	$ 5,921	$ 17,682	$ 20,280
Industrial Solutions Segment	1,638	1,523	4,279	6,356
Fluid Handling Solutions Segment	1,836	4,299	7,234	11,756
Corporate and Other(2)	(21,911)	(5,403)	(24,691)	(20,349)
Eliminations	(160)	(710)	(232)	(1,808)
(Loss) income from operations	$ (10,441)	$ 5,630	$ 4,272	$ 16,235

(2) Includes loss on divestitures, net of selling costs, corporate compensation, professional services, information technology and other general and administrative corporate expenses. This amount excludes earnout adjustments, which are recorded in the segment in which the adjustment occurs. See Note 7 to the unaudited condensed consolidated financial statements for the earnout expenses by segment.

Energy Solutions Segment

Our Energy Solutions segment, formerly our Energy segment, net sales increased $12.3 million to $56.6 million in the third quarter of 2018 compared with $44.3 million in the same period of 2017. The increase is due primarily to volume increases for the Company’s refinery related products and services period over period.

Net sales for the segment decreased $2.8 million to $147.7 million in the first nine months of 2018 compared with $150.5 million in the same period of 2017. The decrease is due primarily to volume declines occurring for the Company's refinery related products and services and natural gas turbine exhaust systems related products and services period over period. The decline was driven by volume decline in the first two quarters of 2018 while there were stronger quarter-over-quarter sales in the third quarter of 2018.

Operating income for the Energy Solutions segment was $8.2 million in the third quarter of 2018 compared to income of $5.9 million in the same period of 2017. The change is primarily attributable higher sales and the benefits from our fourth quarter 2017 restructuring program. The third quarter of 2017 included income from a $3.9 million earnout adjustment related to Zhongli, while there was no similar adjustment in 2018.

Operating income for the Energy Solutions segment was $17.7 million for the first nine months of 2018 compared with $20.3 million in operating income in the same period of 2017. Operating income in the first nine months of 2018 and 2017 included $0.3 million and $5.7 million of income, respectively, related to earnout adjustments during these periods. The decrease in operating income was also impacted from incurring $2.3 million in warranty expense and $2.0 million in legacy design repairs during the first nine months of 2017, compared to warranty expense of $0.1 million during the first nine months of 2018.

Industrial Solutions Segment

Our Industrial Solutions segment, formerly our Environmental segment, net sales decreased $1.3 million to $20.3 million in the third quarter of 2018 compared with $21.6 million in the third quarter of 2017. The decrease is due primarily to volume decreases for the Company's wet scrubbers and mist eliminators.

Net sales for the segment decreased $11.3 million to $56.4 million in the first nine months of 2018 compared with $67.7 million in the first nine months of 2017. The decrease is due primarily to volume decreases for the Company's wet scrubbers, mist eliminators and for the installation and fabrication of duct work and related equipment period over period.

Operating income for the segment was flat with $1.6 million in the third quarter of 2018 compared with $1.5 million in the third quarter of 2017.

Operating income for the segment decreased $2.1 million to $4.3 million in the first nine months of 2018 compared with $6.4 million in the first nine months of 2017. The decrease is primarily attributable to the decrease in sales.

Fluid Handling Solutions Segment

Our Fluid Handling Solutions segment, formerly our Fluid Handling and Filtration segment, net sales decreased $8.7 million to $11.4 million in the third quarter of 2018 compared with $20.1 million in the third quarter of 2017. The decrease is primarily attributable to the divestitures of Keystone and Strobic, which combined for sales of $6.9 million in the third quarter of 2017 compared to zero in the same period of 2018. Additionally, the decrease is due to a sales volume decline period over period related to lower sales of pumps.

Net sales for the segment decreased $14.9 million to $39.4 million in the first nine months of 2018 compared with $54.3 million in the first nine months of 2017. The decrease is primarily attributable to the divestitures of Keystone and Strobic, which combined for sales of $16.7 million in the first nine months of 2017 compared to $4.8 million in the same period of 2018. The decrease was also impacted by a sales volume decline period over period related to sales of pumps.

Operating income for the segment decreased $2.5 million to $1.8 million in the third quarter of 2018 compared with $4.3 million in the third quarter of 2017. The decrease is primarily attributable to the decrease in sales and operating income of $1.5 million from the divestitures of Keystone and Strobic.

Operating income for the segment decreased $4.6 million to $7.2 million in the first nine months of 2018 compared with $11.8 million in the first nine months of 2017. The decrease is primarily attributable to the decrease in sales and operating income of $2.3 million from the divestitures of Keystone and Strobic.

Corporate and Other Segment

Operating expense for the Corporate and Other segment was $21.9 million in the third quarter of 2018 compared with operating expense of $5.4 million in the third quarter of 2017. The increase in operating expenses is primarily due to a $15.1 million impairment loss on the Zhongli business.

Operating expense for the Corporate and Other segment was $24.7 million in the first nine months of 2018 compared with operating expense of $20.3 million in the first nine months of 2017. The change is primarily attributable to the $15.1 million impairment loss on the Zhongli business partially offset by $11.1 million gain on divestitures, net of selling costs for Keystone and Strobic.

Backlog

Backlog (i.e., unfulfilled or remaining performance obligations) represents the sales we expect to recognize for our products and services for which control has not yet transferred to the customer. Our customers may have the right to cancel a given order, although historically cancellations have been rare. Our backlog as of September 30, 2018 was $211.4 million compared with $200 million at June 30, 2018 and $168.9 million as of December 31, 2017. Our backlog at September 30, 2018, includes $7.4 million for Zhongli. Backlog is adjusted on a quarterly basis for adjustments in foreign currency exchange rates. The Company removed $7.7 million of orders from backlog as of the date of the divestitures as a result of the sale of Keystone and Strobic. There have been no other orders removed from backlog that were previously disclosed as backlog in prior quarters in the first nine months of 2018. Backlog is not defined by GAAP and our methodology for calculating backlog may not be consistent with methodologies used by other companies. There can be no assurances that backlog will be replicated, increased or translated into higher revenues in the future. The success of our business depends on a multitude of factors related to our backlog and the orders secured during the subsequent periods. Certain contracts are highly dependent on the work of contractors and other subcontractors participating in a project, over which we have no or limited control, and their performance on such project could have an adverse effect on the profitability of our contracts. Delays resulting from these contractors and subcontractors, changes in the scope of the project, weather, and labor availability also can have an effect on a contract's profitability.

New Accounting Pronouncements

For information regarding recent accounting pronouncements, see Note 2 to the unaudited condensed consolidated financial statements within Item 1 of this Quarterly Report on Form 10-Q.

Liquidity and Capital Resources

Our principal sources of liquidity are cash flow from operations, cash from divestitures, net of selling costs and available borrowings under our Credit Facility (as defined below). Our principal uses of cash are operating costs, payment of principal and interest on our outstanding debt, dividends, working capital and other corporate requirements.

When we undertake large jobs, our working capital objective is to make these projects self-funding. We work to achieve this by obtaining initial down payments, progress billing contracts, utilizing extended payment terms from material suppliers when possible, and paying sub-contractors after payment from our customers, which is an industry practice. Our investment in net working capital is funded by cash flow from operations and by our revolving line of credit.

At September 30, 2018, the Company had working capital of $59.2 million, compared with $66.1 million at December 31, 2017. The ratio of current assets to current liabilities was 1.53 to 1 on September 30, 2018, as compared with a ratio of 1.61 to 1 at December 31, 2017.

At September 30, 2018 and December 31, 2017, cash and cash equivalents totaled $30.7 million and $29.9 million, respectively. As of September 30, 2018 and December 31, 2017, $23.3 million and $19.7 million, respectively, of our cash and cash equivalents were held by certain non-U.S. subsidiaries, as well as being denominated in foreign currencies.

Debt consisted of the following at September 30, 2018 and December 31, 2017:

(Table only in thousands)	September 30, 2018	December 31, 2017
Outstanding borrowings under Credit Facility (defined below).		
Term loan balance due upon maturity in September 2020.		
- Term loan	$ 81,147	$ 113,903
- U.S. Dollar revolving loans	—	1,000
- Unamortized debt discount	(1,972)	(2,834)
Total outstanding borrowings under Credit Facility	79,175	112,069
Outstanding borrowings (U.S. dollar equivalent) under Aarding Facility	—	2,764
Total outstanding borrowings	79,175	114,833
Less: current portion	—	11,296
Total debt, less current portion	$ 79,175	$ 103,537

Credit Facility

The Company's outstanding borrowings in the United States consist of senior secured term loan, senior secured U.S. dollar revolving loans with sub-facilities for letters of credit and swing-line loans and senior secured multi-currency revolving credit facility for U.S. dollar and specific foreign currency loans (collectively, the "Credit Facility"). As of September 30, 2018 and December 31, 2017, the Company was in compliance with all related financial and other restrictive covenants under the Credit Facility.

See Note 8 to the condensed consolidated financial statements for further information on the Company's debt facilities.

Total unused credit availability under our existing Credit Facility and other non-U.S. credit facilities and agreements is as follows:

(dollars in millions)	September 30, 2018	December 31, 2017
Credit Facility, U.S. Dollar revolving loans	$ 60.5	$ 60.5
Additional capacity from letters of credit	20.0	—
Draw down	—	(1.0)
Open letters of credit	(29.5)	(24.4)
Credit Facility, Multi-currency revolving facilities	19.5	19.5
Netherlands facilities (€13.0 million at September 30, 2018 and at December 31, 2017 in U.S. Dollar equivalent)	—	15.6
Draw down	—	(2.8)
Open letters of credit	—	(3.9)
China Facility	—	4.6
Draw down	—	—
Total unused credit availability	$ 70.5	$ 68.1
Amount available based on borrowing limitations	$ 34.1	$ 18.7

Overview of Cash Flows and Liquidity

	For the Nine Months Ended September 30,	
(dollars in thousands)	2018	2017
Net cash provided by (used in) operating activities	$ 3,686	$ (1,089)
Net cash provided by (used in) investing activities	37,478	(439)
Net cash used in financing activities	(37,680)	(21,488)
Effect of exchange rate changes on cash and cash equivalents	(1,433)	881
Net increase (decrease) in cash	$ 2,051	$ (22,135)

For the nine months ended September 30, 2018, $3.7 million of cash was provided by operating activities compared with $1.1 million used in operating activities in the prior year period. The $4.8 million increase in cash flow from operating activities was due primarily to favorable net working capital items in the first nine months of 2018 compared with the same period in 2017 as reflected in the changes in those items on the Condensed Consolidated Statements of Cash Flows.

For the nine months ended September 30, 2018, net cash provided by investing activities was $37.5 million compared with net cash used in investing activities of $0.4 million in the prior year period. The primary reason for the change was the cash proceeds from divestitures of $33.1 million in 2018 as well as $5.5 million of net proceeds from the sale of our Peerless China facility.

For the nine months ended September 30, 2018, net cash used in financing activities was $37.7 million due principally to net term loan repayments of $32.8 million and $3.8 million in net revolving credit facilities repayments. For the nine months ended September 30, 2017, net cash used in financing activities was $21.5 million due principally to net term loan repayments of $9.2 million, net borrowings on revolving credit facilities of $2.2 million, earnout payments classified as financing activities of $7.4 million and $7.8 million in dividends paid to common stockholders, partially offset by $1.4 million received from the employee stock purchase plan, exercise of stock options and dividend reinvestment plan.

Our dividend policy and the payment of cash dividends are subject to the Board of Directors' determination that the dividend policy and the declaration of dividends are in the best interest of the Company's shareholders. On November 6, 2017, the Board of Directors reviewed the Company's dividend policy and determined that it would be in the best interest of the stockholders to suspend dividend payments. Future dividends and the dividend policy may be changed at the Company's discretion at any time. Payment of dividends is also subject to the continuing compliance with our financial covenants under our Credit Facility.

Critical Accounting Policies and Estimates

Management's discussion and analysis of the Company's financial condition and results of operations are based upon the Company's condensed consolidated financial statements. The preparation of these financial statements requires management to make estimates and assumptions about future events. These estimates and the underlying assumptions affect the amounts of assets and liabilities reported, disclosures about contingent assets and liabilities and reported amounts of revenues and expenses. Such estimates include revenue recognition, the valuation of trade receivables, inventories, goodwill, intangible assets, other long-lived assets, legal contingencies, earnout liabilities, guarantee obligations and assumptions used in the calculation of income taxes, assumptions used in business combination accounting and related balances, and pension and post-retirement benefits, among others. These estimates and assumptions are based on management's best estimates and judgment. Management evaluates its estimates and assumptions on an ongoing basis using historical experience and other factors. Management monitors the economic conditions and other factors and will adjust such estimates and assumptions when facts and circumstances dictate. As future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates.

Management believes there have been no changes during the nine-month period ended September 30, 2018, other than disclosed in Note 17 to the condensed consolidated financial statements within Item 1 of this quarterly Report on Form 10-Q, to the items that the Company disclosed as its critical accounting policies and estimates in Management's Discussion and Analysis of Financial Condition and Results of Operations in the Company's Annual Report on Form 10-K for the year ended December 31, 2017.

Forward-Looking Statements

This Quarterly Report on Form 10-Q includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical fact, including statements regarding industry prospects or future results of operations or financial position made in this Quarterly Report on Form 10-Q are forward-looking. We use words such as "believe," "expect," "anticipate," "intends," "estimate," "forecast," "project," "will," "plan," "should" and similar expressions to identify forward-looking statements. Forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from any future results, performance or achievements expressed or implied by such statements. Potential risks, among others, that could cause actual results to differ materially are discussed under "Part I – Item 1A. Risk Factors" of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and include, but are not limited to: our ability to successfully realize the expected benefits of our restructuring program; our ability to successfully integrate acquired businesses and realize the synergies from acquisitions, as well as a number of factors related to our business, including economic and financial market conditions generally and economic conditions in CECO's service areas; dependence on fixed price contracts and the risks associated therewith, including actual costs exceeding estimates; fluctuations in operating results from period to period due to cyclicality or seasonality of the business; the effect of growth on CECO's infrastructure, resources, and existing sales; the ability to expand operations in both new and existing markets; the potential for contract delay or cancellation; liabilities arising from faulty services or products that could result in significant professional or product liability, warranty, or other claims; changes in or developments with respect to any litigation or investigation; failure to meet timely completion or performance standards that could result in higher cost and reduced profits or, in some cases, losses on projects; the potential for fluctuations in prices for manufactured components and raw materials, including as a result of tariffs and surcharges; the substantial amount of debt incurred in connection with our acquisitions and our ability to repay or refinance it or incur additional debt in the future; the impact of federal, state or local government regulations; economic and political conditions generally; our ability to successfully complete the divestiture of non-core assets, including Zhongli; and the effect of competition in the Industrial Solutions segment, Energy Solutions segment and Fluid Handling Solutions segment industries. Many of these risks are beyond management's ability to control or predict. Should one or more of these risks or uncertainties materialize, or should the assumptions prove incorrect, actual results may vary in material aspects from those currently anticipated. Investors are cautioned not to place undue reliance on such forward-looking statements as they speak only to our views as of the date the statement is made. Furthermore, forward-looking statements speak only as of the date they are made. Except as required under the federal securities laws or the rules and regulations of the SEC, we undertake no obligation to update or review any forward-looking statements, whether as a result of new information, future events or otherwise.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to certain market risks, primarily changes in interest rates. Market risk is the potential loss arising from adverse changes in market rates and prices, such as foreign currency exchange and interest rates. For the Company, these exposures are primarily related to changes in interest rates. We do not currently hold any derivatives or other financial instruments purely for trading or speculative purposes. However, we do have an interest rate swap in place as of September 30, 2018 to hedge against a portion of our interest rate exposure related to debt indexed to LIBOR market rates. See Note 8 "Senior Debt" to the condensed consolidated financial statements within Item 1 of this Quarterly Report on Form 10-Q, for further information on this interest rate swap.

The carrying value of the Company's long-term debt and current maturities of long-term debt was $81.1 million at September 30, 2018. Market risk was estimated as the potential decrease (increase) in future earnings and cash flows resulting from hypothetical 10% increase (decrease) in the Company's estimated weighted average borrowing rate at September 30, 2018. Most of the interest on the Company's debt is indexed to either the LIBOR or EURIBOR market rates. The estimated impact of a hypothetical 10% change in the estimated weighted average borrowing rate, excluding the portion of debt which has an interest rate fixed by the interest rate swap described above, at September 30, 2018 is $0.2 million on an annual basis.

The Company has wholly-owned subsidiaries located in the Netherlands, Canada, the People's Republic of China, Mexico, United Kingdom, Singapore, and Chile. In the past, we have not hedged our foreign currency exposure, and fluctuations in exchange rates have not materially affected our operating results. Future changes in exchange rates may positively or negatively impact our revenues, operating expenses and earnings.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934 (the "Exchange Act")) that are designed to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to the Company's management, including its principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the Company's disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on that evaluation, our management, including our Chief Executive Officer and Chief Financial Officer, concluded that our disclosure controls and procedures were effective as of September 30, 2018. Management believes that the condensed consolidated financial statements included in this report fairly present in all material respects the Company's financial condition, results of operations and cash flows for each of the periods presented in this report.

Changes in Internal Control Over Financial Reporting

There were no changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) during the fiscal quarter ended September 30, 2018, that materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Limitations on the Effectiveness of Controls

Control systems, no matter how well conceived and operated, are designed to provide a reasonable, but not an absolute, level of assurance that the objectives of the control system are met. Further, 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 all control issues and instances of fraud, if any, within the Company have been detected. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. The Company conducts periodic evaluations of its internal controls to enhance, where necessary, its procedures and controls.

PART II – OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

Information with respect to legal proceedings can be found in Note 14 “Commitments and Contingencies – Legal Matters” to the Condensed Consolidated Financial Statements contained in Part I, Item 1 of this Quarterly Report on Form 10-Q.

ITEM 1A. RISK FACTORS

There have been no material changes in the Company’s risk factors that we disclosed in “Part I – Item 1A. Risk Factors” of our Annual Report on Form 10-K for the year ended December 31, 2017.

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

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

10.2	Amendment No. 4 to Amended and Restated Credit Agreement
31.1	Rule 13(a)/15d-14(a) Certification by Chief Executive Officer
31.2	Rule 13(a)/15d-14(a) Certification by Chief Financial Officer
32.1	Certification of Chief Executive Officer (18 U.S. Section 1350)
32.2	Certification of Chief Financial Officer (18 U.S. Section 1350)
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

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.

CECO Environmental Corp.

By: /s/ Matthew Eckl

Matthew Eckl

Chief Financial Officer

Date: November 7, 2018

Exhibit 10.2

AMENDMENT NO. 4 TO AMENDED AND RESTATED CREDIT AGREEMENT

THIS AMENDMENT NO. 4 TO AMENDED AND RESTATED CREDIT AGREEMENT dated and effective as of August 3, 2018 (this "Amendment"), is among CECO ENVIRONMENTAL CORP., a Delaware corporation (the "Company"), BANK OF AMERICA, N.A., in its capacity as the administrative agent (in such capacity, the "Administrative Agent"), each of the Subsidiary Guarantors party hereto and each of the Lenders party hereto.

Recitals:

A. The Company, the lenders party thereto (the "Lenders") and the Administrative Agent have entered into an Amended and Restated Credit Agreement dated as of September 3, 2015 (as amended by Amendment No. 1 to Amended and Restated Credit Agreement dated as of March 6, 2017, Amendment No. 2 to Amended and Restated Credit Agreement dated as of June 9, 2017 and Amendment No. 3 to Amended and Restated Credit Agreement dated as of October 31, 2017, the "Credit Agreement"). Capitalized terms used and not otherwise defined herein shall have the meanings ascribed to them in the Credit Agreement.

B. The Subsidiary Guarantors and the Administrative Agent have entered into a Subsidiary Guaranty Agreement dated as of August 27, 2013 (as amended, restated, supplemented or otherwise modified from time to time, the "Subsidiary Guaranty").

C. The Company has advised the Administrative Agent and the Lenders that it desires to amend the Credit Agreement as set forth herein.

D. Subject to the terms and conditions set forth below, the Administrative Agent and the Lenders have agreed to so amend the Credit Agreement.

In furtherance of the foregoing, the parties agree as follows:

Section 1. Amendments to Credit Agreement. Subject to the terms and conditions set forth herein and in reliance upon the representations and warranties set forth herein, the Credit Agreement is hereby amended as follows:

(a) The definitions of "Base Rate", "Cash Collateralized", "Consolidated Funded Indebtedness", "Eurocurrency Rate", "Facility Termination Date", "LIBOR Quoted Currency", "Obligations" and "Secured Parties" in Section 1.01 are amended and restated in their entirety to read as follows:

"Base Rate" means for any day a fluctuating rate per annum equal to the highest of (a) the Federal Funds Rate plus 1/2 of 1%, (b) the rate of interest in effect for such day as publicly announced from time to time by Bank of America as its "prime rate," (c) the Eurocurrency Rate plus 1.00% and (d) 1.00%. The "prime rate" is a rate set by Bank of

America based upon various factors including Bank of America's costs and desired return, general economic conditions and other factors, and is used as a reference point for pricing some loans, which may be priced at, above, or below such announced rate. Any change in such "prime rate" announced by Bank of America shall take effect at the opening of business on the day specified in the public announcement of such change.

"Cash Collateralize" means to pledge and deposit with or deliver to the Administrative Agent, for the benefit of one or more of the L/C Issuers, the Revolving Credit (USD) Lenders or PSLOC Banks, as collateral for L/C Obligations, Secured Permitted Standalone Letters of Credit or obligations of the Revolving Credit (USD) Lenders to fund participations in respect of L/C Obligations, cash or deposit account balances or, if the Administrative Agent and the L/C Issuers shall agree in their sole discretion, other credit support, in each case pursuant to documentation in form and substance reasonably satisfactory to (a) the Administrative Agent and (b) the L/C Issuers. "Cash Collateral" shall have a meaning correlative to the foregoing and shall include the proceeds of such cash collateral and other credit support.

"Consolidated Funded Indebtedness" means, as of any date of determination, for the Company and its Subsidiaries on a consolidated basis, and without duplication, the sum of (a) the outstanding principal amount of all obligations, whether current or long-term, for borrowed money (including Obligations hereunder) and all obligations evidenced by bonds, debentures, notes, loan agreements or other similar instruments, (b) all purchase money Indebtedness, (c) all direct obligations arising under letters of credit (including standby and commercial), bankers' acceptances, bank guaranties, surety bonds and similar instruments (excluding from such calculation direct obligations with respect to (i) undrawn performance standby letters of credit, (ii) undrawn performance-based bankers' acceptances and undrawn performance-based bank guarantees, (iii) performance-based surety bonds on which no claims have been asserted and (iv) undrawn letters of credit, undrawn bankers' acceptances and undrawn bank guarantees securing customer contracts, but in all cases including (x) any payment and reimbursement obligations due in respect of the foregoing, and (y) all obligations with respect to financial standby letters of credit, bankers' acceptances and bank guarantees or bonds providing assurance with respect to financial obligations), (d) all obligations in respect of the deferred purchase price of property or services (other than (x) trade accounts payable in the ordinary course of business and (y) "earnout" and similar payments in connection with Acquisitions permitted hereby), (e) Attributable Indebtedness in respect of capital leases and Synthetic Lease Obligations (for the purpose of calculating the Consolidated Leverage Ratio only, excluding any Attributable Indebtedness from capital leases arising from any sale-leaseback transaction permitted hereunder the Net Cash Proceeds of which are used substantially contemporaneously with the receipt thereof to prepay Term Loans hereunder pursuant to Section 2.05(b)(i)), (f) without duplication, all Guarantees with respect to outstanding Indebtedness of the types specified in clauses (a) through (e) above of Persons other than the Company or any Subsidiary, and (g) all Indebtedness of the types referred to in clauses (a) through (f) above of any partnership or joint venture (other than a joint venture that is itself a corporation or limited liability company) in which the Company or a Subsidiary is a general partner or joint venturer, unless such Indebtedness is expressly made nonrecourse to the Company or such Subsidiary (it being understood that any Indebtedness owed by the Company to any Subsidiary, by any Subsidiary to the Company or by any Subsidiary to another Subsidiary will be netted out for purposes of calculating Consolidated Funded Indebtedness to the extent such netting would be made when making calculations on "a consolidated basis" in accordance with GAAP).

"Eurocurrency Rate" means:

(a) for any Interest Period with respect to a Eurocurrency Rate Loan,

(i) in the case of a Eurocurrency Rate Loan denominated in a LIBOR Quoted Currency, the LIBOR Screen Rate at approximately 11:00 a.m., London time, two Business Days prior to the commencement of such Interest Period, for deposits in the relevant currency (for delivery on the first day of such Interest Period) with a term equivalent to such Interest Period; and

(ii) in the case of any other Eurocurrency Rate Loan denominated in a Non-LIBOR Quoted Currency, the rate per annum as designated with respect to such currency at the time such currency was approved by the Administrative Agent and the Lenders pursuant to Section 1.09(a) or, if such rate is unavailable on any date of determination for any reason, a comparable or successor rate approved by the Administrative Agent; and

(b) for any interest calculation with respect to a Base Rate Loan on any date, the rate per annum equal to LIBOR, at or about 11:00 a.m., London time determined two Business Days prior to such date for Dollar deposits with a term of one month commencing that day;

provided that to the extent a comparable or successor rate is approved by the Administrative Agent in connection with any rate set forth in this definition, the approved rate shall be applied to the applicable Interest Period in a manner consistent with market practice; provided, further, that to the extent such market practice is not administratively feasible for the Administrative Agent, such approved rate shall be applied in a manner as otherwise reasonably determined by the Administrative Agent. The Administrative Agent does not warrant, nor accept responsibility, nor shall it have any liability with respect to the administration, submission or any other matter related to any of the rates referenced in this definition above or any comparable or successor rate. Notwithstanding the foregoing, if the Eurocurrency Rate shall be less than zero, such rate shall be deemed zero for purposes of this Agreement.

"Facility Termination Date" means the date as of which all of the following shall have occurred: (a) the Aggregate Commitments have terminated, (b) all Obligations have been paid in full (other than (x) contingent indemnification obligations and (y) obligations and liabilities under Secured Cash Management Agreements, Secured Hedge Agreements and Secured Permitted Standalone Letters of Credit as to which arrangements reasonably satisfactory to the applicable Cash Management Bank, Hedge Bank or PSLOC Bank shall have been made) and (c) all Letters of Credit and Secured Permitted Standalone Letters of Credit have terminated or expired (other than Letters of

Credit or Secured Permitted Standalone Letters of Credit as to which other arrangements with respect thereto reasonably satisfactory to the Administrative Agent and the L/C Issuers or the applicable PSLOC Bank, as applicable, shall have been made).

"LIBOR Quoted Currency" means each of the following currencies: Dollars; Euro; Sterling; Swiss Franc; and Yen; in each case as long as there is a published LIBOR rate with respect thereto.

"Obligations" means all advances to, and debts, liabilities, obligations, covenants and duties of, any Loan Party arising under any Loan Document or otherwise with respect to any Loan, Letter of Credit, Secured Cash Management Agreement, Secured Hedge Agreement or Secured Permitted Standalone Letter of Credit, in each case whether direct or indirect (including those acquired by assumption), absolute or contingent, due or to become due, now existing or hereafter arising and including interest and fees that accrue after the commencement by or against any Loan Party or any Affiliate thereof of any proceeding under any Debtor Relief Laws naming such Person as the debtor in such proceeding, regardless of whether such interest and fees are allowed claims in such proceeding; provided that the "Obligations" of a Subsidiary Guarantor shall exclude any Excluded Swap Obligations with respect to such Subsidiary Guarantor.

"Secured Parties" means, collectively, the Administrative Agent, the Lenders, the L/C Issuers, the Hedge Banks, the Cash Management Banks, the PSLOC Banks, each co-agent or sub-agent appointed by the Administrative Agent from time to time pursuant to Section 9.05, and the other Persons the Obligations owing to which are or are purported to be secured by the Collateral under the terms of the Collateral Documents.

(b) Section 1.01 is amended by adding the following new definitions in the appropriate alphabetical locations therein:

"Beneficial Ownership Certification" means a certification regarding beneficial ownership as required by the Beneficial Ownership Regulation.

"Beneficial Ownership Regulation" means 31 C.F.R. § 1010.230.

"LIBOR" has the meaning specified in the definition of "LIBOR Screen Rate".

"LIBOR Screen Rate" means the rate per annum equal to the London Interbank Offered Rate as administered by ICE Benchmark Administration (or any other Person that takes over the administration of such rate for Dollars) ("LIBOR") or a comparable or successor rate, which rate is approved by the Administrative Agent, as published on the applicable Bloomberg screen page or other applicable screen page the Administrative Agent designates to determine LIBOR (or such other commercially available source providing such quotations as may be designated by the Administrative Agent from time to time).

"LIBOR Successor Rate" has the meaning assigned to such term in Section 3.03(b)(i).

“LIBOR Successor Rate Conforming Changes” means, with respect to any proposed LIBOR Successor Rate, any conforming changes to the definition of Base Rate, Interest Period, timing and frequency of determining rates and making payments of interest and other administrative matters as may be appropriate, in the discretion of the Administrative Agent, to reflect the adoption of such LIBOR Successor Rate and to permit the administration thereof by the Administrative Agent in a manner substantially consistent with market practice (or, if the Administrative Agent determines that adoption of any portion of such market practice is not administratively feasible or that no market practice for the administration of such LIBOR Successor Rate exists, in such other manner of administration as the Administrative Agent determines in consultation with the Company).

“Permitted Standalone Letter of Credit” means any commercial letter of credit, standby letter of credit, bankers’ acceptance or bank guarantee issued by a PSLOC Bank for the account of any Loan Party or any Subsidiary on a bilateral basis and not as part of the facilities provided under the Loan Documents; provided that the aggregate face amount of all such letters of credit, bankers’ acceptances and bank guarantees shall not exceed $20,000,000 at any time.

“PSLOC Bank” means any Person that, at the time it issues a Permitted Standalone Letter of Credit for the account of any Loan Party or any Subsidiary, is a Lender or an Affiliate of a Lender, in its capacity as the issuer of such Permitted Standalone Letter of Credit.

“Secured Permitted Standalone Letter of Credit” means any Permitted Standalone Letter of Credit specifically designated as such to the Administrative Agent in writing by the Company and the relevant PSLOC Bank as a “Secured Permitted Standalone Letter of Credit”.

(c) Section 2.16 is amended to read as follows:

2.16Cash Collateral.

(a)Certain Credit Support Events. If (i) any L/C Issuer has honored any full or partial drawing request under any Letter of Credit and such drawing has resulted in an L/C Borrowing, (ii) as of the close of business on the Letter of Credit Expiration Date, any L/C Obligation for any reason remains outstanding, (iii) the Company shall be required to provide Cash Collateral pursuant to Section 8.02(c), or (iv) there shall exist a Defaulting Lender, the Company shall immediately (in the case of clause (iii) above) or within one Business Day (in all other cases) following any request by the Administrative Agent or any L/C Issuer, provide Cash Collateral in an amount not less than the applicable Minimum Collateral Amount (determined in the case of Cash Collateral provided pursuant to clause (iv) above, after giving effect to Section 2.17(a)(iv) and any Cash Collateral provided by the Defaulting Lender) and, in the case of clause (iii) above, if applicable, Cash Collateral in amount not less than the maximum potential drawings under Secured Permitted Bilateral Letters of Credit. Additionally, if the Administrative

Agent notifies the Company at any time that the Outstanding Amount of all L/C Obligations at such time exceeds 103% of the Letter of Credit Sublimit then in effect, then, within two Business Days after receipt of such notice, the Company shall provide Cash Collateral for the Outstanding Amount of the L/C Obligations in an amount not less than the amount by which the Outstanding Amount of all L/C Obligations exceeds the Letter of Credit Sublimit.

(b) Grant of Security Interest. The Company, and to the extent provided by any Defaulting Lender, such Defaulting Lender, hereby grants to (and subjects to the control of) the Administrative Agent, for the benefit of the Administrative Agent, the L/C Issuers, the Lenders and the PSLOC Banks, and agrees to maintain, a first priority security interest in all such cash, deposit accounts and all balances therein, and all other property so provided as collateral pursuant hereto, and in all proceeds of the foregoing, all as security for the obligations to which such Cash Collateral may be applied pursuant to Section 2.16(c). If at any time the Administrative Agent determines that Cash Collateral is subject to any right or claim of any Person other than the Administrative Agent, the L/C Issuers, the Lenders and the PSLOC Banks as herein provided, or that the total amount of such Cash Collateral is less than the Minimum Collateral Amount or the maximum potential drawings under Secured Permitted Bilateral Letters of Credit, as applicable, the Company will, promptly upon demand by the Administrative Agent, pay or provide to the Administrative Agent additional Cash Collateral in an amount sufficient to eliminate such deficiency. All Cash Collateral (other than credit support not constituting funds subject to deposit) shall be maintained in blocked, non-interest bearing deposit accounts at Bank of America. The Company shall pay on demand therefor from time to time all customary account opening, activity and other administrative fees and charges in connection with the maintenance and disbursement of Cash Collateral.

(c) Application. Notwithstanding anything to the contrary contained in this Agreement, Cash Collateral provided under any of this Section 2.16 or Sections 2.03, 2.05, 2.17 or 8.02 in respect of Letters of Credit or Secured Permitted Standalone Letters of Credit shall be held and applied to the satisfaction of the specific L/C Obligations, obligations to fund participations therein (including, as to Cash Collateral provided by any Defaulting Lender, any interest accrued on such obligation) and other obligations for which the Cash Collateral was so provided (including obligations under Secured Permitted Standalone Letters of Credit), prior to any other application of such property as may otherwise be provided for herein.

(d) Release. Cash Collateral (or the appropriate portion thereof) provided to reduce Fronting Exposure or to secure other obligations shall be released promptly following (i) the elimination of the applicable Fronting Exposure or other obligations giving rise thereto (including by the termination of Defaulting Lender status of the applicable Lender (or, as appropriate, its assignee following compliance with Section 10.06(b)(vi))) or (ii) the determination by the Administrative Agent and the L/C Issuers that there exists excess Cash Collateral; provided, however, (x) any such release shall be without prejudice to, and any disbursement or other transfer of Cash Collateral shall be and remain subject to, any other Lien conferred under the Loan Documents and the other applicable provisions of the Loan Documents, and (y) the Person providing Cash Collateral and the L/C Issuers may agree that Cash Collateral shall not be released but instead held to support future anticipated Fronting Exposure or other obligations.

(d) Section 3.03 is amended to read as follows:

3.03 Inability to Determine Rates.

(a) Temporary Inability.

(i) Except in the case of circumstances described in Section 3.03(b), if in connection with any request for a Eurocurrency Rate Loan or a conversion to or continuation thereof, (A) the Administrative Agent determines that (1) deposits (whether in Dollars or an Alternative Currency) are not being offered to banks in the applicable offshore interbank market for such currency for the applicable amount and Interest Period of such Eurocurrency Rate Loan, or (2) adequate and reasonable means do not exist for determining the Eurocurrency Rate for any requested Interest Period with respect to a proposed Eurocurrency Rate Loan (whether denominated in Dollars or an Alternative Currency) or in connection with an existing or proposed Base Rate Loan (in each case with respect to clause (a)(i)(A) above, "Impacted Loans"), or (B) the Required Lenders determine that for any reason the Eurocurrency Rate for any requested Interest Period with respect to a proposed Eurocurrency Rate Loan does not adequately and fairly reflect the cost to such Lenders of funding such Loan, the Administrative Agent will promptly so notify the Company and each Lender. Thereafter, (x) the obligation of the Lenders under the appropriate Facility to make or maintain Eurocurrency Rate Loans in the affected currency or currencies shall be suspended (to the extent of the affected Eurocurrency Rate Loans or Interest Periods), and (y) in the event of a determination described in the preceding sentence with respect to the Eurocurrency Rate component of the Base Rate, the utilization of the Eurocurrency Rate component in determining the Base Rate shall be suspended, in each case until the Administrative Agent (upon the instruction of the Required Revolving Credit (USD) Lenders (in the case of the Revolving Credit (USD) Facility), the Required Revolving Credit (MC) Lenders (in the case of the Revolving Credit (MC) Facility) or the Required Term Loan Lenders (in the case of the Term Loan Facility)) revokes such notice. Upon receipt of such notice, the Company may revoke any pending request for a Borrowing of, conversion to or continuation of Eurocurrency Rate Loans in the affected currency or currencies (to the extent of the affected Eurocurrency Rate Loans or Interest Periods) under the appropriate Facility or, failing that, will be deemed to have converted such request into a request for a Borrowing of Base Rate Loans under the appropriate Facility in the amount specified therein.

(ii) Notwithstanding the foregoing, if the Administrative Agent has made the determination described in clause (a)(i)(A) of this Section, the Administrative Agent, in consultation with the Company and the Required Lenders, may establish an alternative interest rate for the Impacted Loans, in which case, such alternative rate of interest shall apply with respect to the Impacted Loans until (A) the Administrative Agent revokes the notice delivered with respect to the Impacted Loans under clause (a)(i)(A) of this Section, (B) the Required Lenders notify the Administrative Agent and the Company that such alternative interest rate does not adequately and fairly reflect the cost to such Lenders of funding the Impacted Loans, or (C) any Lender determines that any Law has made it unlawful, or that any Governmental Authority has asserted that it is unlawful, for such Lender or its applicable Lending Office to make, maintain or fund Loans whose interest is determined by reference to such alternative rate of interest or to determine or charge interest rates based upon such rate or any Governmental Authority has imposed material restrictions on the authority of such Lender to do any of the foregoing and provides the Administrative Agent and the Company written notice thereof.

(b) Non-Temporary Inability.

(i) Notwithstanding anything to the contrary in this Agreement or any other Loan Documents, including Section 3.03(a) above, if the Administrative Agent determines (which determination shall be conclusive absent manifest error), or the Company or the Required Lenders notify the Administrative Agent in writing (with, in the case of the Required Lenders, a copy to the Company) that the Company or the Required Lenders (as applicable) have determined, that:

(A) adequate and reasonable means do not exist for ascertaining LIBOR for any requested Interest Period, including, without limitation, because the LIBOR Screen Rate is not available or published on a current basis and such circumstances are unlikely to be temporary; or

(B) the administrator of the LIBOR Screen Rate or a Governmental Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which LIBOR or the LIBOR Screen Rate shall no longer be made available, or used for determining the interest rate of loans (such specific date, the "Scheduled Unavailability Date"); or

(C) syndicated loans currently being executed, or that include language similar to that contained in this Section, are being executed or amended (as applicable) to incorporate or adopt a new benchmark interest rate to replace LIBOR;

then, reasonably promptly after such determination by the Administrative Agent or receipt by the Administrative Agent of such notice, as applicable, the Administrative Agent and the Company may amend this Agreement to replace LIBOR with an alternate benchmark rate (including any mathematical or other adjustments to the benchmark (if any) incorporated therein), giving due consideration to any evolving or then existing convention for similar U.S. dollar denominated syndicated credit facilities for such alternative benchmarks (any such proposed rate, a "LIBOR Successor Rate"), together with any proposed LIBOR Successor Rate Conforming Changes and any such amendment shall become effective at 5:00 p.m. (New York time) on the fifth Business Day after the Administrative Agent shall have posted such proposed amendment to all Lenders and the Company unless, prior to such time, Lenders comprising the Required Lenders have delivered to the Administrative Agent written notice that such Required Lenders do not accept such amendment.

(ii) If no LIBOR Successor Rate has been determined and the circumstances under clause (b)(i)(A) above exist or the Scheduled Unavailability Date has occurred (as applicable), the Administrative Agent will promptly so notify the Company and each Lender. Thereafter, (x) the obligation of the Lenders to make or maintain Eurocurrency Rate Loans in the affected currency or currencies shall be suspended (to the extent of the affected Eurocurrency Rate Loans or Interest Periods), and (y) the Eurocurrency Rate component shall no longer be utilized in determining the Base Rate. Upon receipt of such notice, the Company may revoke any pending request for a Borrowing of, conversion to or continuation of Eurocurrency Rate Loans denominated in a LIBOR Quoted Currency (to the extent of the affected Eurocurrency Rate Loans or Interest Periods) or, failing that, will be deemed to have converted such request into a request for a Borrowing of Base Rate Loans (subject to the foregoing clause (y)) in the amount specified therein.

(iii) Notwithstanding anything else herein, any definition of LIBOR Successor Rate shall provide that in no event shall such LIBOR Successor Rate be less than zero for purposes of this Agreement.

(e) Article V is amended by adding the following new Section 5.28 to the end thereof:

5.28 Beneficial Ownership Certification. As of August [__], 2018, the information included in any Beneficial Ownership Certification, if applicable, is true and correct in all respects.

(f) Section 6.02 is amended by converting the existing clause (e) therein to a new clause (f) and adding the following new clause (e):

(e) promptly upon the request thereof, such other information and documentation required by bank regulatory authorities under applicable "know your customer" and anti-money laundering rules and regulations (including, without limitation, the Act and the Beneficial Ownership Regulation), as from time to time reasonably requested by the Administrative Agent or any Lender; and

(g) Section 7.03 is amended by converting the existing clause (i) therein to a new clause (j) and adding the following new clause (i):

(i) Indebtedness in respect of Permitted Standalone Letters of Credit; and

(h) Section 8.02(c) is amended to read as follows:

(c) require that the Company Cash Collateralize the L/C Obligations (in an amount equal to the Minimum Collateral Amount with respect thereto) and Cash Collateralize the Secured Permitted Bilateral Letters of Credit (in an amount equal to the maximum potential drawings thereunder); and

(i) The proviso at the end of Section 8.02 is amended by inserting "and Secured Permitted Standalone Letters of Credit" immediately following the reference therein to "Cash Collateralize the L/C Obligations"

(j) Each of clauses Fourth and Fifth in Section 8.03 is amended to read as follows:

Fourth, to payment of that portion of the Obligations constituting unpaid principal of the Loans, L/C Borrowings, Obligations then owing under Secured Hedge Agreements and Secured Cash Management Agreements and Obligations in the nature of drawn and unreimbursed amounts under Secured Permitted Standalone Letters of Credit, ratably among the Lenders, the L/C Issuers, the Hedge Banks, the Cash Management Banks and the PSLOC Banks in proportion to the respective amounts described in this clause Fourth held by them;

Fifth, to the Administrative Agent for the account of the L/C Issuers and the PSLOC Banks, to Cash Collateralize that portion of L/C Obligations comprised of the aggregate undrawn amount of Letters of Credit and obligations comprised of the aggregate undrawn amount of Secured Permitted Standalone Letters of Credit, in each case to the extent not otherwise Cash Collateralized by the Company pursuant to Sections 2.03 and 2.16 and the terms of such Secured Permitted Standalone Letters of Credit ratably among the L/C Issuers and the PSLOC Banks in proportion to the respective amounts described in this clause Fifth held by them; and

(k) The final two paragraphs of Section 8.03 are amended to read as follows:

Subject to Section 2.03(c) and 2.16, amounts used to Cash Collateralize the aggregate undrawn amount of Letters of Credit and Secured Permitted Standalone Letters of Credit pursuant to clause Fifth above shall be applied to satisfy drawings under such Letters of Credit and Secured Permitted Standalone Letters of Credit as they occur. If any amount remains on deposit as Cash Collateral after all Letters of Credit and Secured Permitted Standalone Letters of Credit have either been fully drawn or expired, such remaining amount shall be applied to the other Obligations, if any, in the order set forth above.

Notwithstanding the foregoing, Obligations arising under Secured Cash Management Agreements, Secured Hedge Agreements and Secured Permitted Standalone Letters of Credit shall be excluded from the application described above if the Administrative Agent has not received written notice thereof, together with such supporting documentation as the Administrative Agent may request, from the applicable Cash Management Bank, Hedge Bank or PSLOC Bank, as the case may be. Each Cash Management Bank, Hedge Bank or PSLOC Bank not a party to this Agreement that has given the notice contemplated by the preceding sentence shall, by such notice, be deemed to have acknowledged and accepted the appointment of the Administrative Agent pursuant to the terms of Article IX hereof for itself and its Affiliates as if a "Lender" party to this Agreement.

(l) The first parenthetical in each of Section 9.01(a) and 9.01(b) is amended to read as follows:

(including in its capacities as a potential Hedge Bank, a potential Cash Management Bank and a potential PSLOC Bank)

(m) The opening clause of Section 9.10 is amended to read as follows:

Each of the Lenders (including in its capacities as a potential Cash Management Bank, a potential Hedge Bank and a potential PSLOC Bank) and each L/C Issuer irrevocably authorize the Administrative Agent at its option and in its discretion,

(n) Section 9.10(a) is amended to read as follows:

(a) to release any Lien on any property granted to or held by the Administrative Agent under any Loan Document (i) upon termination of the Aggregate Commitments and payment in full of all Obligations (other than (x) contingent indemnification obligations and (y) obligations and liabilities under Secured Cash Management Agreements, Secured Hedge Agreements and Secured Permitted Standalone Letters of Credit as to which arrangements reasonably satisfactory to the applicable Cash Management Bank, Hedge Bank or PSLOC Bank shall have been made) and the expiration or termination of all Letters of Credit and Secured Permitted Standalone Letters of Credit (other than Letters of Credit or Secured Permitted Standalone Letters of Credit as to which other arrangements with respect thereto reasonably satisfactory to the Administrative Agent and each L/C Issuer or the applicable PSLOC Bank, as applicable, shall have been made), (ii) that is sold or otherwise Disposed of or to be sold or otherwise Disposed of as part of or in connection with any sale or other Disposition permitted hereunder or under any other Loan Document, or (iii) subject to Section 10.01, if approved, authorized or ratified in writing by the Required Lenders;

(o) Section 9.11 is amended to read as follows:

9.11 Secured Cash Management Agreements, Secured Hedge Agreements and Secured Permitted Standalone Letters of Credit. No Cash Management Bank, Hedge Bank or PSLOC Bank that obtains the benefit of the provisions of Section 8.03, any Guaranty or any Collateral by virtue of the provisions hereof or of any Guaranty or any Collateral Document shall have any right to notice of any action or to consent to, direct or object to any action hereunder or under any other Loan Document or otherwise in respect of the

Collateral (including the release or impairment of any Collateral) (or to notice of or to consent to any amendment, waiver or modification of the provisions hereof or of any Guaranty or any Collateral Document) other than in its capacity as a Lender and, in such case, only to the extent expressly provided in the Loan Documents. Notwithstanding any other provision of this Article IX to the contrary, the Administrative Agent shall not be required to verify the payment of, or that other reasonably satisfactory arrangements have been made with respect to, Obligations arising under Secured Cash Management Agreements, Secured Hedge Agreements and Secured Permitted Standalone Letters of Credit unless the Administrative Agent has received written notice of such Obligations, together with such supporting documentation as the Administrative Agent may request, from the applicable Cash Management Bank, Hedge Bank or PSLOC Bank, as the case may be.

The amendments to the Credit Agreement are limited to the extent specifically set forth above and no other terms, covenants or provisions of the Loan Documents are intended to be effected hereby.

Section 2. Secured Permitted Standalone Letters of Credit.

(a) Each of the parties hereto acknowledges and agrees that all obligations and liabilities now or hereafter arising under the Secured Permitted Standalone Letters of Credit shall be deemed to be “Guaranteed Liabilities” under, and as defined in, each of the Company Guaranty and the Subsidiary Guaranties, and each of the Company and the Subsidiary Guarantors party hereto (each, on behalf of itself and its current and future Subsidiaries) hereby confirms and ratifies that the respective guarantees of the Company and the Subsidiary Guarantors provided under the Company Guaranty and the Subsidiary Guaranties, as applicable, extends to the payment and performance in full of all obligations and liabilities now or hereafter arising under the Secured Permitted Standalone Letters of Credit.

(b) Each of the parties hereto further acknowledges and agrees that all obligations and liabilities now or hereafter arising under the Secured Permitted Standalone Letters of Credit shall be deemed to be “Secured Obligations” (or any equivalent term used in the applicable document) under, and as defined in, each of the Security Agreements, Security Joinder Agreements, Pledge Agreements, Pledge Joinder Agreements, Pledge Agreement Supplements, Mortgages and the other Collateral Documents now or hereafter existing, and each of the Company and the Subsidiary Guarantors party hereto (each, on behalf of itself and its current and future Subsidiaries) hereby confirms and ratifies that the respective grants of a security interest by the Company and the Subsidiary Guarantors to the Administrative Agent for the benefit of the Secured Parties in their respective property and property rights (as contemplated by the Collateral Documents), as security for the payment and performance of such “Secured Obligations” (or any equivalent term used in the applicable document), extends to the payment and performance in full of all obligations and liabilities now or hereafter arising under the Secured Permitted Standalone Letters of Credit.

(c) Each of the parties hereto acknowledges and agrees that the provisions in the Company Guaranty, the Subsidiary Guaranties and the Collateral Documents applicable to Secured Cash Management Agreements and Cash Management Banks shall be deemed to also apply to Secured Permitted Standalone Letters of Credit and PSLOC Bank, as the context may require, in order to allow for the full benefit by the PSLOC Banks of the provisions with respect to Secured Permitted Standalone Letters of Credit set forth in the Credit Agreement and the foregoing subsections (a) and (b).

Section 3. Conditions Precedent. The effectiveness of this Amendment and the amendments and other agreements contemplated hereby is subject to the satisfaction of the following conditions precedent:

(a) Amendment. The Administrative Agent shall have received counterparts of this Amendment, duly executed and delivered by the Company, the Subsidiary Guarantors, the Administrative Agent and the Lenders.

(b) Beneficial Ownership Certification. At least 5 days prior to the date hereof, the Company (to the extent that it qualifies as a “legal entity customer” under the Beneficial Ownership Regulation) shall deliver, to each Lender that so requests, a Beneficial Ownership Certification in relation to the Company.

(c) Legal Fees and Expenses. The Company shall have paid all reasonable and documented out-of-pocket fees, charges and disbursements of counsel to the Administrative Agent (directly to such counsel if requested by the Administrative Agent) to the extent invoiced at least two days prior to the date hereof.

Upon satisfaction of the conditions set forth in this Section 2 and the effectiveness of this Amendment, the Administrative Agent shall provide notice of such effectiveness to the Company and the Lenders.

Section 4. Representations and Warranties.

(a) In order to induce the Administrative Agent and the Lenders to enter into this Amendment, the Company represents and warrants to the Administrative Agent and the Lenders as follows:

(i) After giving effect to this Amendment, the representations and warranties of the Company and each other Loan Party contained in Article V of the Credit Agreement and in each other Loan Document are true and correct in all material respects on and as of the date hereof, except to the extent that such representations and warranties specifically refer to an earlier date, in which case they are true and correct in all material respects as of such earlier date, and except that for purposes of this Amendment, the representations and warranties contained in Sections 5.05(a) and (b) of the Credit Agreement shall be deemed to refer to the most recent statements furnished pursuant to Sections 6.01(a) and (b), respectively, of the Credit Agreement.

(ii) Since December 31, 2014, there has been no event or circumstance, either individually or in the aggregate, that has had or could reasonably be expected to have a Material Adverse Effect.

(iii) No Default or Event of Default has occurred and is continuing or will exist after giving effect to this Amendment.

(b) In order to induce the Administrative Agent and the Lenders to enter into this Amendment, each of the Company and each Subsidiary Guarantor represents and warrants to the Administrative Agent and the Lenders that this Amendment has been duly authorized, executed and delivered by it and constitutes its legal, valid and binding obligation, except as such enforcement may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws relating to or limiting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding in equity or at law).

Section 5. Miscellaneous.

(a) Ratification and Confirmation of Loan Documents. Each of the Company and each Subsidiary Guarantor hereby consents, acknowledges and agrees to the amendments and other agreements set forth herein and hereby confirms and ratifies in all respects the Loan Documents to which such Person is a party (including without limitation, with respect to each Subsidiary Guarantor, the continuation of its payment and performance obligations under the Subsidiary Guaranty and, with respect to both the Company and each Subsidiary Guarantor, the continuation and extension of the liens granted under the Collateral Documents to secure the Secured Obligations), in each case after giving effect to the amendments and other agreements contemplated hereby.

(b) Fees and Expenses. The Company shall pay on demand all reasonable costs and expenses of the Administrative Agent in connection with the preparation, negotiation, execution, and delivery of this Amendment and any other documents prepared in connection herewith, including, without limitation, the reasonable fees and out-of-pocket expenses of counsel for the Administrative Agent, in each case, as set forth in Section 10.04(a) of the Credit Agreement.

(c) Headings. Section and subsection headings in this Amendment are included herein for convenience of reference only and shall not constitute a part of this Amendment for any other purpose or be given any substantive effect.

(d) Governing Law; Jurisdiction; Waiver of Jury Trial; Etc. This Amendment shall be governed by and construed in accordance with the laws of the State of New York, and shall be further subject to the provisions of Sections 10.14 and 10.15 of the Credit Agreement.

(e) Counterparts. This Amendment may be executed in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, and all of which when taken together shall constitute one and the same agreement. Delivery of an executed counterpart of a signature page of this Amendment by facsimile or electronic transmission (including .pdf file) shall be effective as delivery of a manually executed counterpart hereof.

(f) Entire Agreement. This Amendment, together with the Engagement Letter and the other Loan Documents (collectively, the "Relevant Documents"), sets forth the entire understanding and agreement of the parties hereto in relation to the subject matter hereof and supersedes any prior negotiations and agreements among the parties relating to such subject matter. No promise, condition, representation or warranty, express or implied, not set forth in the Relevant Documents shall bind any party hereto, and no such party has relied on any such promise, condition, representation or warranty. Each of the parties hereto acknowledges that, except as otherwise expressly stated in the Relevant Documents, no representations, warranties or commitments, express or implied, have been made by any party to the other in relation to the subject matter hereof or thereof. None of the terms or conditions of this Amendment may be changed, modified, waived or canceled orally or otherwise except in writing in accordance with Section 10.01 of the Credit Agreement.

(g) Enforceability. Should any one or more of the provisions of this Amendment be determined to be illegal or unenforceable as to one or more of the parties hereto, all other provisions nevertheless shall remain effective and binding on the parties hereto.

(h) Successors and Assigns. This Amendment shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns (subject to Section 10.06 of the Credit Agreement).

[Remainder of Page Intentionally Left Blank; Signature Pages Follow]

The following parties have caused this Amendment to be executed as of the date first written above.

COMPANY:

CECO ENVIRONMENTAL CORP.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

SUBSIDIARY GUARANTORS:

AARDING THERMAL ACOUSTICS USA INC.
ADWEST TECHNOLOGIES, INC.
AVC, INC.
CECO ABATEMENT SYSTEMS, INC.
CECO FILTERS, INC.
CECO GROUP, INC.
CECO MEXICO HOLDINGS LLC
CECOAIRE, INC.
EFFOX INC.
FISHER-KLOSTERMAN, INC.
GMD ENVIRONMENTAL TECHNOLOGIES, INC.
MET-PRO TECHNOLOGIES LLC (f/k/a Mustang Acquisition II, LLC)
NEW BUSCH CO., INC.
THE KIRK & BLUM MANUFACTURING COMPANY

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

CECO GROUP GLOBAL HOLDINGS LLC
FKI, LLC

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

H.M. WHITE, INC.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

KBD/TECHNIC, INC.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

BIO-REACTION INDUSTRIES INC.
MET-PRO HOLDINGS LLC
MPC INC.
MET-PRO CHEMICAL, INC. (f/k/a Pristine Water Solutions Inc.)
STROBIC AIR CORPORATION

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

MET-PRO INDUSTRIAL SERVICES, INC.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

EMTROL LLC

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

PEERLESS MFG. CO.
NITRAM ENERGY, INC.
PMC ACQUISITION, INC.
BURGESS-MANNING, INC.
BURMAN MANAGEMENT, INC.
BOS-HATTEN, INC.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

SAT TECHNOLOGY, INC.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

CECO AIR QUALITY SOLUTIONS, INC.

By: /s/ MATTHEW ECKL
Name: Matthew Eckl
Title: Chief Financial Officer

ADMINISTRATIVE AGENT:

BANK OF AMERICA, N.A.,
as Administrative Agent

By:	/s/ Kyle D. Harding
Name:	Kyle D. Harding
Title:	Assistant Vice President

<u>LENDERS:</u>

BANK OF AMERICA, N.A., as a Lender and an L/C Issuer

By:	/s/ Gregg Bush
Name:	Gregg Bush
Title:	Senior Vice President

CITIZENS BANK OF PENNSYLVANIA, as a Lender

By: /s/ Dale Carr
Name: Dale Carr
Title: Senior Vice President

JPMORGAN CHASE BANK, N.A., as a Lender and an L/C Issuer

By: /s/ Joe Carrell
Name: Joe Carrell
Title: Vice President

FIFTH THIRD BANK, N.A., as a Lender and an L/C Issuer

By: /s/ John R. Gray
Name: John R. Gray
Title: Assistant Vice President

TD BANK, N.A., as a Lender

By: /s/ Susan Schwarz
Name: Susan Schwarz
Title: Vice President

PNC BANK, NATIONAL ASSOCIATION, as a Lender

By: /s/ C. Randell Kron
Name: C. Randell Kron
Title: Vice President

CITIBANK, N.A., as a Lender and an L/C Issuer

By:	/s/ John Torres
Name:	John Torres
Title:	Senior Vice President

ASSOCIATED BANK, NATIONAL ASSOCIATION, as a Lender

By:	/s/ Jonathan Gluckman
Name:	Jonathan Gluckmann
Title:	Vice President

Exhibit 31.1

Certification of Chief Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Dennis Sadlowski, certify that:

1. I have reviewed this quarterly report on Form 10-Q of CECO Environmental Corp.;

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 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 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.

/s/ Dennis Sadlowski
Dennis Sadlowski
Chief Executive Officer

Date: November 7, 2018

Exhibit 31.2

Certification of Chief Financial Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Matthew Eckl, certify that:

1. I have reviewed this quarterly report on Form 10-Q of CECO Environmental Corp.;

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 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 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.

/s/ Matthew Eckl
Matthew Eckl
Chief Financial Officer

Date: November 7, 2018

Exhibit 32.1

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 CECO Environmental Corp. (the “Company”) on Form 10-Q for the nine-month period ended September 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Dennis Sadlowski, 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, to the best of his knowledge and belief, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Report.

/s/ Dennis Sadlowski
Dennis Sadlowski
Chief Executive Officer

Date: November 7, 2018

Exhibit 32.2

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 CECO Environmental Corp. (the “Company”) on Form 10-Q for the nine-month period ended September 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Matthew Eckl, 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, to the best of his knowledge and belief, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Report.

/s/ Matthew Eckl
Matthew Eckl
Chief Financial Officer

Date: November 7, 2018