CECO ENVIRONMENTAL CORP
Form 10-K
March 07, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark one)

Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
For the fiscal year ended December 31, 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.

Delaware	13-2566064
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
14651 North Dallas Parkway Suite 500	
Dallas, Texas	75254
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (214) 357-6181

Securities registered under Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value per share	The NASDAQ Stock Market LLC

Securities registered under Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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 such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant’s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

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 aggregate market value of voting and non-voting common stock held by non-affiliates of the registrant was $162.7 million based upon the closing market price and shares of common stock outstanding as of June 29, 2018, the last business day of our most recently completed second fiscal quarter. For the purpose of the foregoing calculation only, all directors and executive officers of the registrant and owners of more than 10% of the registrant’s common stock are assumed to be affiliates of the registrant. This determination of affiliate status is not necessarily conclusive

for any other purpose.

As of February 28, 2019, the registrant had 34,979,895 shares of common stock, par value $0.01 per share, outstanding.

Documents Incorporated by Reference

Portions of the definitive Proxy Statement for the 2019 Annual Meeting of Stockholders, which is to be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2018, are incorporated by reference into Part III of this Annual Report to the extent described herein.

CECO Environmental Corp. and Subsidiaries

ANNUAL REPORT ON FORM 10-K

For the year ended December 31, 2018

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes forward-looking statements within the meaning of the Securities Act of 1933 (the “Securities Act”) and the Securities Exchange Act of 1934 (the “Exchange Act”) which are intended to be covered by the safe harbor for "forward-looking statements" provided by the Private Securities Litigation Reform Act of 1995. Any statements contained in this Annual Report on Form 10-K, other than statements of historical fact, including statements about management’s beliefs and expectations, are forward-looking statements and should be evaluated as such. These statements are made on the basis of management’s views and assumptions regarding future events and business performance. 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 and uncertainties, among others, that could cause actual results to differ materially are discussed under “Part I – Item 1A. Risk Factors” of this Annual Report on Form 10-K 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 our service areas; dependence on fixed price contracts and the risks associated therewith, including actual costs exceeding estimates and method of accounting for revenue; fluctuations in operating results from period to period due to cyclicality or seasonality of the business; the effect of growth on our 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 divestitures of non-core assets and the effect of competition in the industries served by our Energy Solutions segment, Industrial Solutions segment and Fluid Handling Solutions segment. 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 Securities and Exchange Commission (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.

PART I

Item 1. Business

General

CECO Environmental Corp. ("CECO" or the "Company") is a global leader in industrial air quality and fluid handling serving the energy, industrial and other niche markets through an attractive asset-light business model. CECO provides innovative technology and application expertise that helps companies grow their businesses with safe, clean, and more efficient solutions to help protect our shared environment.

CECO serves diverse industries globally by working to improve air quality, optimize the energy value chain, and provide customized engineered solutions in our customer's mission critical applications. The secular growth industries CECO serves include oil and gas, power generation, water and wastewater, battery production, poly silicon fabrication, chemical and petrochemical processing, along with a wide range of other industries.

To achieve our mission of being a world-class global leader in industrial air quality and fluid handling, we strive to maximize the availability, reliability and efficiency of our customers' operating assets. Additionally, we continue to focus on increasing our recurring revenue stream from aftermarket parts and services, as well as continuously improving the efficiencies and capabilities of our technologies.

CECO has over $5 billion of installed equipment base with end users, which we target to expand and grow a higher recurring revenue of aftermarket products and services. We also focus on operational excellence strategies as a central theme to improving our earnings and cash flows.

We believe we succeed because of the relationships we have developed, the long history of performance and reliability of our systems and products, our ability to deliver products in compliance with our customers' needs and our advanced technical engineering capabilities on complex projects. We work closely with our customers to design, custom-engineer and fabricate our systems and products to meet their specific needs.

Our customers include some of the largest natural gas processors, transmission and distribution companies, refineries, power generators, boiler manufacturers, compressor manufacturers, metals and minerals, industrial manufacturing, engineering and construction companies in the world.

We believe our value differentiators include, but are not limited to, reliable product performance, timely delivery, customer satisfaction, and advanced engineering. We believe these are critical in maintaining our competitive position and have adopted a spirit of continuous improvement to ensure we maintain our market leadership position.

CECO was incorporated in the State of New York in 1966 and reincorporated in the State of Delaware in January 2002. The Company has been publicly traded since January 1, 1978 and its common stock trades on the NASDAQ Stock Market under the symbol "CECE."

Industry Overview

We serve a multi-billion dollar global market that is highly fragmented and serves various end markets including power generation, natural gas power plants, petrochemical processing, general industrial, refining, oil & gas and wastewater treatment.

We believe demand for our products and services will continue to be driven by the following factors:

- Global Economic Conditions. The Company's businesses are impacted by economic conditions around the globe. Higher economic growth and other factors that would increase industrial gross domestic product and capital expenditures are projected to impact the markets the Company serves and could affect the Company's businesses by increasing demand for the Company's products and services.
- Worldwide Industrialization. Global trade has increased significantly over the last decade and is driven by growth in emerging markets, including China and India, as well as other developing nations in Asia and the Europe, Middle East, and Africa ("EMEA") region. As a result of globalization, manufacturing that was historically performed domestically continues to migrate to lower cost countries. This movement of the manufacture of goods throughout the world increases demand for industrial ventilation products as new construction continues. We expect that more rigorous environmental

regulations will be introduced to create a cleaner working environment and reduce environmental emissions as these economies evolve.

- Natural Gas Infrastructure. The natural gas industry consists of the exploration, production, processing, transportation, storage and distribution of natural gas. The International Energy Association ("IEA") projects a pronounced shift in Organization for Economic Cooperation and Development ("OECD") countries away from oil and coal towards natural gas and renewables. Natural gas continues to be the fuel of choice for the electrical power and industrial sectors in many of the world's regions, in part because of its lower carbon intensity compared with coal and oil, which makes it an attractive fuel source in countries where governments are implementing policies to reduce greenhouse gas emissions.

Natural gas delivery is a complex process that refines raw natural gas for industrial, commercial or residential uses. Initially, raw natural gas is extracted from the earth and cleansed of contaminants such as dirt and water at the well site. The natural gas is then transported through a gathering facility to a processing facility, where it is processed to meet quality standards set by pipeline and distribution companies, such as specified levels of solids, liquids and other gases. After processing, the natural gas is transmitted for storage or through an extensive network of pipelines to consumers.

- Power Generation. Power generation encompasses a broad range of activities related to the production of electricity. The primary types of fuel used to generate electricity are coal, natural gas and nuclear. In the United States, concerns about potential environmental regulations enhance the attractiveness of natural gas-fired power plants compared with coal-fired power plants, which generally have higher pollutant emission rates than natural gas-powered plants. Natural gas-fired power plants have lower initial capital needs and are more flexible in terms of operating times than coal plants.
- Refining, Oil Production and Petrochemical Processing. Refining, oil production and petrochemical processing involves the producing, refining and processing of fuels and chemicals for use in a variety of applications, such as gasoline, fertilizers and plastics. In response to increasing international demand for petrochemicals and refined products, companies are producing more products from new sources, constructing new refineries and petrochemical processing facilities as well as expanding existing facilities. In many cases, these new and expanded facilities must comply with stricter environmental regulations, which influence both choice of fuel and demand for systems to control exhaust emissions. These facilities use a broad range of our products and systems, including our selective catalytic reduction ("SCR") pollution reduction systems, oily water treatment systems and separation and filtration products and our fluid catalytic cracking cyclone technology.
- Stringent Regulatory Environment. The adoption of increasingly stringent environmental regulations globally requires businesses to pay strict attention to environmental protection. Businesses and industries of all types from refineries, power, chemical processes, metals and minerals, energy market and industrial manufacturing must comply with these various international, federal, state and local government regulations or potentially face substantial fines or be forced to suspend production or alter their production processes. These increasingly stringent environmental regulations are a principal factor that drives our business.

These factors, individually or collectively, tend to cause increases in industrial capital spending that are not directly impacted by general economic conditions, expansion, or capacity increases. In contrast, favorable conditions in the economy generally lead to plant expansions and the construction of new industrial sites. However, in a weak economy, customers tend to lengthen the time from their initial inquiry to the purchase order or defer purchases.

Mission and Strategy

Our mission is to help companies grow their business with safe, clean and more efficient solutions that help protect people and our shared environment.

We seek to fulfill this mission through established global leadership in air quality and fluid handling solutions focused on serving the energy, industrial, and other niche markets around the world. We will continue to leverage our innovative technology and application expertise to customers around the world. We work 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 wide range of other applications.

Our strategy to become the global leader in air quality and fluid handling solutions is to drive an operating environment of performance excellence across the Company with a near term focus on targeted value creation enablers, and growth-oriented business segment performance.

Four Value Creation Enablers Driving Growth:

All four of these are inter-connected and critical to achieving our objectives.

- Outside-In Leadership is all about an increased attention on our customers and the trends affecting the world around us as we make decisions that enable our organization to be responsive and with an orientation for growth.

- Innovation is about us finding better ways to help our customers get their jobs done – whether that is a new product and technology or the way we serve and work with them.

- Simplification involves aligning and streamlining our operational practices and metrics to match our customers' key performance indicators ("KPIs") for success and removing complexity from our systems and structure.

- Active Portfolio Management dictates a regular evaluation of our business units for market attractiveness and profitability together with scanning the market for attractive potential additions that strengthen the long-term outlook of the Company.

Three Business Segments:

The Company executes and reports in three reportable segments focused on attractive end markets. Each segment is aligned to generate profitable growth for the Company across a targeted industry with a compelling technology and solution set to benefit customers. Additionally, we seek to protect and deepen our end user relationships by expanding our aftermarket services with long-term service contracts that deliver a full life-cycle of customer support.

- Energy Solutions segment: Serves the energy market, where we are a key part of helping meet the global demand for clean energy with products and services that support our customers with efficient solutions and technologies to keep the world clean and safe. Our offerings improve air quality with market leading, highly engineered, and customized solutions for the power generation, oil & gas, and petrochemical industries.

- Industrial Solutions segment: Serves the industrial pollution control market where our aim is to address the growing need to protect the air we breathe and help our customers' desires for sustainability upgrades beyond carbon footprint issues. Our offerings improve 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, and industrial odors.

- Fluid Handling Solutions segment: Offers unique pump and filtration solutions that maintain safe and clean operations in some of the most harsh and toxic environments. In this market, we provide solutions for mission-critical applications to a wide variety of industries including, but not limited to, plating and metal finishing, food and beverage, chemical, petrochemical, pharmaceutical, wastewater treatment, desalination and the aquarium & aquaculture markets.

Competitive Strengths

Leading market position as a complete solution provider. We believe we are a leading provider of critical solutions in industrial air quality and fluid handling. The multi-billion dollar global market is highly fragmented with numerous small and regional contracting firms separately supplying engineering services, fabrication, installation, testing and monitoring, products and spare parts. We offer our customers a complete end-to-end solution, including engineering and project management services, procurement and fabrication, construction and installation, aftermarket support, and sale of consumables, which allows our customers to avoid dealing with multiple vendors when managing projects.

Long-standing experience and customer relationships in growing industry. We have serviced the needs of our target markets for over 50 years. Our extensive experience and expertise in providing diversified solutions enhances our overall customer relationships, and provides us with a competitive advantage in our markets relative to other companies in the industry. We believe this is evidenced by strong relationships with many of our world-class customers. We believe no single competitor has the resources to offer a similar portfolio of product and service capabilities. We offer the depth of a large organization, while our lean organizational structure keeps us close to our customers and markets, allowing us to offer rapid and complete solutions in each unique situation.

Global diversification and broad customer base. The global diversity of our operations and customer base provides us with multiple growth opportunities. As of December 31, 2018, we had a diversified customer base of approximately 4,200 active customers

across a range of industries. Our customers represent some of the largest refineries, power, chemical processes, metals and minerals, energy market and industrial manufacturing companies. We believe that the diversity of our customers and end markets mitigates our risk of a potential fluctuation or downturn in demand from any individual industry or particular customer. We believe we have the resources and capabilities to meet the needs of our customers as they upgrade and expand domestically as well as into new international markets. Once systems have been installed and a relationship has been established with the customer, we are often awarded repetitive service and maintenance business as the customers' processes change and modifications or additions to their systems become necessary.

Experienced management and engineering team. Our senior management team has substantial experience in industrial air quality and fluid handling solutions. The business experience of our management team enables us to pursue our strategy. Our senior management team is supported by a strong operating management team, which possesses extensive operational and managerial experience. Our workforce includes approximately 200 engineers, designers, and project managers whose significant specialized industry experience and technical expertise enables them to have a deep understanding of the solutions that will best suit the needs of our customers. The experience and stability of our management, operating and engineering teams have been crucial to our growth, developing and maintaining customer relationships, and increasing our market share.

Expand customer base and penetrate end markets through global market coverage. We constantly look for opportunities to gain new customers and penetrate geographic locations and end markets with existing products and services or acquire new product or service opportunities. We intend to continue to expand our sales force, customer base, and end markets, and have continued to pursue potential attractive growth opportunities both domestically and globally, including international projects in Asia, South America, and EMEA.

Develop innovative solutions. We intend to continue to leverage our engineering and manufacturing expertise and strong customer relationships to develop new customized products to address the identified needs of our customers or a particular end market. We thoroughly analyze new product opportunities by considering projected demand for the product or service, price point, and expected operating costs, and only pursue those opportunities that we believe will contribute to earnings growth in the near-term. In addition, we continually improve our traditional technologies and adapt them to new industries and processes.

Maintain strong customer focus. We enjoy a diversified customer base of approximately 4,200 active customers across a broad base of industries, including power, municipalities, chemical, industrial manufacturing, refining, petrochemical, metals, minerals and mining, hospitals and universities. We believe that there are multiple opportunities for us to expand our penetration of existing markets and customers.

Disciplined acquisition program with successful integration. We believe that we have demonstrated an ability to successfully acquire and integrate companies with complementary product or service offerings. We will continue to seek and execute additional strategic acquisitions and focus on expanding our product service and breadth, as well as entering into new adjacent markets. We believe that the breadth and diversity of our products and services and our ability to deliver full solutions to various end markets provides us with multiple sources of stable growth and a competitive advantage relative to other players in the industry.

Products and Services

We believe we are a leading provider of critical solutions in industrial air quality and fluid handling. We focus on engineering, designing, building, and installing systems that capture, clean and destroy airborne contaminants from industrial facilities as well as equipment that control emissions from such facilities, as well as fluid handling and filtration systems. We provide a wide spectrum of products and services including dampers and diverters, selective catalytic reduction and selective non-catalytic reduction systems, cyclonic technology, thermal oxidizers, filtration

systems, scrubbers, fluid handling equipment and plant engineering services and engineered design build fabrication.

Project Design and Research and Development

We seek to achieve our Outside-In Leadership by understanding our customers' needs and delivering better outcomes for them by focusing new product development efforts that help protect our shared environment while working to improve a variety of operational outcomes including, but not limited to, facility uptime, production quality, and process performance. We produce specialized products that are often tailored to the specifications of a customer or application.

We continually collaborate with our customers on their projects to develop the proper solution and ensure customer satisfaction. The project development cycle may follow many different paths depending on the specifics of the job and end market. The cycle can take from one to more than twelve months from concept and design to production but may vary significantly depending on developments that occur during the process, including among others, the emergence of new environmental demands, changes in design specifications and ability to obtain necessary approvals.

Sales, Marketing and Support

Our global selling strategy is to provide a solutions-based approach by being a single source provider of technology products and services. The strategy involves expanding our scope of products and services through selective acquisitions and the formation and integration of new business units. We believe this strategy provides a discernible competitive advantage. We execute this strategy by utilizing our portfolio of in-house technologies and those of third-party equipment suppliers. Many of these have been long-standing relationships, which have evolved from pure supplier roles to value-added business partnerships. This enables us to leverage existing business with selective alliances of suppliers and application specific engineering expertise. Our products primarily compete on the basis of price, performance, speed of delivery, quality, customer support, and single source. Our value proposition to customers is to provide competitively priced, customized solutions. Our industry-specific knowledge, accompanied by our product and service offerings, provides valuable synergies for design innovation.

We sell and market our products and services with our own direct sales force, including employees in the United States, the Netherlands, United Kingdom, Canada, United Arab Emirates, India, Mexico, China, and Singapore, in conjunction with outside sales representatives in North America, South America, EMEA, Asia, and India. We expect to continue expanding our sales and support capabilities and our network of outside sales representatives in key regions domestically and internationally.

We market our offerings to our customers through a variety of channels including, but not limited to, digital, web, social media, email campaigns, individual customer visits, product announcements, brochures, magazine articles, advertisements and cover or article features in trade journals and other publications. We also participate in public relations and promotional events, including industry tradeshows and technical conferences.

Our customer service organization or sales force provides our customers with technical assistance, use and maintenance information as well as other key information regarding their purchase. We also actively provide our customers with access to key information regarding changes and pending changes in environmental regulations as well as new product or service developments. We believe that maintaining a close relationship with our customers and providing them with the support they request improves their level of satisfaction and enables us to foresee their potential future product needs or service demands. Moreover, this approach can lead to sales of annual service and support contracts as well as consumables. Our website also provides our customers with online tools and technical resources.

Quality Assurance

In engineered systems, quality is defined as system performance. We review with our customers, before the contract is signed, the technical specification and the efficiency of the equipment that will be customized to meet their specific needs. We then review these same parameters internally to assure that warranties will be met. Standard project management and production management tools are used to help ensure that all work is done to specification and that project schedules are met. Equipment is tested at the site to ensure it is functioning properly.

Customers

We are not dependent upon any single customer, and no customer comprised 10% or more of our consolidated revenues for 2018, 2017 or 2016. We do not believe the loss of any one of our customers would have a material adverse effect on us.

Suppliers and Subcontractors

We purchase our raw materials and supplies from a variety of global sources. When possible, we directly secure angle iron and sheet plate products from steel mills, whereas other materials are purchased from a variety of steel service centers. Steel prices have traditionally been volatile, but we typically mitigate the risk of higher prices by including a "surcharge" on our standard products. On contract work, we mitigate the risk of higher prices by including the current price in our estimate and generally include price inflation clauses for protection.

We believe we have a good relationship with our suppliers and do not anticipate any difficulty in continuing to purchase such items on terms acceptable to us. We have not experienced difficulty in procuring a sufficient supply of materials in the past. To the extent that our current suppliers are unable or unwilling to continue to supply us with materials, we believe that we would be able to obtain such materials from other suppliers on acceptable terms.

Typically, on turnkey projects, we subcontract manufacturing, electrical work, concrete work, controls, conveyors and insulation. We use subcontractors with whom we have good working relationships and review each project at the beginning and on an ongoing basis to help ensure that all work is being done according to our specifications. Subcontractors are generally paid when we are paid by our customers according to the terms of our contract with the customer. The Company's asset-light business model focuses on effective management of subcontractors, which allows the Company to achieve targeted working capital levels through reduction in certain assets and reduced capital expenditures.

Backlog

Backlog is a representation of the amount of revenue expected from complete performance of firm fixed-price contracts that have not been completed for products and services we expect to substantially deliver within the next 12 to 18 months. Our customers may have the right to cancel a given order, although historically cancellations have been rare. Backlog increased to $182.1 million as of December 31, 2018 from $168.9 million as of December 31, 2017. Substantially all 2017 backlog was completed in 2018. Most of the 2018 backlog is expected to be completed in 2019. Backlog is not defined by United States generally accepted accounting principles ("GAAP") and our methodology for calculating backlog may not be consistent with methodologies used by other companies.

Competition

The markets we serve are highly fragmented with numerous small and regional participants. We believe no single company competes with us across the full range of our systems and products. Competition in the markets we serve is based on a number of considerations, including price, timeliness of delivery, technology, applications experience, know-how, reputation, product warranties and service. Demand for our product can vary period over period depending on conditions in the markets we serve. We believe our reputation, technical engineering capabilities and service differentiate us from many of our competitors, including those competitors who often offer products at a lower price.

Due to the size and shipping weight of many of our projects, localized manufacturing/fabrication capabilities are very important to our customers. As a result, competition varies widely by region and industry. The market for our engineered products is reasonably competitive and is characterized by technological change, continuously changing environmental regulations, and evolving customer requirements. We believe that the additional competitive factors in our markets include:

- performance track record in difficult plant applications;
- comprehensive portfolio of products with leading technology;
- solid brand recognition;
- ability to design standard and custom products that meet customers' needs;
- ability to provide reliable solutions in a timely manner;
- quality customer service and support; and
- financial and operational stability, including reputation.

We believe we compete favorably with respect to these factors.

Government Regulations

We believe our operations are in material compliance with applicable environmental laws and regulations. We believe that changes in environmental laws and regulations create opportunity given the nature of our business.

We are subject to the requirements of the Occupational Safety and Health Administration ("OSHA") and comparable state statutes. We believe we are in material compliance with OSHA and state requirements, including general industry standards, record keeping requirements and monitoring of occupational exposures. In general, we expect to increase our expenditures to comply with stricter industry and regulatory safety standards when needed. Although such expenditures cannot be accurately estimated at this time, we do not believe that they will have a material adverse effect on our financial position, results of operations or cash flows.

Intellectual Property

We rely on a combination of patent, trademark, copyright and trade secret laws, employee and third-party nondisclosure/confidentiality agreements and license agreements to protect our intellectual property. We sell most of our products under a number of registered trade names, brand names and registered trademarks, which we believe are widely recognized in the industry. While we hold patents within a number of our businesses, we do not view our patents to be material to our business.

Employees

We had approximately 800 full-time employees as of December 31, 2018. The facilities in Greensboro, North Carolina, Louisville, Kentucky, Columbia, Tennessee, and Telford, Pennsylvania are unionized except for selling, engineering, design, administrative and operating management personnel. None of our other employees are subject to any collective bargaining agreements. We consider our relationship with our employees to be satisfactory. In total, as of December 31, 2018, approximately 140 employees were represented by independent labor unions under various union contracts that expire at various intervals.

Executive Officers of CECO

The following are the executive officers of the Company as of February 28, 2019. The terms of all officers expire at the next annual meeting of the board of shareholders and upon the election of the successors of such officers.

Name	Age	Position
Dennis Sadlowski	58	Chief Executive Officer and Director
Matthew Eckl	38	Chief Financial Officer
Paul Gohr	37	Chief Accounting Officer

Dennis Sadlowski has served as our Chief Executive Officer since January 2017 and as a director since May 2016. Mr. Sadlowski served as Interim Chief Executive Officer and President from January 2017 until his appointment as Chief Executive Officer in June 2017. Previously, he was the Chief Operating Officer of LSG Sky Chefs North America, a provider of food and food-related services for transportation providers, from April 2013 until March 2015. As Chief Operating Officer, Mr. Sadlowski oversaw operations across over 40 locations in North America and managed over 8,000 employees. Previously, Mr. Sadlowski served as the Chief Executive Officer of International Battery, an early stage green tech company focused on large format lithium ion batteries for the grid storage markets, from September 2011 until April 2012. Mr. Sadlowski worked at Siemens from July 2000 to March 2010, serving as the President & Chief Executive Officer of Siemens Energy & Automation, Inc. from July 2007 until October 2009, an operating subsidiary of the global manufacturer Siemens AG, where he had executive accountability for the company's global strategic direction, operating performance and marketplace success. His responsibilities at Siemens Energy & Automation included overseeing six operating divisions along with a combined sales organization, a number of wholly-owned subsidiaries and over 12,000 employees. Mr. Sadlowski has also previously worked at General Electric and Thomas & Betts. Mr. Sadlowski was a former member of the board of directors and audit committee of Trojan Battery, a privately-held global leader in deep cycle lead-acid batteries. Mr. Sadlowski earned a Bachelor's degree in Chemical and Nuclear Engineering from the University of California at Berkeley, and his Master's Degree in Business Administration from Seattle University.

Matthew Eckl has served as our Chief Financial Officer since January 2017. Prior to joining the Company, Mr. Eckl served as Vice President, Finance – Energy Group at Gardner Denver, Inc. from 2012 until January 2017. In this role, he oversaw a $1 billion revenue business group that designs, manufactures, markets and services pumps, fluid transfer equipment and engineered systems for oil & gas and petrochemical industries. Prior to joining Gardner Denver, Mr. Eckl served in various roles of increasing responsibility within General Electric Company, a global digital industrial company, from 2002 until 2012, where he worked with various business groups to integrate new acquisitions and streamline financial reporting processes. Mr. Eckl earned a Bachelor's degree in Management Information Systems from Pennsylvania State University.

Paul Gohr has served as the Chief Accounting Officer since May 2017. Mr. Gohr previously served as our Vice President of Financial Reporting since joining the Company in September 2014. From 2004 to 2014, Mr. Gohr served in various roles of increasing responsibility within Grant Thornton LLP, a global public accounting firm, most recently as a Senior Manager of Audit Services. While at Grant Thornton LLP, Mr. Gohr served a broad base of both public and private companies with international operations, many of which were acquisitive in nature. Mr. Gohr is a Certified Public Accountant. Mr. Gohr earned a Bachelor's degree in Business, Accountancy and a Masters of Accountancy degree from Miami University.

Available Information

We use the Investor Relations section of our website, www.cecoenviro.com, as a channel for routine distribution of important information, including news releases, investor presentations and financial information. We post filings as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC, including our annual, quarterly, and current reports on Forms 10-K, 10-Q, and 8-K; proxy statements; and any amendments to those reports or statements. All such postings and filings are available on our website free of charge. The SEC also maintains a website, www.sec.gov, that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The content on any website referred to in this Annual Report on Form 10-K is not incorporated by reference into this Annual Report on Form 10-K unless expressly noted.

Item 1A. Risk Factors

An investment in our securities involves a high degree of risk. You should carefully consider the risk factors described below, together with the other information included in this Annual Report on Form 10-K, before you decide to invest in our securities. The risks described below are the material risks of which we are currently aware; however, they may not be the only risks that we may face. Additional risks and uncertainties not currently known to us or that we currently view as immaterial may also impair our business. If any of these risks develop into actual events, it could materially and adversely affect our business, financial condition, results of operations and cash flows, and the trading price of your shares could decline and you may lose all or part of your investment.

Risks Related to Our Business and Industry

Our business may be adversely affected by global economic conditions.

A national or global economic downturn or credit crisis may have a significant negative impact on our financial condition, future results of operations and cash flows. Specific risk factors related to these overall economic and credit conditions include the following: customers or potential customers may reduce or delay their procurement or new product development; key suppliers may become insolvent resulting in delays for our material purchases; vendors and other third parties may fail to perform their contractual obligations; customers may be unable to obtain credit to finance purchases of our products and services; and certain customers may become insolvent. These risk factors could reduce our product sales, increase our operating costs, impact our ability to collect customer receivables, lengthen our cash conversion cycle and increase our need for cash, which would ultimately decrease our profitability and negatively impact our financial condition. They could also limit our ability to expand through acquisitions due to the tightening of the credit markets.

Our dependence upon fixed-price contracts could adversely affect our operating results.

The majority of our projects are currently performed on a fixed-price basis. Under a fixed-price contract, we agree on the price that we will receive for the entire project, based upon a defined scope, which includes specific assumptions and project criteria. If our estimates of the costs to complete the project are below the actual costs that we incur, our margins will decrease, or we may incur a loss. The revenue, cost and gross profit realized on a fixed-price contract will often vary from the estimated amounts because of unforeseen conditions or changes in job conditions and variations in labor and equipment productivity over the term of the contract. If we are unsuccessful in mitigating these risks, we may realize gross profits that are different from those originally estimated and incur reduced profitability or losses on projects. Depending on the size of a project, these variations from estimated contract performance could have a significant effect on our operating results. In general, turnkey contracts to be performed on a fixed-price basis involve an increased risk of significant variations. This is a result of the long-term nature of these contracts and the inherent difficulties in estimating costs and of the interrelationship of the integrated services to be provided under these contracts whereby unanticipated costs or delays in performing part of the contract can have compounding effects by increasing costs of performing other parts of the contract.

Accounting for contract revenue may result in material adjustments that would adversely affect our financial condition and results of operations.

We derive a significant portion of our revenues from fixed price contracts. 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.

Contract revenue and total direct cost estimates are reviewed and revised periodically as the work progresses and as change orders are approved, and adjustments are reflected in contract revenue in the period when these estimates are revised. These estimates are based on management's reasonable assumptions and our historical experience, and are only estimates. Variation of actual results from these assumptions, which are outside the control of management and can differ from our historical experience, could be material. To the extent that these adjustments result in an increase, a reduction or the elimination of previously reported contract revenue, we would recognize a credit or a charge against current earnings, which could be material.

Our inability to deliver our backlog on time could affect our future sales and profitability, and our relationships with our customers.

Our backlog was $182.1 million at December 31, 2018 and $168.9 million at December 31, 2017. Our ability to meet customer delivery schedules for our backlog is dependent on a number of factors including, but not limited to, access to the raw materials required for production, an adequately trained and capable workforce, project engineering expertise for certain large projects, sufficient internal manufacturing plant capacity, available subcontractors and appropriate planning and scheduling of manufacturing resources. Our failure to deliver in accordance with customer expectations may result in damage to existing customer relationships and result in the loss of future business. Failure to deliver backlog in accordance with expectations could negatively impact our financial performance and cause adverse changes in the market price of our common stock.

Volatility of oil and natural gas prices can adversely affect demand for our products and services

Volatility in oil and natural gas prices can impact our customers' activity levels and spending for our products and services. Current energy prices are important contributors to cash flow for our customers and their ability to fund capital expenditures. Expectations about future prices and price volatility are important for determining future spending levels. Lower oil and natural gas prices generally lead to decreased spending by our customers. While higher oil and natural gas prices generally lead to increased spending by our customers, sustained high energy prices can be an impediment to economic growth, and can therefore negatively impact spending by our customers. Our customers also take into account the volatility of energy prices and other risk factors by requiring higher returns for individual projects if there is a higher perceived risk. Any of these factors could affect the demand for oil and natural gas and could have a material effect on our results of operations.

Our financial performance may vary significantly from period to period.

Our annual revenues and earnings have varied in the past and are likely to vary in the future. Our contracts generally stipulate customer specific delivery terms and may have contract cycles of a year or more, which subjects these contracts to many factors beyond our control. In addition, contracts that are significantly larger in size than our typical contracts tend to intensify their impact on our annual operating results. Furthermore, as a significant portion of our operating costs are fixed, an unanticipated decrease in our revenues, a delay or cancellation of orders in backlog, or a decrease in the demand for our products, may have a significant impact on our annual operating results. Therefore, our annual operating results may be subject to significant variations and our operating performance in one period may not be indicative of our future performance.

Customers may cancel or delay projects. As a result, our backlog may not be indicative of our future revenue.

Customers may cancel or delay projects for reasons beyond our control. Our orders normally contain cancellation provisions that permit us to recover our costs, and, for most contracts, a portion of our anticipated profit in the event a customer cancels an order. If a customer elects to cancel an order, we may not realize the full amount of revenues included in our backlog. If projects are delayed, the timing of our revenues could be affected and projects may remain in our backlog for extended periods of time. Revenue recognition occurs over long periods of time and is subject to unanticipated delays. If we receive relatively large orders in any given quarter, fluctuations in the levels of our quarterly backlog can result because the backlog in that quarter may reach levels that may not be sustained in subsequent quarters. As a result, our backlog may not be indicative of our future revenues. With rare exceptions, we are not issued contracts until a customer is ready to start work on a project. Thus, it is our experience that the only relationship between the length of a project and the possibility that a project may be cancelled is simply the fact that there is more time involved. In a year-long project as opposed to a three-month project, more time is available for the customer to experience a softening in its business, which may cause the customer to cancel a project.

We face significant competition in the markets we serve.

All of the industries in which we compete are highly competitive and highly fragmented. We compete against a number of local, regional and national contractors and manufacturers in each of our product or service lines, many of which have been in existence longer than us and some of which have substantially greater financial resources than we do. Our products primarily compete on the basis of price, performance, speed of delivery, quality, customer support and single source. Any failure by us to compete effectively in the markets we serve could have a material adverse effect on our financial condition, results of operations and cash flows.

We may incur material costs as a result of existing or future product liability claims, or other claims and litigation that could adversely affect our financial condition, results of operations and cash flows; and our insurance coverage may not cover all claims or may be insufficient to cover the claims.

Despite our quality assurance measures, we may be exposed to product liability claims, other claims and litigation in the event that the use of our products results, or is alleged to result, in bodily injury and/or property damage or our products actually or allegedly fail to perform as expected. Such claims may also be accompanied by fraud and deceptive trade practices claims. While we maintain insurance coverage with respect to certain product liability and other claims, we may not be able to obtain such insurance on acceptable terms in the future, if at all, and any such insurance may not provide adequate coverage against product liability and other claims. Furthermore, our insurance may not cover damages from breach of contract by us or based on alleged fraud or deceptive trade practices. Any future damages that are not covered by insurance or are in excess of policy limits could have a material adverse effect on our financial condition, results of operations and cash flows. In addition, product liability and other claims can be expensive to defend and can divert the attention of management and other personnel for significant periods of time, regardless of the ultimate outcome.

An unsuccessful defense of a product liability or other claim could have an adverse effect on our financial condition, results of operations and cash flows. Even if we are successful in defending against a claim relating to our products, claims of this nature could cause our customers to lose confidence in our products and us.

Liability to customers under warranties may adversely affect our reputation, our ability to obtain future business and our results of operations.

We provide certain warranties as to the proper operation and conformance to specifications of the products we manufacture or produce. Failure of our products to operate properly or to meet specifications may increase our costs by requiring additional engineering resources and services, replacement of parts and equipment or monetary reimbursement to customers. We have in the past received warranty claims, are currently subject to warranty claims, and we expect to continue to receive claims in the future. To the extent that we incur substantial warranty claims in any period, our reputation, our ability to obtain future business and our results of operations could be adversely affected.

If we do not develop new products in a timely manner in response to industry demands, our business and revenues will be adversely affected.

Our industry is characterized by ongoing technological developments and changing customer requirements. As a result, our success and continued growth depend, in part, on our ability in a timely manner to develop or acquire rights to, and successfully introduce into the marketplace, enhancements of existing products and new products that incorporate technological advances, meet customer requirements and respond to products developed by our competition. We cannot assure you that we will be successful in developing or acquiring such rights to products on a timely basis or that such products will adequately address the changing needs of the marketplace.

Our business can be significantly affected by changes in technology and regulatory standards.

The markets that the Company serves are characterized by changing technology, competitively imposed process standards and regulatory requirements, each of which influences the demand for our products and services. Changes in legislative, regulatory or industrial requirements may render certain of our products and processes obsolete. Acceptance of new products and services may also be affected by the adoption of new government regulations requiring stricter standards. Our ability to anticipate changes in technology and regulatory standards and to respond with new and enhanced products on a timely basis will be a significant factor in our ability to grow and to remain

competitive. We cannot guarantee that we will be able to achieve the technological advances that may be necessary for us to remain competitive or that certain of our products or services will not become obsolete.

Changes in current environmental legislation could have an adverse impact on the sale of our environmental control systems and products and on our financial condition, results of operations and cash flows.

Our business is primarily driven by capital spending, clean air rules, plant upgrades by our customers to comply with laws and regulations governing the discharge of pollutants into the environment or otherwise relating to the protection of the environment or human health. These laws include, but are not limited to, United States federal statues such as Resource Conservation and Recovery Act of 1976, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, the Clean Water Act, the Clean Air Act, the Clean Air Interstate Rule, and the regulations implementing these statutes, as well as similar laws and regulations at state and local levels and in other countries. These United States laws and regulations may change and other countries may not adopt similar laws and regulations. Our business may be adversely impacted to the extent that environmental regulations are repealed, amended, implementation dates are delayed, or to the extent that regulatory authorities reduce enforcement.

Our operations outside of the United States are subject to political, investment and local business risks.

For the year ended December 31, 2018, approximately 33% of our total revenue was derived from products or services ultimately delivered or provided to end users outside the United States. As part of our operating strategy, we intend to expand our international operations through internal growth and selected acquisitions. Operations outside of the United States, particularly in emerging markets, are subject to a variety of risks that are different from or are in addition to the risks we face within the United States. Among others, these risks include:

- local, economic, political and social conditions, including potential hyperinflationary conditions and political instability in certain countries;
- imposition of limitations on the remittance of dividends and payments by foreign subsidiaries;
- adverse currency exchange rate fluctuations, including significant devaluations of currencies;
- tax-related risks, including the imposition of taxes and the lack of beneficial treaties, that result in higher effective tax rate for us;
- difficulties in enforcing agreements and collecting receivables through certain foreign local systems;
- domestic and foreign customs, tariffs and quotas or other trade barriers;
- increased costs for transportation and shipping;
- difficulties in protecting intellectual property;
- risk of nationalization of private enterprises by foreign governments;
- managing and obtaining support and distribution channels for overseas operations;
    - hiring and retaining qualified management personnel for our overseas operations;
- legal and regulatory requirements, including import, export, defense regulations and foreign exchange controls;
- imposition or increase of restrictions on investment;
- disadvantages of competing against companies from countries that are not subject to United States laws and regulations, including the Foreign Corrupt Practices Act (“FCPA”);
- required compliance with a variety of local laws and regulations, which may differ materially from those to which we are subject in the United States; and
- increasingly complex laws and regulations concerning privacy and data security, including the European Union’s General Data Protection Regulations.

In addition, we could be adversely affected by violations of the FCPA and similar worldwide anti-bribery laws as well as export controls and economic sanction laws. The FCPA and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to non-United States officials for the purposes of obtaining or retaining business. Our policies mandate compliance with these laws. We operate in many parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. We cannot assure you that our internal controls and procedures will always protect us from reckless or criminal acts committed by our employees or agents. If we are found to be liable for FCPA, export control or sanction violations, we could suffer from criminal or civil penalties or other sanctions, including loss of export privileges or authorization needed to conduct aspects of our international business, which could have a material adverse effect on our business.

The occurrence of one or more of the foregoing factors could have a material adverse effect on our international operations or upon our financial condition, results of operations and cash flows.

Increasing costs for manufactured components, raw materials, transportation, health care and energy prices may adversely affect our profitability.

We use a broad range of manufactured components and raw materials in our products, including raw steel, steel-related components, filtration media, and equipment such as fans and motors. Materials and subcontracting costs comprise the largest components of our total costs. Further increases in the price of these items could further materially increase our operating costs and materially adversely affect our profit margins. In particular, the price of steel has increased due to import duties and tariffs. Similarly, transportation, steel and health care costs have risen steadily over the past few years and represent an increasing burden for us. Although we try to contain these costs whenever possible, and although we try to pass along increased costs in the form of price increases to our customers, we may be unsuccessful in doing so, and even when successful, the timing of such price increases may lag significantly behind our incurrence of higher costs.

Our gross margins are affected by shifts in our product mix.

Certain of our products have higher gross profit margins than others. Consequently, changes in the product mix of our sales from quarter-to-quarter or from year-to-year can have a significant impact on our reported gross profit margins. Certain of our products also have a much higher internally manufactured cost component. Therefore, changes from quarter-to-quarter or from year-to-year can have a significant impact on our reported gross margins. In addition, contracts with a higher percentage of subcontracted work or equipment purchases may result in lower gross profit margins.

Our manufacturing operations are dependent on third-party suppliers.

Although we are not dependent on any one supplier, we are dependent on the ability of our third-party suppliers to supply our raw materials, as well as certain specific component parts. The third-party suppliers upon which we depend may default on their obligations to us due to bankruptcy, insolvency, lack of liquidity, adverse economic conditions, operational failure, fraud, loss of key personnel, or other reasons. We cannot assure you that our third-party suppliers will dedicate sufficient resources to meet our scheduled delivery requirements or that our suppliers will have sufficient resources to satisfy our requirements during any period of sustained demand. Failure of suppliers to supply, or delays in supplying, our raw materials or certain components, or allocations in the supply of certain high demand raw components could materially adversely affect our operations and ability to meet our own delivery schedules on a timely and competitive basis. Additionally, our third-party suppliers may provide us with raw materials or component parts that fail to meet our expectations or the expectations of our customers, which could subject us to product liability claims, other claims and litigation.

Our use of subcontractors could potentially harm our profitability and business reputation.

Occasionally we act as a prime contractor in some of the engineered projects we undertake. In our capacity as lead provider and when acting as a prime contractor, we perform a portion of the work on our projects with our own resources and typically subcontract activities such as manufacturing, electrical work, concrete work, insulation, conveyors and controls. In our industry, the lead contractor is normally responsible for the performance of the entire contract, including subcontract work. Thus, when acting as a prime contractor, we are subject to risk associated with the failure of one or more subcontractors to perform as anticipated.

We employ subcontractors at various locations around the world to meet our customers' needs in a timely manner, meet local content requirements and reduce costs. Subcontractors generally perform the majority of our manufacturing for international customers. We also utilize subcontractors in North America. The use of subcontractors decreases our control over the performance of these functions and could result in project delays, escalated costs and substandard

quality. These risks could adversely affect our profitability and business reputation. In addition, many of our competitors, who have greater financial resources and greater bargaining power than we have, use the same subcontractors that we use and could potentially influence our ability to hire these subcontractors. If we were to lose relationships with key subcontractors, our business could be adversely impacted.

A significant portion of our accounts receivable are related to larger contracts, which increases our exposure to credit risk.

Significant portions of our sales are to customers who place large orders for custom products and whose activities are related to the power and oil & gas industries. As a result, our exposure to credit risk is affected to some degree by conditions within these industries and governmental and or political conditions. We frequently attempt to reduce our exposure to credit risk by requiring progress payments and letters of credit as well as closely monitoring the credit worthiness of our customers. However, the continuing economic climate and other unanticipated events that affect our customers could have a materially adverse impact on our operating results.

Changes in billing terms can increase our exposure to working capital and credit risk.

Our products are generally sold under contracts that allow us to bill upon the completion of certain agreed upon milestones or upon actual shipment of the product, and certain contracts include a retention provision. We attempt to negotiate progress-billing milestones on all large contracts to help us manage the working capital and credit risk associated with these large contracts. Consequently, shifts in the billing terms of the contracts in our backlog from period to period can increase our requirement for working capital and can increase our exposure to credit risk.

Currency fluctuations may reduce profits on our foreign sales or increase our costs, either of which could adversely affect our financial results.

Given that approximately 33% of our 2018 revenues are outside the United States, we are subject to the impact of fluctuations in foreign currency exchange rates. Transaction losses resulting from currency fluctuations may adversely affect our results of operations. Foreign currency fluctuations may also make our systems and products more expensive for our customers, which could have a negative impact on our sales. In addition, we purchase some foreign-made products directly from and through our subcontractors. Due to the multiple currencies involved in our business, foreign currency positions partially offset and are netted against one another to reduce exposure. We cannot be assured that fluctuations in foreign currency exchange rates will not make these products more expensive to purchase. Increases in our direct or indirect cost of purchasing these products could negatively impact our financial results if we are not able to pass those increased costs on to our customers.

If our goodwill or indefinite lived intangibles become impaired, we may be required to recognize charges that would adversely impact our results of operations.

As of December 31, 2018, goodwill and indefinite lived intangibles were $170.4 million, or 43.4%, of our total assets. Goodwill and indefinite lived intangible assets are not amortized, but instead are subject to annual impairment evaluations (or more frequently if circumstances require). Major factors that influence our evaluations are estimates for future revenue and expenses associated with the specific intangible asset or the reporting unit in which the goodwill resides. This is the most sensitive of our estimates related to our evaluations. Other factors considered in our evaluations include assumptions as to the business climate, industry and economic conditions. These assumptions are subjective and different estimates could have a significant impact on the results of our analyses. While management, based on current forecasts and outlooks, believes that the assumptions and estimates are reasonable, we can make no assurances that future actual operating results will be realized as planned and that there will not be material impairment charges as a result. In particular, an economic downturn could have a material adverse impact on our customers thereby forcing them to reduce or curtail doing business with us and such a result may materially affect the amount of cash flow generated by our future operations. Any write-down of goodwill or intangible assets resulting from future periodic evaluations could adversely materially impact our results of operations.

We may incur costs as a result of certain restructuring activities, which may negatively impact our financial results, and we may not achieve some or all of the expected benefits of our restructuring plans.

We are continuously seeking the most cost-effective means and structure to serve our customers, protect our shareholders and respond to changes in our markets. From time to time, we may engage in restructuring activities in an effort to improve cost competitiveness and profitability. We may not achieve the desired or anticipated benefits from these restructuring activities. As a result, restructuring costs may vary significantly from year to year depending on the scope of such activities. Such restructuring costs and expenses could adversely impact our financial results.

Changes in laws or regulations or the manner of their interpretation or enforcement could adversely impact our financial performance and restrict our ability to operate our business or execute our strategies.

New laws or regulations, or changes in existing laws or regulations, or the manner of their interpretation or enforcement, could increase our cost of doing business and restrict our ability to operate our business or execute our strategies. In particular, there may be significant changes in U.S. laws and regulations and existing international trade agreements by the current U.S. presidential administration that could affect a wide variety of industries and businesses, including those businesses we own and operate. If the current U.S. presidential administration materially modifies U.S. laws and regulations and international trade agreements, our business, financial condition, and results of operations could be adversely affected.

We are party to asbestos-containing product litigation that could adversely affect our financial condition, results of operations and cash flows.

Our subsidiary, 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 that 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 of all legal fees other than corporate counsel expenses from 2002 through December 31, 2018 for cases involving asbestos-related claims were $2.9 million, of which $2.7 million has been paid by the Company's insurers. The average cost per settled claim, excluding legal fees, was approximately $36,000.

Based upon the most recent information available to the Company regarding such claims, there were a total of 208 cases pending against the Company as of December 31, 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 2018, 96 new cases were filed against the Company, and the Company was dismissed from 63 cases and settled 43 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 are 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.

We have $76.1 million of indebtedness as of December 31, 2018, and incurrence of additional indebtedness could adversely affect our ability to operate our business, remain in compliance with debt covenants, make payments on our debt and limit our growth.

Our outstanding indebtedness could have important consequences for investors, including the following:

- it may be more difficult for us to satisfy our obligations with respect to the agreement governing our senior secured credit facilities ("Credit Facility"), and any failure to comply with the obligations of any of the agreements governing any additional indebtedness, including financial and other restrictive covenants, could result in an event of default under such agreements;
- the covenants contained in our debt agreements, including our Credit Agreement, limit our ability to borrow money in the future for acquisitions, capital expenditures or to meet our operating expenses or other general corporate obligations;
- the amount of our interest expense may increase because a substantial portion of our borrowings are at variable rates of interest, which, if interest rates increase, could result in higher interest expense;
- we may need to use a portion of our cash flows to pay interest on our debt, which will reduce the amount of money we have for operations, working capital, capital expenditures, expansion, acquisitions or general corporate or other business activities;
- we may have a higher level of debt than some of our competitors, which could put us at a competitive disadvantage;
-

- we may be more vulnerable to economic downturns and adverse developments in our industry or the economy in general; and
- our debt level could limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate.

Our ability to meet our expenses and debt obligations will depend on our future performance, which will be affected by financial, business, economic, regulatory and other factors. We will not be able to control many of these factors. We cannot be certain that our earnings will be sufficient to allow us to pay the principal and interest on our existing or future debt and meet our other obligations. If we do not have enough money to service our existing or future debt, we may be required to refinance all or part of our existing or future debt, sell assets, borrow more money or raise equity. We may not be able to refinance our existing or future debt, sell assets, borrow more money or raise equity on terms acceptable to us, if at all.

We might be unable to protect our intellectual property rights and our products could infringe the intellectual property rights of others, which could expose us to costly disputes.

Although we believe that our products do not infringe patents or violate the proprietary rights of others, it is possible that our existing patent rights may not be valid or that infringement of existing or future patents or proprietary rights may occur. In the event our products infringe patents or proprietary rights of others, we may be required to modify the design of our products or obtain a license for certain technology. We cannot guarantee that we will be able to do so in a timely manner, upon acceptable terms and conditions, or at all. Failure to do any of the foregoing could have a material adverse effect upon our business. Moreover, if our products infringe patents or proprietary rights of others, we could, under certain circumstances, become liable for damages, which also could have a material adverse effect on our business.

Risks related to our pension plan may adversely impact our results of operations and cash flow.

Significant changes in actual investment return on pension assets, discount rates, and other factors may adversely affect our results of operations and pension plan contributions in future periods. GAAP requires that we calculate the income or expense of our plan using actuarial valuations. These valuations reflect assumptions about financial markets and interest rates. We establish the discount rate used to determine the present value of the projected and accumulated benefit obligation at the end of each year based upon the available market rates for high quality, fixed-income investments. An increase in the discount rate would increase future pension expense and, conversely, a decrease in the discount rate would decrease future pension expense. Funding requirements for our pension plan may become more significant. The ultimate amounts to be contributed are dependent upon, among other things, interest rates, underlying asset returns and the impact of legislative or regulatory changes related to pension funding obligations. For a discussion regarding the significant assumptions used to estimate pension expense, including discount rate and the expected long-term rate of return on plan assets, and how our financial statements can be affected by pension plan accounting policies, see “Critical Accounting Policies” included in this Annual Report on Form 10-K in “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

We may be subject to substantial withdrawal liability assessments in the future related to multiemployer pension plans to which certain of our subsidiaries make contributions pursuant to collective bargaining agreements.

Under applicable federal law, any employer contributing to a multiemployer pension plan that completely ceases participating in the plan while the plan is underfunded is subject to payment of such employer’s assessed share of the aggregate unfunded vested benefits of the plan. In certain circumstances, an employer can be assessed a withdrawal liability for a partial withdrawal from a multiemployer pension plan. If any of these adverse events were to occur in the future, it could result in a substantial withdrawal liability assessment that could have a material adverse effect on our business, financial condition, results of operations or cash flows.

We rely on several key employees whose absence or loss could disrupt our operations or be adverse to our business.

We are highly dependent on the experience of our management in the continuing development of our operations. The loss of the services of certain of these individuals would have a material adverse effect on our business. Although we have employment and non-competition agreements with certain of our key employees, as a practical matter, those agreements will not assure the retention of our employees, and we may not be able to enforce all of the provisions in any employment or non-competition agreement. Our future success will depend in part on our ability to attract and retain qualified personnel to manage our development and future growth. We cannot guarantee that we will be successful in attracting and retaining such personnel. Our failure to recruit additional key personnel could have a material adverse effect on our financial condition, results of operations and cash flows.

Work stoppages or similar difficulties could significantly disrupt our operations.

As of December 31, 2018, approximately 140 of our approximately 800 employees are represented by international or independent labor unions under various union contracts that expire from May 31, 2019 to May 31, 2022. It is possible that our workforce will become more unionized in the future. Although we consider our employee relations to generally be good, our existing labor agreements may not prevent a strike or work stoppage at one or more of our facilities in the future and we may be affected by other labor disputes. A work stoppage at one or more of our facilities may have a material adverse effect on our business. Unionization activities could also increase our costs, which could have an adverse effect on our profitability.

Additionally, a work stoppage at one of our suppliers could adversely affect our operations if an alternative source of supply were not readily available. Work stoppages by employees of our customers also could result in reduced demand for our products.

Failure to maintain adequate internal controls could adversely affect our business.

Under Section 404 of Sarbanes-Oxley, we are required to include in each of our Annual Reports on Form 10-K, a report containing our management's assessment of the effectiveness of our internal control over financial reporting and an attestation report of our independent auditor. These laws, rules and regulations continue to evolve and could become increasingly stringent in the future. We have undertaken actions to enhance our ability to comply with the requirements of Sarbanes-Oxley, including, but not limited to, the engagement of consultants, the documentation of existing controls and the implementation of new controls or modification of existing controls as deemed appropriate.

We continue to devote substantial time and resources to the documentation and testing of our controls, and to plan for and the implementation of remedial efforts in those instances where remediation is indicated. If we fail to maintain the adequacy of our internal controls, including remediating any material weaknesses or deficiencies in our internal controls, as such standards are modified, supplemented or amended in the future, we could be subject to regulatory actions, civil or criminal penalties or shareholder litigation. In addition, failure to maintain adequate internal controls could result in financial statements that do not accurately reflect our financial condition, results of operations and cash flows. We believe that the out-of-pocket costs, the diversion of management's attention from running our day-to-day operations and operational changes caused by the need to comply with the requirements of Section 404 will continue to be significant.

There are inherent limitations in all internal control systems over financial reporting, and misstatements due to error or fraud may occur and not be detected.

While we continue to take action to ensure compliance with the internal control, disclosure control and other requirements of Sarbanes-Oxley and the rules and regulations promulgated thereunder by the SEC, there are inherent limitations in our ability to control all circumstances. Our management, including our Chief Executive Officer and Chief Financial Officer, do not expect that our internal controls and disclosure controls can prevent all errors and all frauds. A control system, no matter how well conceived and operated, can provide only reasonable assurance that the objectives of the control system are met. In addition, the design of a control system must reflect the fact that there are resource constraints and the benefit of controls must be evaluated in relation 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, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Further, controls can be circumvented by individual acts of some persons, by collusion of two or more persons, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, a control may be inadequate because of changes in conditions or the degree of compliance with the policies or procedures may deteriorate. Because of inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

If we are not able to maintain the adequacy of our internal control over financial reporting, including any failure to implement required new or improved controls, or if we experience difficulties in their implementation, our business, financial condition and operating results could be harmed. We can give no assurances that any additional material weaknesses will not arise in the future due to our failure to implement and maintain adequate internal control over financial reporting.

We have made and may make future acquisitions or divestitures, which involve numerous risks that could impact our financial condition, results of operations and cash flows.

Our operating strategy has involved expanding or contracting our scope of products and services through selective acquisitions or divestitures and the formation or elimination of new business units that are then integrated or separated into or out of our family of turnkey system providers. We have acquired other businesses, product or service lines, assets or technologies that are complementary to our business. We may be unable to find or consummate future acquisitions at acceptable prices and terms. We continually evaluate potential acquisition opportunities in the ordinary course of business.

Although we conduct what we believe to be a prudent level of investigation regarding the operating and financial condition of the businesses, product or service lines, assets or technologies we purchase, an unavoidable level of risk remains regarding their actual operating and financial condition. Until we actually assume operating control of these businesses, product or service lines, assets or technologies, we may not be able to ascertain their actual value or understand potential liabilities. This is particularly true with respect to acquisitions outside the United States.

In addition, acquisitions of businesses may require additional debt or equity financing, resulting in additional leverage or dilution of ownership. Our Credit Facility contains certain covenants that limit, or which may have the effect of limiting, among other things, acquisitions, capital expenditures, the sale of assets and the incurrence of additional indebtedness.

While aligning our portfolio of products and companies with our 4-3-3 operating strategy we have and may continue to divest of certain of our businesses. We may not be able to successfully manage these divestitures and our financial results could by adversely impacted by the diluted impacts from the loss of earnings and cash flows associated with the divested businesses.

Our ability to obtain financing for future growth opportunities may be limited.

Our ability to execute our growth strategies may be limited by our ability to secure and retain additional financing on terms reasonably acceptable to us or at all. Certain of our competitors are larger companies that may have greater access to capital, and therefore, may have a competitive advantage over us should our access to capital be limited.

Our dependence on information systems and the failure of such systems, could significantly disrupt our business and negatively affect our financial condition, results of operations and cash flows.

We are highly dependent on information systems that are increasingly operated by third-parties and as a result we have a limited ability to ensure their continued operation. We rely on information technology systems, networks and infrastructure in managing our day-to-day operations. In the event of systems failure or interruption, we will have limited ability to affect the timing and success of systems restoration. Any failure or interruption of our systems could cause delays or other problems in the delivery of our services, which could have a material adverse effect on our operating results.

Increased information technology cyber security threats and more sophisticated and targeted computer crime could pose a risk to our systems, networks, and products.

Increased global information technology cyber security threats and more sophisticated and targeted computer crime pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of our data and communications. While we attempt to mitigate these risks by employing a number of measures, including employee training, comprehensive monitoring of our networks and systems, and maintenance of backup and protective systems, our systems, networks and products remain potentially vulnerable to advanced persistent threats. Depending on their nature and scope, such threats could potentially lead to the compromising of confidential information and communications, improper use of our systems and networks, manipulation and destruction of data, defective products, production downtimes and operational disruptions, which in turn could adversely affect our reputation, competitiveness and results of operations.

In addition, we could be subject to legal claims or proceedings, liability under laws that protect the privacy of personal information and regulatory penalties if confidential information relating to our employees or other parties is misappropriated from our systems and networks.

Risks Related to Our Common Stock

The market price of our common stock may be volatile or may decline regardless of our operating performance and investors may not be able to resell shares they purchase at their purchase price.

The stock market has experienced and may in the future experience volatility that has often been unrelated to the operating performance of particular companies. The market price of our common stock has experienced, and may continue to experience, substantial volatility. During 2018, the sales price of our common stock on the NASDAQ ranged from $4.08 to $8.91 per share. We expect our common stock to continue to be subject to fluctuations. Broad market and industry factors may adversely affect the market price of our common stock, regardless of our actual operating performance. Factors that could cause fluctuation in the common stock price may include, among other

things:

- actual or anticipated variations in operating results;
- adverse general economic conditions, including, but not limited to, withdrawals of investments in the stock markets generally or a tightening of credit available to potential acquirers of businesses, that result in lower average prices being paid for public company shares and lower valuations being placed on businesses;
- other domestic and international macroeconomic factors unrelated to our performance;
- our failure to meet the expectations of the investment community;
- industry trends and the business success of our customers;
- loss of key customers;
- announcements of technological advances by us or our competitors;

- current events affecting the political and economic environment in the United States;
- conditions or trends in our industry, including demand for our products and services, technological advances and governmental regulations;
- litigation or other proceedings involving or affecting us; and
- additions or departures of our key personnel.

The realization of any of these risks and other factors beyond our control could cause the market price of our common stock to decline significantly.

We are not currently paying dividends and cannot make assurances that we will pay dividends on our common stock and our indebtedness could limit our ability to pay dividends.

The timing, declaration, amount and payment of future dividends to our shareholders fall within the discretion of our Board of Directors and will depend on many factors, including our financial condition, results of operations and capital requirements, as well as applicable law, regulatory constraints, industry practice and other business considerations that our Board of Directors considers relevant. There can be no assurance that we will pay a dividend in the future.

The number of shares of our common stock eligible for future sale could adversely affect the market price of our stock.

We have reserved 1.9 million shares of our common stock for issuance under our 2017 Equity Incentive Plan (the "2017 Plan"), which may include option grants, stock grants, performance unit grants and restricted stock grants. We had outstanding options to purchase approximately 441,000 shares of our common stock and 150,000 outstanding restricted stock units under our 2007 Equity Incentive Plan (the "2007 Plan"), and outstanding options to purchase approximately 67,000 shares of our common stock and 1,101,000 outstanding restricted stock units under our 2017 Plan as of December 31, 2018. The shares under both plans are registered for resale on currently effective registration statements.

We may issue additional restricted securities or register additional shares of common stock under the Securities Act in the future. The issuance of a significant number of shares of common stock upon the exercise of stock options or warrants, vesting of restricted stock units, or the availability for sale, or resale, of a substantial number of the shares of common stock under registration statements, under Rule 144 or otherwise, could adversely affect the market price of our common stock.

One or more issuances of shares of our common stock under our stock incentive plan or securities in connection with financing transactions or the conversion of warrants will dilute current shareholders.

Pursuant to our stock incentive plan, we may grant stock awards to our employees, directors and consultants. Dilution will occur upon exercise of any outstanding stock awards convertible into or exchangeable or exercisable for common stock. Moreover, if we raise additional funds by issuing additional common stock, or securities, further dilution to our existing shareholders will result. In addition, we have historically issued warrants to purchase common shares in conjunction with business acquisitions, debt issuances and employment contracts, which may cause dilution when exercised.

Our ability to issue preferred stock could adversely affect the rights of holders of our common stock.

Our certificate of incorporation authorizes us to issue up to 10,000 shares of preferred stock in one or more series on terms that may be determined at the time of issuance by our board of directors. Accordingly, we may issue shares of any series of preferred stock that would rank senior to our common stock as to voting or dividend rights or rights upon

our liquidation, dissolution or winding up.

Certain provisions in our charter documents have anti-takeover effects.

Certain provisions of our certificate of incorporation and bylaws may have the effect of delaying, deferring or preventing a change in control of us. Such provisions, including those limiting who may call special shareholders' meetings, together with the possible issuance of our preferred stock without shareholder approval, may make it more difficult for other persons, without the approval of our board of directors, to make a tender offer or otherwise acquire substantial amounts of our common stock or to launch other takeover attempts that a shareholder might consider to be in such shareholder's best interest.

Item 1B. Unresolved Staff Comments
Not Applicable.

Item 2. Properties

The following facilities were owned or leased by the Company as of December 31, 2018.

Owned and Leased Locations	Type	Square Footage	Leased or Owned
Energy Solutions segment:			
Moorpark, California	Sales	4,300	Leased
Cincinnati, Ohio	Manufacturing	96,400	Leased
Nunspeet, the Netherlands	Manufacturing	44,600	Leased
Nunspeet, the Netherlands	Sales	6,545	Leased
Montreal, Canada	Sales	3,514	Leased
Orchard Park, New York	Sales	17,900	Leased
Denton, Texas	Manufacturing	80,000	Leased
Monroe, Connecticut	Sales	8,825	Leased
Pune, India	Sales	678	Leased
Islandia, New York	Sales	8,178	Leased
Dubai, United Arab Emirates	Sales	2,463	Leased
Singapore	Sales	4,643	Leased
Essex, United Kingdom	Sales	120	Leased
Zhenjiang, People’s Republic of China	Manufacturing	64,500	Leased
Wichita Falls, Texas	Held for Sale	128,000	Owned
Industrial Solutions segment:			
Anaheim, California	Sales/Warehouse	7,000	Leased
Wood Dale, Illinois	Sales/Warehouse	16,000	Leased
Lennon, Michigan	Sales/Warehouse	8,000	Leased
Louisville, Kentucky	Manufacturing	35,000	Owned
Louisville, Kentucky	Sales	5,450	Leased
Lebanon, Pennsylvania	Sales	4,221	Leased
Pittsburgh, Pennsylvania	Sales	4,000	Leased
Columbia, Tennessee	Manufacturing	34,800	Leased
Shanghai, People's Republic of China	Sales	270	Leased
Cambridgeshire, United Kingdom	Sales	1,600	Leased
Shanghai, People’s Republic of China	Sales	5,608	Leased
Greensboro, North Carolina	Manufacturing	30,000	Leased
Fluid Handling Solutions segment:			
Telford, Pennsylvania	Manufacturing	93,500	Leased
Indianapolis, Indiana	Manufacturing	66,000	Leased
Heerenveen, the Netherlands	Manufacturing	34,000	Owned
Guangzhou, People’s Republic of China	Manufacturing	17,168	Leased
Corporate offices:			
Cincinnati, Ohio	Administrative	7,000	Leased
Toronto, Canada	Administrative	4,000	Leased
Dallas, Texas (a)	Administrative	18,267	Leased

(a) Location is also used by the Company's Energy Solutions and Industrial Solutions segments as a management office.

It is anticipated that most leases coming due in the near future will be renewed at expiration. The property we own is subject to collateral mortgages to secure the amounts owed under the Credit Agreement. Our current capacity, with limited capital additions, is expected to be sufficient to meet production requirements for the near future. We believe our production facilities are suitable and can meet our future production needs.

Item 3. Legal Proceedings

See Note 13 "Commitments and Contingencies – Legal Proceedings" to the Consolidated Financial Statements contained in Part II, Item 8 of this Annual Report on Form 10-K for information regarding legal proceedings in which we are involved.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our common stock is traded on the NASDAQ under the symbol "CECE."

Performance Graph

The following graph sets forth the cumulative total return to CECO's shareholders during the five years ended December 31, 2018, as well as the following indices: Russell 2000 Index, Standard and Poor's ("S&P") 600 Small Cap Industrial Machinery Index, and S&P 500 Index. Assumes $100 was invested on December 31, 2013, including the reinvestment of dividends, in each category.

Dividends

Our dividend policy and the payment of cash dividends under that policy are subject to the Board of Director's continuing determination that the dividend policy and the declaration of dividends are in the best interest of our 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 Board of Director's discretion at any time. Payment of dividends is also subject to the continuing compliance with our financial covenants under our Credit Agreement.

Holders

The approximate number of registered shareholders of record of our common stock as of February 28, 2019 was 314, although there are a larger number of beneficial owners.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

We did not repurchase any shares of our common stock during 2018.

Recent Sales of Unregistered Securities

Not applicable.

Item 6.Selected Financial Data

The following table sets forth selected summary financial data. We have derived this data from our consolidated financial statements for the five years ended December 31, 2018 which were audited by BDO USA, LLP, independent registered public accounting firm. The selected financial data should be read in conjunction with our Consolidated Financial Statements and Notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and other financial information included herein.

(In thousands, except share and per share data)

	Year Ended December 31,				
	2018	2017	2016	2015	2014
Net sales	$337,339	$345,051	$417,011	$367,422	$263,217
Gross profit	111,537	113,194	134,859	109,171	84,823
Amortization and earnout expenses	9,683	7,132	20,231	25,613	10,151
Intangible asset and goodwill impairment	—	7,168	57,923	3,340	—
Loss on divestitures, net of selling costs	4,390	—	—	—	—
Restructuring expenses	—	1,895	—	—	—
Income (loss) from operations	10,002	8,024	(25,562)	4,949	21,663
Net (loss) income	(7,121)	(3,029)	(38,254)	(5,734)	13,077
Net (loss) income attributable to CECO Environmental Corp.	(7,121)	(3,029)	(38,218)	(5,602)	13,077
Basic (loss) earnings per common share	$(0.21)	$(0.09)	$(1.12)	$(0.19)	$0.51
Diluted (loss) earnings per common share	$(0.21)	$(0.09)	$(1.12)	$(0.19)	$0.50
Weighted average shares outstanding – basic	34,714,395	34,445,256	33,979,549	28,791,662	25,750,972
Weighted average shares outstanding – diluted	34,714,395	34,445,256	33,979,549	28,791,662	26,196,901
Dividends declared per common share	$—	$0.225	$0.264	$0.264	$0.230
Dividends paid	$—	$7,792	$8,995	$7,977	$5,937
Total assets	$392,582	$438,549	$498,634	$598,819	$412,107
Short-term debt	—	11,296	8,827	19,494	8,887
Long-term debt	74,456	103,537	114,366	157,834	102,969
Short-term capital lease and sale-leaseback financing liability	698	703	764	—	—
Long-term capital lease and sale-leaseback financing liability	12,018	11,880	12,533	—	—
Shareholders' equity	$178,560	$186,569	$190,082	$245,021	$181,224

Results of operations from acquired businesses are included from the date of acquisition forward. The fair value of assets and liabilities, inclusive of changes resulting from operating the businesses, are included in the first period ended after the date of each acquisition, and all periods thereafter. Acquisitions consist of the following: (i) HEE Environmental Engineering ("HEE") in August 2014, (ii) SAT Technology, Inc. ("SAT") in September 2014, (iii) Emtrol LLC ("Emtrol") in November 2014, (iv) Jiangyin Zhongli Industrial Technology Co. Ltd. ("Zhongli") in December 2014, and (v) Peerless Mfg. Co. ("PMFG") in September 2015.

Results of operations from businesses that are divested are excluded from the date of the disposition. Dispositions consist of the following: (i) Keystone Filter in February 2018, (ii) Strobic Air Corporation in March 2018, and (iii) Zhongli in November 2018.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Management's discussion and analysis ("MD&A") should be read in conjunction with the consolidated financial statements and accompanying notes included in Item 8 of this Annual Report on Form 10-K, which include additional information about our accounting policies, practices and the transactions underlying our financial results. The preparation of our consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts in our consolidated financial statements and the accompanying notes including various claims and contingencies related to lawsuits, taxes, environmental and other matters arising during the normal course of business. We apply our best judgment, our knowledge of existing facts and circumstances and actions that we may undertake in the future in determining the estimates that affect our consolidated financial statements. We evaluate our estimates on an ongoing basis using our historical experience, as well as other factors we believe appropriate under the circumstances, such as current economic conditions, and adjust or revise our estimates as circumstances change. As future events and their effects cannot be determined with precision, actual results may differ from these estimates.

Overview

Business Overview

CECO Environmental is a global leader in industrial air quality and fluid handling serving the energy, industrial and other niche markets through an attractive asset-light business model. CECO provides innovative technology and application expertise that helps companies grow their businesses with safe, clean, and more efficient solutions to help protect our shared environment. CECO serves both established and emerging industries in regions around the world working to improve air quality, optimize the energy value chain, and provide customized engineered solutions in multiple applications that include oil and gas, power generation, water and wastewater, battery production, poly silicon fabrication, chemical and petrochemical processing, along with a wide range of other industries.

Industry Trends and Corporate Strategy

We are a global corporation with worldwide operations. As a global business, our operations are affected by worldwide, regional and industry-specific economic factors, wherever we operate or do business. Our geographic and industry diversity, and the breadth of our product and services portfolios, have helped mitigate the impact of any one industry or the economy of any single country on our consolidated operating results.

We believe growth for our products and services is driven by the increasing demand for energy consumption and a shift towards cleaner sources such as natural gas, nuclear, and renewable sources. These trends should stimulate investment in new power generation facilities, pipeline expansion and related infrastructure, and in upgrading of existing facilities.

With a shift to cleaner, more environmentally responsible power generation, power providers and industrial power consumers are building new facilities that use cleaner fuels. In developed markets, natural gas is increasingly becoming one of the energy sources of choice. We supply product offerings throughout the entire natural gas infrastructure value chain and believe expansion will drive growth within our Energy Solutions segment for our pressure products and SCR systems for natural-gas-fired power plants. Increased global natural gas production as a percent of total energy consumption, miles of new pipeline being added globally, and an increase in liquification capacity all stand to drive the need for our products.

We also believe there is a trend in both developed and emerging markets to control and reduce emissions of harsher fuel sources for which our air pollution control equipment is required. In emerging markets including China, India,

and South East Asia our business is positioned to benefit from tightening of air pollution standards. In developed markets, growth of industrialization will drive greater output of emissions requiring our equipment as well. In both markets, we expect capital expenditures for our equipment to increase and the need for our aftermarket services to grow as companies seek to meet new standards.

We continue to focus on increasing revenues and profitability globally while continuing to strengthen and expand our presence domestically. Our operating strategy has historically involved horizontally expanding our scope of technology, products, and services through selective acquisitions and the formation of new business units that are then vertically integrated into our growing group of turnkey system providers. Our continuing focus will be on global growth, market coverage, and expansion of our Asia operations. Operational excellence, margin expansion, after-market recurring revenue growth, and safety leadership are also critical to our growth strategy.

Operations Overview

We operate using an “outside-in” approach to our business model. We are structured to win in target markets with a core focus on understanding customer needs. This means there is a high application mix across multiple industries who have diverse needs for products and solutions. Our business model requires scalable efficiencies enabling us to serve our customers with a variety of products that we typically classify into three categories: make-to-order, configure-to-order, and engineer-to-order. We use an asset light model to accomplish this by focusing on application and technical expertise throughout our operations. This has provided us with critical efficiencies over other models.

The Company’s segments are led by presidents with distinct industry expertise coupled with strong leadership skills resulting in a customer-first mindset across the business. They manage their teams who are responsible for successfully running the segment operations. The segment presidents work closely with our Chief Executive Officer on global growth strategies, operational excellence, and employee development.

Within our segments we have monthly operating reviews to ensure we are both winning in the markets and winning as a business. These reviews include, but are not limited to, deal reviews, project reviews, and manufacturing reviews. Each of these reviews takes a customer-first approach where we adopt the metrics that matter most to our customer and to our shareholders. In these reviews we focus on metrics such as quality, customer satisfaction, on-time-delivery, lead-times, price, position, project margins, backlog, and above all, safety.

The headquarters focuses on enabling the core back-office key functions for scale and efficiency, that is, accounting, payroll, human resources/benefits, information technology, safety support, internal control over financial reporting, and administration. We have excellent organizational focus from headquarters throughout our divisional businesses with clarity and minimal duplicative work streams.

Our three reportable segments are:

- Energy Solutions segment: Our Energy Solutions segment serves the Energy market, where we are a key part of helping meet the global demand for Clean Energy with products and services that support our customers with efficient solutions and technologies to keep the world clean and safe. Our offerings improve air quality and solves fluid handling needs with market leading, highly engineered, and customized solutions for the power generation, oil & gas, and petrochemical industries.

- Industrial Solutions segment: Our Industrial Solutions segment serves the Industrial Pollution Control market where our aim is to address the growing need to protect the air we breathe and help our customers’ desires for sustainability upgrades beyond carbon footprint issues. Our offerings improve 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, and industrial odors.

- Fluid Handling Solutions segment: Our Fluid Handling Solutions segment offers unique pump and filtration solutions that maintain safe and clean operations in some of the most harsh and toxic environments. In this market, we provide solutions for mission-critical applications to a wide variety of industries including, but not limited to, plating and metal finishing, food and beverage, chemical, petrochemical, pharmaceutical, wastewater treatment, desalination and the aquarium & aquaculture markets.

Our contracts are obtained either through competitive bidding or as a result of negotiations with our customers. Contract terms offered by us are generally dependent on the complexity and risk of the project as well as the resources that will be required to complete the project. Our focus is on increasing our operating margins as well as our gross margin percentage, which translates into stronger operating results.

Our cost of sales is principally driven by a number of factors, including material prices and labor cost and availability. Changes in these factors may have a material impact on our overall gross profit margins.

We break down costs of sales into five categories. They are:

- Subcontracts—Electrical work, concrete work, subcomponents and other subcontracts necessary to produce our products;
- Labor—Our direct labor both in the shop and in the field;
- Material—Raw material that we buy to build our products;
- Equipment—Fans, motors, control panels and other equipment necessary for turnkey systems; and
- Factory overhead—Costs of facilities and supervision wages necessary to produce our products.

In general, subcontracts provide us the most flexibility in margin followed by labor, material, and equipment. Across our various product lines, the relative relationships of these factors change and cause variations in gross margin percentage. Material costs have also increased faster than labor costs, which also reduces gross margin percentage. As material cost inflation occurs, the Company seeks to pass this cost onto our customers as price increases.

Selling and administrative expense principally includes sales and engineering payroll and related fringes, advertising and marketing expenditures as well as all corporate and administrative functions and other costs that support our operations. The majority of these expenses are fixed. With our asset light model, we expect our operations to leverage our fixed cost structure as revenue grows.

Note Regarding Use of Non-GAAP Financial Measures

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

As a result, the Company provides financial information in this MD&A 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, which the Company's management utilizes to evaluate its ongoing financial performance, and which the Company believes provides greater transparency to investors as supplemental information to its GAAP results.

The Company has provided the non-GAAP financial measures of non-GAAP gross profit and non-GAAP gross profit margin, non-GAAP operating income, non-GAAP operating margin, and non-GAAP net income attributable to CECO Environmental Corp. as a result of the adjustment for items that the Company believes are not indicative of its ongoing operations. These items include charges 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 additional charges related to its restructuring program that was implemented in the fourth quarter of 2017. While the Company cannot predict the exact timing or amounts of such charges, it does expect to treat these charges as special items in its future presentation of non-GAAP results.

Results of Operations

Consolidated Results

Our consolidated statements of operations for the years ended December 31, 2018, 2017 and 2016 are as follows:

	Year ended December 31,		
(dollars in millions)	2018	2017	2016
Net sales	$337.3	$345.1	$417.0
Cost of goods sold	225.8	231.9	282.1
Gross profit	$111.5	$113.2	$134.9
Percent of sales	33.1 %	32.8 %	32.4 %
Selling and administrative expenses	$87.4	$89.0	$81.9
Percent of sales	25.9 %	25.8 %	19.6 %
Acquisition and integration expenses	$—	$—	$0.5
Amortization and earnout expenses	$9.7	$7.1	$20.2
Loss on divestitures, net of selling costs	$4.4	$—	$—
Intangible asset and goodwill impairment	$—	$7.2	$57.9
Restructuring expenses	$—	$1.9	$—
Operating income (loss)	$10.0	$8.0	$(25.6)
Percent of sales	3.0 %	2.3 %	(6.1)%

Non-GAAP Measures

To compare operating performance between the years ended December 31, 2018, 2017 and 2016, the Company has adjusted GAAP operating income (loss) to exclude (1) amortization and contingent acquisition expenses, including amortization of acquisition related intangibles, retention, severance, and earnout expenses, (2) acquisition and integration related expenses, including legal, accounting, and banking expenses, (3) executive transition expenses, including severance for its former Chief Executive Officer, fees incurred in the search for a new Chief Executive Officer, and expenses associated with hiring a new Chief Financial Officer, (4) gain on insurance settlement, (5) facility exit expenses associated with the closure of certain leased facilities, (6) legacy design repair expenses related to costs to rectify issues on products that are no longer in production, (7) restructuring expenses primarily relating to severance, facility exit, legal and property, plant and equipment impairment, (8) intangible asset and goodwill impairment, (9) inventory valuation and plant, property and equipment valuation adjustments related to acquisitions and (10) loss on divestitures. See “Note Regarding Use of Non-GAAP Financial Measures” above. The following tables present the reconciliation of GAAP gross profit and GAAP gross profit margin to non-GAAP gross profit and non-GAAP gross profit margin, GAAP operating (loss) income and GAAP operating margin to non-GAAP operating income and non-GAAP operating margin, and GAAP net (loss) income attributable to CECO Environmental Corp. to non-GAAP net income attributable to CECO Environmental Corp.:

	Year Ended December 31,		
(dollars in millions)	2018	2017	2016
Gross profit as reported in accordance with GAAP	$111.5	$113.2	$134.9
Gross profit margin in accordance with GAAP	33.1 %	32.8 %	32.4 %

Legacy design repairs	—	2.0	—
Inventory valuation adjustment	—	—	0.1
Plant, property and equipment valuation adjustment	—	0.6	0.6
Non-GAAP gross profit	$111.5	$115.8	$135.6
Non-GAAP gross profit margin	33.1 %	33.6 %	32.5 %

(dollars in millions)	Year Ended December 31, 2018	2017	2016
Operating income (loss) as reported in accordance with GAAP	$10.0	$8.0	$(25.6)
Operating margin in accordance with GAAP	3.0 %	2.3 %	(6.1)%
Legacy design repairs	—	2.0	—
Inventory valuation adjustment	—	—	0.1
Plant, property and equipment valuation adjustment	—	0.6	0.6
Gain on insurance settlement	—	—	(1.0)
Acquisition and integration expenses	—	—	0.5
Amortization and earnout expenses	9.7	7.1	20.2
Loss on divestitures, net of selling costs	4.4	—	—
Intangible asset and goodwill impairment	—	7.2	57.9
Restructuring expenses	—	1.9	—
Executive transition expenses	—	1.3	—
Facility exit expenses	—	0.2	—
Non-GAAP operating income	$24.1	$28.3	$52.7
Non-GAAP operating margin	7.1 %	8.2 %	12.6 %

(dollars in millions)	Year Ended December 31, 2018	2017	2016
Net loss attributable to CECO Environmental Corp. as reported in accordance with GAAP	$(7.1)	$(3.0)	$(38.2)
Legacy design repairs	—	2.0	—
Inventory valuation adjustment	—	—	0.1
Plant, property and equipment valuation adjustment	—	0.6	0.6
Gain on insurance settlement	—	—	(1.0)
Acquisition and integration expenses	—	—	0.5
Amortization and earnout expenses	9.7	7.1	20.2
Loss on divestitures, net of selling costs	4.4	—	—
Intangible asset and goodwill impairment	—	7.2	57.9
Restructuring expenses	—	1.9	—
Executive transition expenses	—	1.3	—
Facility exit expenses	—	0.2	—
Foreign currency remeasurement	0.8	(2.1)	0.8
Tax benefit of expenses	2.4	(5.7)	(7.4)
Non-GAAP net income attributable to CECO Environmental Corp.	$10.2	$9.5	$33.5
Non-GAAP net income as a percentage of sales	3.0 %	2.8 %	8.0 %

In 2018, we divested three non-core businesses; Keystone filter brand (“Keystone”) and Strobic Air Corporation (“Strobic”) in the first quarter and Jiangyin Zhongli Industrial Technology Co. Ltd. (“Zhongli”) in the fourth quarter (collectively, “the Divestitures”). The exclusion of the operating results subsequent to their disposition impacts the comparability of our consolidated and segment operating results.

Comparison of the years ended December 31, 2018 and 2017

Consolidated sales in 2018 were $337.3 million compared with $345.1 million in 2017, a decrease of $7.8 million. The decrease is primarily attributable to the Divestitures, which contributed $34.6 million of sales in 2017 and only $9.3 million of sales in 2018. Strong year-over-year sales in our Energy Solutions segment, with an increase of $22.2 million, partially offset the impact of the Divestitures. Excluding the impact of the Divestitures, sales increased $30.5 million, or 17.4%.

Gross profit decreased by $1.7 million, or 1.5%, to $111.5 million in 2018 compared with $113.2 million in 2017. Gross profit as a percentage of sales increased to 33.1% in 2018 compared with 32.8% in 2017. The decrease in gross profit was primarily attributable to the Divestitures. Non-GAAP gross profit was $111.5 million, or 33.1% as a percentage of sales for 2018, a decrease of $4.3 million compared with non-GAAP gross profit of $115.8 million, or 33.6% as a percentage of sales in 2017. The gross profit margin in 2017 was impacted by incurring $3.0 million in warranty expense and $2.0 million in legacy design repairs in 2017. The higher warranty expense in 2017 is primarily attributable to a legacy product design issue. The 2017 legacy design repairs are primarily attributable to specific issues on certain pre-acquisition projects.

Selling and administrative expenses were $87.4 million in 2018 compared with $89.0 million in 2017. Selling and administrative expenses as a percentage of sales were 25.9% in 2018 compared with 25.8% in 2017. The decrease in expenses is primarily due to lower year-over-year sales. The benefit of our 2017 restructuring was offset by investments in selling and customer service.

Amortization and earnout expense was $9.7 million in 2018 and $7.1 million in 2017, which was comprised of $9.6 million and $11.6 million of amortization expense in 2018 and 2017, respectively, and $0.1 million of earnout loss and $4.5 million of earnout income in 2018 and 2017, respectively. The change in the earnout year-over-year is primarily due to earnout adjustments related to Zhongli resulting in income of $0.3 million in 2018 and income of $6.6 million in 2017. Amortization expense decreased in 2018 due to the impact of the Divestitures.

In 2018, the Company divested Keystone, Strobic and Zhongli, resulting in a net loss on divestitures of $4.4 million. The loss was comprised of a $6.9 million gain for Keystone, $4.3 million gain for Strobic and $15.6 million loss for Zhongli.

There were no goodwill or tradename impairment charges in 2018. In 2017, the Company recorded a non-cash impairment charge of $7.2 million. The charge included $4.5 million to fully impair the carrying value of the goodwill of the Zhongli reporting unit. An additional charge of $2.7 million was recorded to reduce the carrying value of four tradenames within the Energy segment to their fair value.

The Company implemented a restructuring program during the second half of 2017 and incurred restructuring expenses of $1.9 million. There were no restructuring charges in 2018.

Operating income for 2018 was $10.0 million, an increase of $2.0 million from $8.0 million in 2017. Operating income as a percentage of sales for 2018 was 3.0% compared with 2.3% for 2017. The increase in operating income was attributable to the factors described above.

Non-GAAP operating income was $24.1 million in 2018, a decrease of $4.2 million from $28.3 million in 2017. Non-GAAP operating income as a percentage of sales for 2018 was 7.1% compared with 8.2% for 2017.

Other (expense) income for 2018 was $0.4 million of expense compared with $0.1 million of income in 2017, and was comprised primarily of foreign currency transaction gains and losses.

Interest expense increased to $7.1 million in 2018 from $6.7 million in 2017. The increase is due to higher interest rates in 2018 compared to 2017, which was partially offset by lower average debt balances in 2018.

Income tax expense was $9.6 million and $4.4 million in 2018 and 2017, respectively. The effective tax rate for 2018 was 385.2% compared with 315.0% in 2017.

Income tax expense and the effective tax rate for 2018 were significantly impacted by permanent differences between the tax reporting and financial statement reporting of the net loss on the Divestitures. The net effect of those permanent differences was $7.0 million of tax expense in 2018. The Company completed its accounting for the tax effects of the Tax Cuts and Jobs Act ("Tax Act") in 2018 and recorded a $1.7 million favorable adjustment to the amount of tax liability provisionally recorded in 2017 for the one-time deemed repatriation of foreign earnings.

Income tax expense and the effective tax rate for 2017 were significantly impacted by certain aspects of the Tax Act. As a result of the Tax Act, the effective tax rate was adversely impacted in 2017 by a $6.4 million charge related to the deemed, one-time repatriation of foreign earnings, which was partially offset by a favorable $4.8 million benefit related to the revaluation of net deferred tax assets and liabilities from the reduction in the U.S. corporate income tax rate from 35% to 21%. Other significant impacts to the 2017 effective tax rate included the adverse effect of $1.8 million of nondeductible intangible asset and goodwill impairment charges, as well as a $1.8 million benefit from nondeductible earnout expenses.

Comparison of the years ended December 31, 2017 and 2016

Consolidated sales in 2017 were $345.1 million compared with $417.0 million in 2016, a decrease of $71.9 million. The decrease is primarily attributable to a decline within the Company's Energy Solutions segment and in the Company's Industrial Solutions segment. These declines were partially offset by increased sales in the Company's Fluid Handling Solutions segment.

Gross profit decreased by $21.7 million, or 16.1%, to $113.2 million in 2017 compared with $134.9 million in 2016. Gross profit as a percentage of sales increased to 32.8% in 2017 compared with 32.4% in 2016. The decrease in gross profit was primarily attributable to a sales volume decline period over period. On an as adjusted basis, non-GAAP gross profit was $115.8 million, or 33.6% as a percentage of sales for 2017, a decrease of $19.8 million compared with non-GAAP gross profit of $135.6 million, or 32.5% as a percentage of sales in 2016. The higher gross profit margin in 2017 was primarily due to favorable project mix and was partially offset by the Company incurring $3.0 million in warranty expense and $2.0 million in legacy design repairs in 2017, compared with warranty expense of $0.5 million during in 2016. The increase in warranty expense is primarily attributable to a legacy product design issue. The increase in legacy design repairs is primarily attributable to specific issues on certain pre-acquisition projects.

Selling and administrative expenses were $89.0 million in 2017 compared with $81.9 million in 2016. Selling and administrative expenses as a percentage of sales were 25.8% in 2017 compared with 19.6% in 2016. The increase is primarily attributable to executive transition expenses related to the Company's transition and search for a new Chief Executive Officer and expenses associated with the hiring of a new Chief Financial Officer of $1.3 million in 2017, an increase of $3.0 million of allowance for bad debt expense during 2017 compared with 2016 and additional investments in selling and finance personnel in 2017. Other factors leading to the increase are related to the Company recording gains of $1.6 million during 2016, which consisted of $1.0 million related to a life insurance settlement and $0.6 million related to a warranty settlement received from an external service provider of the Company.

Amortization and earnout expense was $7.1 million in 2017 and $20.2 million in 2016 which was comprised of $11.6 million and $14.0 million of amortization expense in 2017 and 2016, respectively, and $4.5 million of earnout income and $6.2 million of earnout loss in 2017 and 2016, respectively. The adjustment recorded to the fair value of the earnout from the Zhongli acquisition was $6.6 million of income in 2017 and $6.5 million of expense in 2016. The fair value adjustment to the earnout in 2017 was the result of Zhongli performing below operational expectations set for 2017, while in 2016, it performed above initial acquisition date operational expectations. Amortization expense decreased year-over-year due to fully amortized intangible assets.

In 2017, the Company recorded a non-cash impairment charge of $7.2 million. The charge included $4.5 million to fully impair the carrying value of the goodwill of the Zhongli reporting unit. An additional charge of $2.7 million was recorded to reduce the carrying value of four tradenames within the Energy segment to their fair value.

In 2016, the Company recorded a non-cash impairment charge of $57.9 million. A charge of $53.8 million was recorded to reduce the carrying value of the goodwill of three reporting units. An additional charge of $4.2 million was recorded to reduce the carrying value of four tradenames to their fair value.

The Company implemented a restructuring program during the fourth quarter of 2017 and incurred restructuring expenses of $1.9 million.

Operating income for 2017 was $8.0 million, an increase of $33.6 million from a loss of $25.6 million in 2016. Operating income as a percentage of sales for 2017 was 2.3% compared with a negative (6.1)% for 2016. The increase in operating income was attributable to the factors described above.

Non-GAAP operating income was $28.3 million for 2017, a decrease of $24.4 million from $52.7 million in 2016. Non-GAAP operating income as a percentage of sales for 2017 was 8.2% compared with 12.6% for 2016.

Other income, which is primarily foreign currency transaction gains and losses, was $0.1 million of income in 2017 compared with $0.3 million of income in 2016.

Interest expense decreased to $6.7 million in 2017 from $7.7 million in 2016. The decrease is attributable to debt repayments made throughout 2016 and 2017 that decreased the amount of outstanding debt throughout 2017.

Income tax expense was $4.4 million and $5.3 million in 2017 and 2016, respectively. The effective tax rate for 2017 was 315.0% compared with (16.0) % in 2016.

Income tax expense and the effective tax rate for 2017 were significantly impacted by the Tax Act. As a result of the Tax Act, the effective tax rate was adversely impacted by a $6.4 million charge related to the deemed, one-time repatriation of foreign earnings, but it was favorably impacted by a $4.8 million benefit related to the revaluation of net deferred tax assets and liabilities as a result of the reduction in the U.S. corporate income tax rate from 35% to 21%. Other significant impacts to the 2017 effective tax rate include the adverse effect of $1.8 million nondeductible of intangible asset and goodwill impairment charges, as well as a benefit of nondeductible $1.8 million related to an adjustment to estimated earnout expenses. The amounts reported related to changes brought about by the Tax Act were provisional amounts, subject to change within the measurement period ending December 22, 2018.

The 2016 effective tax rate was adversely impacted by $2.6 million of nondeductible earnout expenses and $17.9 million of nondeductible intangible asset and goodwill impairment charges, which more than offset the benefits of $1.7 million from foreign rate differences, $0.6 million of the domestic production activities deduction, $1.0 million related to United States and Foreign tax incentives and deferred tax asset movement, and $0.6 million of changes in uncertain tax position reserves.

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 the “Income (loss) from operations” line on the Consolidated Statements of Operations. The amounts presented in the Net Sales table below and in the following comments regarding our net sales at the reportable business segment level exclude both intra-segment and inter-segment net sales. The Income (loss) from Operations table and corresponding comments regarding operating income (loss) at the reportable segment level include both intra-segment and inter-segment operating income.

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. All prior years have been reclassified to conform to the current year presentation.

	2018	2017	2016
Net Sales (less intra-, inter-segment sales)			
(Table only in thousands)			
Energy Solutions segment	$211,185	$188,955	$254,806
Industrial Solutions segment	75,414	87,838	101,909
Fluid Handling Solutions segment	50,740	69,159	61,788
Corporate and Other (1)	—	(901)	(1,492)
Net sales	$337,339	$345,051	$417,011

(1) Includes adjustment for revenue on intercompany jobs.

	2018	2017	2016
Income (loss) from Operations			
(Table only in thousands)			
Energy Solutions segment	$28,398	$14,565	$30,582
Industrial Solutions segment	5,635	8,123	8,481

Fluid Handling Solutions segment	8,402	14,736	(36,209)
Corporate and Other (2)	(32,433)	(26,649)	(26,817)
Eliminations	—	(2,751)	(1,599)
Income (loss) from operations	$10,002	$8,024	$(25,562)

(2) Includes loss on divestitures, net of selling costs, corporate compensation, professional services, information technology, acquisition and integration expenses, and other general and administrative corporate expenses. This figure excludes earnout expenses / income, which are recorded in the segment in which the expense / income occurs. See Note 7 to the consolidated financial statements for further information.

Comparison of the years ended December 31, 2018 and 2017

Energy Solutions segment

Our Energy Solutions segment net sales increased $22.2 million to $211.2 million in 2018 compared with $189.0 million in 2017, an increase of 11.7%. Sales of nox semi-catalytic reduction systems were up $24.6 million, FCC cyclone sales to the refinery market were up $6.7 million and sales of oily water separation equipment were up $9.1 million. These increases were partially offset by $11.6 million of lower sales of exhaust stacks and acoustical silencers and the impact of the divestiture of Zhongli. Zhongli had sales of $4.5 million in 2018 and $12.8 million in 2017.

Operating income increased $13.8 million to $28.4 million for 2018 compared with $14.6 million in 2017, an increase of 95.0%. The increase in operating income in 2018 was due to an increase in revenues, which resulted in an increase in gross profit of $5.5 million. Operating income in 2017 included a $7.2 million non-cash goodwill and tradename intangible assets impairment charge. Operating income in 2018 and 2017 was impacted by adjustments to the fair value of the earnout from the Zhongli acquisition, which resulted in $0.3 million of income in 2018 and $6.6 million of income in 2017. The 2017 year also included $2.3 million in warranty expense and $2.0 million in legacy design repair, while 2018 only had $0.6 million of warranty expense.

Industrial Solutions segment

Our Industrial Solutions segment net sales decreased $12.4 million to $75.4 million in 2018 compared with $87.8 million in 2017, a decrease of 14.1%. The decrease is primarily due to decreased sales volume for the segment's wet scrubbers, bioreactor solutions and installation, and fabrication of ventilation duct work and related equipment.

Operating income decreased $2.5 million to $5.6 million for 2018 compared with $8.1 million in 2017, a decrease of 30.9%. The decrease in operating income was primarily due to the decrease in sales.

Fluid Handling Solutions segment

Our Fluid Handling Solutions segment net sales decreased $18.5 million to $50.7 million in 2018 compared with $69.2 million in 2017, a decrease of 26.7%. The decrease is primarily due to the divestitures of Keystone and Strobic, which had aggregate sales of $21.8 million in 2017 and $4.8 million in 2018, an impact of $17.0 million.

Operating income decreased $6.3 million to $8.4 million for 2018 compared with an operating income of $14.7 million for 2017, a decrease of 42.9%. The decrease in operating income is attributable to lower sales as well as a $3.0 million year-over-year decrease from the divestitures of Keystone and Strobic.

Comparison of the years ended December 31, 2017 and 2016

Energy Solutions segment

Our Energy Solutions segment net sales decreased $65.8 million to $189.0 million in 2017 compared with $254.8 million in 2016, a decrease of 25.8%. The decrease is due primarily to decreased sales volume for the Company's natural gas turbine exhaust systems related products and services and solid fuel power generation because of a weakening of this market in Europe and China and a weakening in the gas turbine powered market due to over-capacity. In addition, there were decreased sales for refinery related products and services attributable to the cyclical deferral of maintenance and capital expenditures by our customers in refinery related end markets.

Operating income from the Energy Solutions segment decreased $16.0 million to $14.6 million in 2017 compared with $30.6 million in 2016, a decrease of 52.4%. The decrease in operating income in 2017 was from a decrease in gross profit from the decrease in sales. The decrease in operating income was also attributable to a non-cash impairment charge of $7.2 million in 2017 to reduce the carrying value of goodwill at one reporting unit and tradename intangible assets at four reporting units to their fair value. The decrease in operating income was partially offset by adjustments recorded to the fair value of the earnout from the Zhongli acquisition, which resulted in $6.6 million of income in 2017 and $6.5 million of expense in 2016.

Industrial Solutions segment

Our Industrial Solutions segment net sales decreased $14.1 million to $87.8 million in 2017 compared with $101.9 million in 2016, a decrease of 13.8%. The decrease is primarily due to decreased sales volume for the Company's installation and fabrication of

ventilation of duct work and related equipment and thermal oxidizers which was partially offset by increased sales of bio reactor scrubber sales.

Operating income from the Industrial Solutions segment decreased $0.4 million to $8.1 million in 2017 compared with $8.5 million in 2016, a decrease of 4.7%. The decrease in operating income was primarily due to a $6.1 million decrease in gross profit from the lower sales. Additionally, operating income in 2016 was higher due to $2.3 million of income recorded in 2016 as a result of adjustments to the fair value of earnouts, which was partially offset by a non-cash impairment charge of $6.8 million recorded in 2016 to reduce the carrying value of the goodwill at two reporting units to their fair value.

Fluid Handling Solutions segment

Our Fluid Handling Solutions segment net sales increased $7.4 million to $69.2 million in 2017 compared with $61.8 million in 2016, an increase of 12.0%. The increase is due to increased international demand for the segments products and strengthening of the North America industrial market in 2017.

Operating income increased $50.9 million to $14.7 million for 2017 compared with an operating loss of $(36.2) million for 2016, an increase of 140.6%. The increase was primarily due to a non-cash impairment charge of $46.9 million in 2016, which was recorded to reduce the carrying value of the goodwill at a reporting unit to its fair value and an additional non-cash intangible asset impairment charge of $1.8 million in 2016 related to a tradename intangible asset. In addition, the increase in operating income was due to an increase in revenue, which resulted in an increase in gross profit of $2.7 million.

Backlog

Backlog is a representation of the amount of revenue expected from complete performance of firm fixed-price contracts that have not been completed for products and services we expect to substantially deliver within the next twelve-month to eighteen-month period. Our backlog only includes firm orders, but our customers may have the right to cancel a given order. Backlog increased to $182.1 million as of December 31, 2018 from $168.9 million as of December 31, 2017. We removed $18.3 million of backlog in 2018 as a result of the Divestitures. Excluding the impact of Divestitures, backlog increased by $31.5 million year-over-year. Backlog is adjusted on a quarterly basis for adjustments in foreign currency exchange rates. There have been no other orders removed from backlog that were previously disclosed as backlog as of December 31, 2017. Backlog is not defined by GAAP and our methodology for calculating backlog may not be consistent with methodologies used by other companies.

Liquidity and Capital Resources

Our principal sources of liquidity are cash flow from operations and available borrowings under our Credit Facility (defined below). Our principal uses of cash are operating costs, payment of principal and interest on our outstanding debt, 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, when possible, utilizing extended payment terms from material suppliers, 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 December 31, 2018, the Company had working capital of $57.0 million, compared with $66.1 million at December 31, 2017. The ratio of current assets to current liabilities was 1.55 to 1 at December 31, 2018 as compared with a ratio

of 1.61 to 1 at December 31, 2017.

At December 31, 2018 and 2017, cash and cash equivalents totaled $43.7 million and $29.9 million, respectively. As of December 31, 2018 and 2017, $23.3 million and $19.7 million, respectively, of our cash and cash equivalents were held by non-U.S. subsidiaries, as well as being denominated in foreign currencies.

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

(Table only in thousands)	December 31, 2018	2017
Outstanding borrowings under Credit Facility.		
Term loan due in September 2020.		
– Term loan	$76,147	$113,903
– U.S. Dollar revolving loans	—	1,000
– Unamortized debt discount	(1,691)	(2,834)
Total outstanding borrowings under Credit Facility	74,456	112,069
Outstanding borrowings (U.S. dollar equivalent) under Aarding Facility	—	2,764
Total outstanding borrowings	74,456	114,833
Less: current portion	—	11,296
Total debt, less current portion	$74,456	$103,537

In 2018, the Company made prepayments of $36.2 million on the term loan. Due to the prepayments made in 2018, there are no additional payments due on the term loan until the final payment of $76.1 million in September 2020.

The Company entered into a credit agreement (the "Credit Agreement") with various lenders and letter of credit issuers providing for various senior secured credit facilities (collectively, the "Credit Facility"). The Credit Agreement contains customary affirmative and negative covenants, including the requirement to maintain compliance with a consolidated leverage ratio of less than 3.75 and a consolidated fixed charge coverage ratio of more than 1.25. Per the Credit Agreement, the maximum consolidated leverage ratio of 3.75 will remain constant at this ratio through March 31, 2019, when it will decrease to 3.50 through September 30, 2019. The consolidated leverage ratio will then decrease to 3.25 where it will remain until the end of the Credit Agreement. As of December 31, 2018 and 2017, the Company was in compliance with all related financial and other restrictive covenants under the Credit Facility.

A subsidiary of the Company located in the Netherlands has a Euro denominated facilities agreement ("Aarding Facility"). In March 2018, the Company settled the outstanding amount of $2.8 million of the overdraft facility. The Company plans to exit this facility and consolidate it with the existing Credit Facility in 2019.

See Note 9 to the consolidated financial statements for further information on the Company's debt facilities.

Total unused credit availability under our Credit Facility and other non-U.S. credit facilities and agreements, exclusive of any potential asset base limitations, is as follows:

	December 31, 2018	2017
(dollars in millions)		
Credit Facility, U.S. Dollar revolving loans	$60.5	$60.5
Draw down	—	(1.0)
Letters of credit open	(29.3)	(24.4)
Credit Facility, Multi-currency revolving facilities	19.5	19.5
Netherlands facilities (€0.0 million at December 31, 2018	—	15.6

and €13.0 million at December 31, 2017 in U.S. Dollar equivalent)		
Draw down	—	(2.8)
Letters of credit open	—	(3.9)
China Facility	—	4.6
Draw down	—	—
Total unused credit availability	$50.7	$68.1
Amount available based on borrowing limitations	$50.7	$18.7

Overview of Cash Flows and Liquidity

	For the year ended December 31,		
(dollars in thousands)	2018	2017	2016
Total operating cash flow provided by operating activities	$21,952	$6,570	$69,599
Net cash provided by (used in) investing activities	38,258	(660)	(1,406)
Net cash used in financing activities	(44,900)	(24,138)	(57,988)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(1,531)	881	(1,712)
Net increase (decrease) in cash, cash equivalents and restricted cash	$13,779	$(17,347)	$8,493

Operating Activities

In 2018, $22.0 million of cash was provided by operating activities compared with $6.6 million provided in 2017, an increase of $15.4 million. Net earnings, adjusted for non-cash items (depreciation and amortization, unrealized foreign currency (gain) loss, impairment of intangible assets and goodwill, loss on divestitures and share based compensation) decreased $5.3 million year-over-year. Cash flow from operating activities in 2018 had a favorable year-over-year net impact of working capital balances as reflected in the Consolidated Statement of Cash Flows. In addition, Zhongli earnout payments, classified as operating activities, were $2.9 million in 2018 and $7.8 million in 2017.

In 2017, $6.6 million of cash was provided by operating activities as compared with $69.6 million provided in 2016, a decrease of $63.0 million. Net earnings, adjusted for non-cash items (depreciation and amortization, unrealized foreign currency (gain) loss, impairment of intangible assets and goodwill, loss on divestiture and share based compensation) decreased $21.7 million year-over-year. Cash flow from operating activities in 2017 had a negative year-over-year impact of working capital balances as reflected in the Consolidated Statement of Cash Flows. In addition, Zhongli earnout payments, classified as operating activities, were $7.8 million in 2017 with no corresponding payments in 2016.

Investing Activities

In 2018, $38.3 million of cash was provided by investing activities as compared with a use of cash of $0.7 million in 2017. The primary driver of the year-over-year changes was $35.1 million of proceeds from divestitures and $6.3 million of proceeds from the disposal of assets held for sale. A significant portion of the proceeds from divestitures was used to pay down the Credit Facility.

In 2017, $0.7 million of cash was used in investing activities as compared with $1.4 million in 2016. The change was due to a $1.0 million payoff on life insurance policy loans in 2016.

Financing Activities

Financing activities in 2018 used cash of $44.9 million, which consisted primarily of $37.8 million of payments on our Term Loan and $3.7 million net payments on our revolving credit lines.

Financing activities in 2017 used cash of $24.1 million, which consisted primarily of repayments of $11.2 million on our term loan, earnout payments of $7.4 million, and dividends paid to our shareholders of $7.8 million, less cash received from net borrowings on revolving credit lines of $2.3 million and proceeds from stock option exercises and employee stock purchases of $1.4 million.

Financing activities in 2016 used cash of $58.0 million, which consisted primarily of $55.2 million of net repayments on our Term Loan and revolving lines of credit, earnout payments of $9.3 million, and dividends paid to our shareholders of $9.0 million, less cash received from sale-leaseback transactions of $14.2 million and proceeds from stock option exercises and employee stock purchases of $1.7 million.

We believe that cash flows from operating activities, together with our existing cash and borrowings available under our Credit Facility, will be sufficient for at least the next twelve months to fund our current anticipated uses of cash. After that, our ability to fund these expected uses of cash and to comply with the financial covenants under our debt agreements will depend on the results of future operations, performance and cash flow. Our ability to fund these expected uses from the results of future operations will be subject to prevailing economic conditions and to financial, business, regulatory, legislative and other factors, many of which are beyond our control.

Employee Benefit Obligation

Based on current assumptions, estimated contributions to our pension plan of $0.5 million are required in 2019. The amount and timing of required contributions to the pension trust depends on future investment performance of the pension funds and interest rate movements, among other things and, accordingly, we cannot reasonably estimate actual required payments. Currently, our pension plan is under-funded. As a result, absent major increases in long-term interest rates, above average returns on pension assets and/or changes in legislated funding requirements, we will be required to make contributions to our pension trust of varying amounts in future years.

Off-Balance Sheet Arrangements

None.

Contractual Obligations

The following table summarizes the Company's contractual obligations as of December 31, 2018 (in thousands):

	Payments Due by Period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Long-term debt	$76,147	$ —	$76,147	$—	$ —
Note payable	1,700	1,700	—	—	—
Interest expense (estimated)	10,534	6,019	4,515	—	—
Unconditional purchase obligations (1)	88,201	88,201	—	—	—
Pension obligations (2)	6,075	491	3,197	2,387	—
Operating lease obligations	10,139	2,745	3,334	1,782	2,278
Capital lease & sale leaseback financing obligations	16,580	1,252	2,580	2,683	10,065
Totals	$209,376	$ 100,408	$89,773	$6,852	$ 12,343

(1) Primarily consists of purchase obligations for various costs associated with uncompleted sales contracts.
(2) Future expected obligations under the Company's pension plan is included in the contractual cash obligations table above, up to, but not more than five years. The Company's pension plan policy allows it to fund an amount, which could be in excess of the pension cost expensed, subject to the limitations imposed by current tax regulations.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in conformity with GAAP. The preparation of these financial statements requires the use of estimates, judgments, and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the periods presented. We believe that, of our significant accounting policies, the following accounting policies involve a higher degree of judgments, estimates, and complexity.

Use of Estimates

Preparation of the consolidated financial statements in accordance with GAAP requires management to make estimates and assumptions affecting the reported amounts of assets, liabilities, revenues and expenses and related

contingent liabilities. On an on-going basis, we evaluate our estimates, including those related to revenues, bad debts, share based compensation, income taxes, goodwill and intangible asset valuation, and contingencies and litigation. We base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions.

Revenue Recognition

A substantial 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.

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.

The judgments and estimates involved include management's ability to accurately estimate the contracts' progress to completion at each financial reporting period. In addition, 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. 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

Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. No provision for estimated losses on uncompleted contracts was needed at December 31, 2018, 2017 and 2016.

Credit and Collections

The Company maintains allowances for doubtful accounts receivable for probable estimated losses resulting from either customer disputes or the inability of its customers to make required payments. If the financial condition of the Company's customers were to deteriorate, resulting in their inability to make the required payments, the Company may be required to record additional allowances or charges against income. The Company determines its allowance for doubtful accounts by considering all known collectability problems of customers' accounts and reviewing the aging of the outstanding receivables. The resulting allowance for doubtful accounts receivable is an estimate based upon the Company's knowledge of its business and customer base, and historical trends. The amount ultimately not collected may differ from the reserve established.

Inventories

The Company's inventories are valued at the lower of cost or net realizable value using the first-in, first-out inventory costing method. Inventory quantities are regularly reviewed and provisions for excess or obsolete inventory are recorded primarily based on the Company's forecast of future demand and market conditions. Significant unanticipated changes to the Company's forecasts could require a change in the provision for excess or obsolete inventory.

Assets Held for Sale

The Company classifies properties as held for sale when certain criteria are met. At such time, the properties, including significant assets that are expected to be transferred as part of a sale transaction, are presented separately on the consolidated balance sheet at the lower of carrying value or estimated fair value less costs to sell and depreciation is no longer recognized. As of December 31, 2018, the Company had one building and one tract of land classified as held for sale.

Property, plant and equipment

Property, plant and equipment are carried at the cost of acquisition or construction and depreciated over the estimated useful lives of the assets. Depreciation and amortization are provided using the straight-line method in amounts sufficient to amortize the cost of the assets over their estimated useful lives (buildings and improvements—generally five to 40 years; machinery and equipment—generally two to 15 years).

Intangible assets

Indefinite life intangible assets are comprised of tradenames, while finite life intangible assets are comprised of technology, customer lists, noncompetition agreements, and tradenames. Finite life intangible assets are amortized on a straight line or accelerated basis over their estimated useful lives of seven to 10 years for technology, five to 20 years for customer lists, five years for noncompetition agreements, and 10 years for tradenames.

Long-lived assets

Property, plant and equipment and finite life intangible assets are reviewed whenever events or changes in circumstances occur that indicate possible impairment. If events or changes in circumstances occur that indicate possible impairment, our impairment review is based on an undiscounted cash flow analysis at the lowest level at which cash flows of the long-lived assets are largely

independent of other groups of our assets and liabilities. This analysis requires management judgment with respect to changes in technology, the continued success of product lines, and future volume, revenue and expense growth rates. We conduct annual reviews for idle and underutilized equipment, and review business plans for possible impairment. Impairment occurs when the carrying value of the assets exceeds the future undiscounted cash flows expected to be earned by the use of the asset or asset group. When impairment is indicated, the estimated future cash flows are then discounted to determine the estimated fair value of the asset or asset group and an impairment charge is recorded for the difference between the carrying value and the estimated fair value.

Additionally, we also evaluate the remaining useful life each reporting period to determine whether events and circumstances warrant a revision to the remaining period of depreciation or amortization. If the estimate of a long-lived asset's remaining useful life is changed, the remaining carrying amount of the asset is amortized prospectively over that revised remaining useful life.

The Company completes an annual (or more often if circumstances require) impairment assessment of its indefinite life intangible assets. As a part of its annual assessment, typically, the Company first qualitatively assesses whether current events or changes in circumstances lead to a determination that it is more likely than not (defined as a likelihood of more than 50 percent) that the fair value of an asset is less than its carrying amount. If there is a qualitative determination that the fair value of a particular asset is more likely than not greater than its carrying value, we do not need to proceed to the quantitative estimated fair value test for that asset. If this qualitative assessment indicates a more likely than not potential that the asset may be impaired, the estimated fair value is determined by the relief from royalty method. If the estimated fair value of an asset is less than its carrying value, an impairment charge is recorded for the amount by which the carrying value of the asset exceeds its estimated fair value. For the 2018 and 2017 annual assessments, given the lower than expected results for certain reporting units, we determined that a quantitative assessment of fair value for all indefinite life intangible assets using the relief from royalty method was appropriate. For additional information on impairment testing results, see Note 7 to the consolidated financial statements.

Goodwill

The Company completes an annual (or more often if circumstances require) goodwill impairment assessment on October 1 on a reporting unit level, at or below the operating segment level. As a part of its annual assessment, the Company first qualitatively assesses whether current events or changes in circumstances lead to a determination that it is more likely than not (defined as a likelihood of more than 50 percent) that the fair value of a reporting unit is less than its carrying amount. If there is a qualitative determination that the fair value of a particular reporting unit is more likely than not greater than its carrying value, the Company does not need to quantitatively test for goodwill impairment for that reporting unit. If this qualitative assessment indicates a more likely than not potential that the asset may be impaired, the estimated fair value is calculated using a weighting of the income method and the market method. If the estimated fair value of a reporting unit is less than its carrying value, an impairment charge is recorded.

The Company bases its measurement of the fair value of a reporting unit using a 50/50 weighting of the income method and the market method. The income method is based on a discounted future cash flow approach that uses the significant assumptions of projected revenue, projected operational profit, terminal growth rates, and the cost of capital. Projected revenue, projected operational profit and terminal growth rates are significant assumptions because they are three primary drivers of the projected cash flows in the discounted future cash flow approach. Cost of capital is a significant assumption as it is the discount rate used to calculate the current fair value of those projected cash flows. The market method is based on financial multiples of comparable companies and applies a control premium. Significant estimates in the market approach include identifying similar companies with comparable business factors such as size, growth, profitability, risk and return on investment and assessing comparable revenue

and operating income multiples in estimating the fair value of a reporting unit. Based on the analysis, the resultant estimated fair value of all of the reporting units exceeded their carrying value as of December 31, 2018.

In 2018, because of changes in management and the resulting changes to the Company's reporting and operating structure, the number of reporting units for goodwill testing was aggregated to three reporting units from 11 prior to the change. Prior to the adoption of the new reporting structure we tested our goodwill impairment under the old reporting unit structure. Based on this analysis, the estimated fair value of all of our reporting units exceeded their carrying value as of October 1, 2018. The estimated fair value of each of the reporting units under the new structure exceed their respective carrying value by over 30%. For additional information on goodwill impairment testing results, see Note 7 to the consolidated financial statements.

Income Taxes

Income taxes are determined using the asset and liability method of accounting for income taxes in accordance with Financial Accounting Standards Board ("FASB") ASC Topic 740, "Income Taxes". Income tax expense includes federal, state and foreign income taxes.

Deferred income taxes are provided using the asset and liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry-forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases and are measured using enacted tax rates expected to apply to taxable income in the year in which those temporary differences are expected to be recovered or settled. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment. Tax credits and other incentives reduce income tax expense in the year the credits are claimed.

Management must assess the need to accrue or disclose uncertain tax positions for proposed potential adjustments from various federal, state and foreign tax authorities who regularly audit the Company in the normal course of business. In making these assessments, management must often analyze complex tax laws of multiple jurisdictions, including many foreign jurisdictions. The accounting guidance prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The Company records the related interest expense and penalties, if any, as tax expense in the tax provision.

Management must access the realizability of the Company's deferred tax assets. In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities (including the impact of available carryback and carry forward periods), projected future taxable income, and tax-planning strategies in making this assessment. The amount of the deferred tax assets considered realizable, however, could be reduced in the near term if estimates of future taxable income during the carryforward period are reduced.

The Company has made an accounting policy election to record the U.S. income tax effect of future global intangible low-taxed income ("GILTI") inclusions in the period in which they arise, rather than establishing deferred taxes with respect to the expected future tax liabilities associated with future GILTI inclusion.

Certain of the Company's undistributed earnings of its foreign subsidiaries are not permanently reinvested. A liability has been recorded for the deferred taxes on such undistributed foreign earnings. The amount is attributable primarily to the foreign withholding taxes that would become payable should the Company repatriate cash held in its foreign operations.

Pension Benefit Plan Assumptions

We sponsor a pension plan for certain employees. Several statistical and other factors that attempt to anticipate future events are used in calculating the expense and liability related to the plan. These factors include key assumptions, such as a discount rate and expected return on plan assets. In addition, our actuarial consultants use subjective factors such as withdrawal and mortality rates to estimate the liability. The actuarial assumptions we use may differ materially from actual results due to changing market and economic conditions, higher or lower withdrawal rates or longer or shorter life spans of participants. These differences may result in a significant impact to the amount of pension expense we have recorded or may record in the future. An analysis for the expense associated with our pension plan is difficult due to the variety of assumptions utilized. For example, one of the significant assumptions used to determine projected benefit obligation is the discount rate. At December 31, 2018, a 25 basis point change in the discount rate would change the projected benefit obligation by approximately $0.9 million and the annual pension expense by approximately $3,000. Additionally, a 25 basis point change in the expected return on plan assets would change the pension expense by approximately $58,000.

Share-Based Compensation

We measure the cost of employee services received in exchange for an award of equity instruments and recognize this cost over the period during which an employee is required to provide the services, based on the fair value of the award at the date of the grant as determined by current publicly traded market price on the grant date for restricted stock units.

Certain of our awards of restricted share units include performance conditions for achieving designated levels of operating performance. We must estimate the probability of achieving the performance condition at each reporting period.

Product Warranties

The Company's warranty reserve is to cover the products sold. The warranty accrual is based on historical claims information. The warranty reserve is reviewed and adjusted as necessary at each reporting period.

Other significant accounting policies

Other significant accounting policies, not involving the same level of uncertainties as those discussed above, are nevertheless important to an understanding of our financial statements. See Note 1 to the consolidated financial statements, Summary of Significant Accounting Policies, which discusses accounting policies that must be selected by us when there are acceptable alternatives.

New Accounting Pronouncements

For information regarding recent accounting pronouncements, see Note 2 to the consolidated financial statements included in this annual report on Form 10-K.

Item 7A. 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 December 31, 2018 to hedge against a portion of our interest rate exposure related to debt indexed to LIBOR market rates. See Note 9 to the consolidated financial statements for further information on this interest rate swap.

The carrying value of the Company's total long-term debt and current maturities of long-term debt at December 31, 2018 was $74.5 million. Market risk was estimated as the potential decrease (increase) in future earnings and cash flows resulting from a hypothetical 10% increase (decrease) in the Company's estimated weighted average borrowing rate at December 31, 2018. Most of the interest on the Company's debt is indexed to either the LIBOR or EURIBOR market rates. The estimated annual 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 December 31, 2018 is $0.2 million.

The Company has wholly-owned subsidiaries including 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. Since most of our foreign sales

are denominated in the local currency, we do not anticipate that exposure to foreign currency rate fluctuations will be material in 2019.

Item 8. Financial Statements and Supplementary Data

The consolidated financial statements of CECO Environmental Corp. and subsidiaries for the years ended December 31, 2018, 2017 and 2016 and other data are included in this report following the signature page of this report and incorporated into this Item 8 by reference:

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Consolidated Statements of Operations	F-3
Consolidated Statements of Comprehensive Income (Loss)	F-4
Consolidated Statements of Shareholders' Equity	F-5
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Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Disclosure controls and procedures (as defined in Rule 13a-15(e) and 15d-15(e) under the Exchange Act) are controls and other procedures that are designed to provide reasonable assurance that information required to be disclosed in the reports that we file or submit 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 made known to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

In connection with the preparation of this Annual Report on Form 10-K, our management, with the participation of our Chief Executive Officer and Chief Financial Officer, carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2018. 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 December 31, 2018.

The management of the Company does not expect that its disclosure controls and procedures will prevent all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be 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 instance of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur due to simple errors or mistakes. The design of any system of controls is based in part upon certain assumptions regarding the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Management’s Report on Internal Control over Financial Reporting

The management of the Company is responsible for the preparation and accuracy of the financial statements and other information included in this report. Under the supervision and with the participation of management, including the Company’s Chief Executive Officer and Chief Financial Officer, the Company conducted an evaluation of the effectiveness of internal control over financial reporting as of December 31, 2018, based on the criteria set forth in Internal Control – Integrated Framework (2013) (the “Framework”) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). Based on this assessment, management concluded that, as of December 31, 2018, its internal control over financial reporting was effective based on the Framework.

There are inherent limitations on the effectiveness of any system of internal controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective internal controls and procedures can only provide reasonable assurance of achieving their control objectives.

Item 9A includes the audit report of BDO USA, LLP on the Company's internal control over financial reporting as of December 31, 2018.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. During 2018, we implemented internal controls to ensure we have adequately evaluated our lease contracts and properly assessed the impact of the new accounting standard related to lease recognition on our financial statements to facilitate the adoption on January 1, 2019. We do not expect significant changes to our internal control over financial reporting due to the adoption of the new standard.

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Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors

CECO Environmental Corp. and Subsidiaries

Cincinnati, Ohio

Opinion on Internal Control over Financial Reporting

We have audited CECO Environmental Corp. and Subsidiaries' (the "Company's") internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of operations and comprehensive income (loss), shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and our report dated March 7, 2019, expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Item 9A, Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding

prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, LLP

Cincinnati, Ohio

March 7, 2019

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information called for by this Item 10 of Part III of Form 10-K is incorporated by reference to the information set forth in our definitive proxy statement relating to our 2019 Annual Meeting of Stockholders to be filed pursuant to Regulation 14A under the Exchange Act within 120 days from December 31, 2018 (the "Proxy Statement"). Reference is also made to the information appearing in Item 1 of Part I of this Annual Report on Form 10-K under the caption "Business— Executive Officers of CECO."

Item 11. Executive Compensation

The information called for by this Item 11 of Part III of Form 10-K is incorporated by reference to the Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information called for by this Item 12 of Part III of Form 10-K is incorporated by reference to the Proxy Statement.

Securities Authorized for Issuance Under Equity Compensation Plans

EQUITY COMPENSATION PLAN INFORMATION

December 31, 2018 Plan Category	(a) Number of securities to be issued upon exercise of outstanding options and rights	(b) Weighted-average exercise price of outstanding options and rights,	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders			
2007 Equity Incentive Plan [1]	590,989	$ 7.92	—
2017 Equity and Incentive Plan [2]	1,245,595	$ 0.49	1,266,491
Employee Stock Purchase Plan [3]	13,699	$ 5.33	1,324,784
Equity compensation plans not approved by security holders	—	$ —	—
TOTAL	1,850,283		2,591,275

1

The 2007 Plan was replaced with the 2017 Equity and Incentive Plan and no further grants will be made under the 2007 Plan. The 2007 Plan remains in effect solely for the continued administration of the awards currently outstanding under the 2007 Plan.

2 The 2017 Equity and Incentive Plan was approved by our shareholders on May 16, 2017. We have reserved 1.9 million shares of our common stock for issuance under our 2017 Equity Incentive Plan. In 2018, 960,000 restricted stock units were awarded to plan participants under the 2017 Equity and Incentive Plan.

3 The Employee Stock Purchase Plan was approved by our shareholders on May 21, 2009.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information called for by this Item 13 of Part III of Form 10-K is incorporated by reference to the Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information called for by this Item 14 of Part III of Form 10-K is incorporated by reference to the Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

1. Financial statements are set forth in this report following the signature page of this report.

2. Financial statement schedules are omitted because they are not applicable or because the required information is shown in the financial statements or in the notes thereto.

3. Exhibit Index. The exhibits listed below, as part of Form 10-K, are numbered in conformity with the numbering used in Item 601 of Regulation S-K and relate to SEC File No. 0-07099, unless otherwise indicated.

Exhibit Number	
2	
2.1	Stock Purchase Agreement, dated March 30, 2018, by and among CECO Environmental Corp., Met-Pro Corporation, LLC, Strobic Air Corporation and Cincinnati Fan & Ventilation Company., Inc (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed with the SEC on April 5, 2018).
3(i)	Certificate of Incorporation (Incorporated by reference to Exhibit 3(i) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001)
3(ii)	Amended and Restated Bylaws (Incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on December 13, 2017)
**10.1 *	Summary term sheet governing arrangement of consulting services provided by Icarus Investment Corp.
**10.2	Second Amended and Restated CECO Environmental Corp. 2007 Equity Incentive Plan (Incorporated by reference to Exhibit 10.6 to the Company's Current Report on Form 8-K filed with the SEC on September 3, 2015)
**10.3	Form of Restricted Stock Award Agreement (Incorporated by reference to Exhibit 10.41 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2008)
**10.4	Form of Incentive Stock Option Agreement (Incorporated by reference to Exhibit 10.12 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2010)
**10.5	Form of Non-Statutory Stock Option Agreement (Incorporated by reference to Exhibit 10.13 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2010)
**10.6	CECO Environmental Corp. Employee Stock Purchase Plan (Incorporated by reference to Exhibit A to the Company's definitive proxy statement on Schedule 14A filed with the SEC on April 13, 2009)

**10.7*	Summary term sheet governing arrangement of consulting services provided by JMP Fam Holdings Inc. to the Company
10.8	Amended and Restated Credit Agreement, dated as of September 3, 2015, among the Company and certain of its subsidiaries, the Lenders party thereto, and Bank of America, N.A. (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on September 3, 2015)
10.9	Securities Pledge Agreement, dated August 27, 2013, by and among the Company, the Subsidiaries named therein and Bank of America, N.A., as Administrative Agent (Incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed with the SEC on September 3, 2015)
**10.10	Director and Officer Indemnification Agreement, dated as of May 12, 2016, by and between the Company and the Directors and Officers of the Company (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on May 16, 2016)
**10.11	Executive Employment Agreement, effective as of January 9, 2017, by and between the Company and Matthew Eckl (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed with the SEC on May 10, 2017)
**10.12	Form of Incentive Stock Option Agreement (Incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed with the SEC on August 9, 2017)
**10.13	Form of Nonqualified Stock Option Agreement (Incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed with the SEC on August 9, 2017)
**10.14	Form of Restricted Stock Units Agreement for Directors (Incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q filed with the SEC on August 9, 2017)

Exhibit Number	
**10.15	Form of Restricted Stock Units Agreement for Employees (Incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q filed with the SEC on August 9, 2017)
**10.16	Executive Employment Agreement, dated as of June 10, 2017, between the Company and Dennis Sadlowski (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on June 12, 2017)
**10.17	CECO Environmental Corp. 2017 Equity and Incentive Compensation Plan (Incorporated by reference to Exhibit 4.3 to the Registrant's Registration Statement on Form S-8 filed on May 16, 2017 (Registration No. 333-218030))
10.18	Amendment No. 1 to Amended and Restated Credit Agreement (Incorporated by reference to Exhibit 10.26 to the Company's Report on Form 10-K filed with the SEC on March 9, 2018)
10.19	Amendment No. 2 to Amended and Restated Credit Agreement (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed with the SEC on August 9, 2017)
10.20	Amendment No. 3 to Amended and Restated Credit Agreement (Incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed with the SEC on November 8, 2017)
10.21	Amendment No. 4 to Amended and Restated Credit Agreement (Incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed with the SEC on November 7, 2018)
*21	Subsidiaries of the Company
*23.1	Consent of BDO USA, LLP
*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

*Filed or furnished herewith
**Management contracts or compensation plans or arrangement

Item 16. Form 10-K Summary

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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
March 7, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Principal Executive Officer:

/S/ DENNIS SADLOWSKI March 7, 2019
Dennis Sadlowski

Chief Executive Officer and Director

Principal Financial Officer:

/S/ MATTHEW ECKL March 7, 2019
Matthew Eckl

Chief Financial Officer

Principal Accounting Officer:

/S/ PAUL GOHR March 7, 2019
Paul Gohr

Chief Accounting Officer

Directors:

/S/ JASON DEZWIREK March 7, 2019
Jason DeZwirek

Chairman of the Board and Director

/S/ ERIC M. GOLDBERG March 7, 2019
Eric M. Goldberg

Director

/S/ DAVID B. LINER March 7, 2019
David B. Liner

Director

March 7, 2019
/S/ CLAUDIO A. MANNARINO

Claudio A. Mannarino

Director

March 7, 2019
/S/ MUNISH NANDA

Munish Nanda

Director

March 7, 2019
/S/ JONATHAN POLLACK

Jonathan Pollack

Director

March 7, 2019
/S/ VALERIE GENTILE SACHS

Valerie Gentile Sachs

Director

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors

CECO Environmental Corp. and Subsidiaries

Cincinnati, Ohio

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of CECO Environmental Corp. and Subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations and comprehensive income (loss), shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated March 7, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial

statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ BDO USA, LLP

We have served as the Company's auditor since 2008.

Cincinnati, Ohio

March 7, 2019

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

($ in thousands, except share data)	December 31, 2018	2017
ASSETS		
Current assets:		
Cash and cash equivalents	$43,676	$29,902
Restricted cash	762	591
Accounts receivable, net	53,225	67,990
Costs and estimated earnings in excess of billings on uncompleted contracts	29,694	33,947
Inventories, net	20,817	20,969
Prepaid expenses and other current assets	10,117	10,760
Prepaid income taxes	1,388	1,930
Assets held for sale	1,186	7,853
Total current assets	160,865	173,942
Property, plant and equipment, net	22,200	23,400
Goodwill	152,156	166,951
Intangible assets – finite life, net	35,959	49,956
Intangible assets – indefinite life	18,258	19,691
Deferred charges and other assets	3,144	4,609
Total assets	$392,582	$438,549
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Current portion of debt	$—	$11,296
Accounts payable and accrued expenses	80,229	70,786
Billings in excess of costs and estimated earnings on uncompleted contracts	20,144	20,469
Note payable	1,700	5,300
Income taxes payable	1,813	—
Total current liabilities	103,886	107,851
Other liabilities	26,925	30,382
Debt, less current portion	74,456	103,537
Deferred income tax liability, net	8,755	10,210
Total liabilities	214,022	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, 34,953,825 and 34,707,924 shares issued and outstanding at December 31, 2018 and 2017, respectively	349	347
Capital in excess of par value	251,409	248,170
Accumulated loss	(59,427)	(52,673)
Accumulated other comprehensive loss	(13,415)	(8,919)
	178,916	186,925

Less treasury stock, at cost, 137,920 shares at December 31, 2018 and 2017	(356)	(356)
Total shareholders' equity	178,560	186,569
Total liabilities and shareholders' equity	$392,582	$438,549

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

($ in thousands, except share and per share data)	Year Ended December 31, 2018	2017	2016
Net sales	$337,339	$345,051	$417,011
Cost of sales	225,802	231,857	282,152
Gross profit	111,537	113,194	134,859
Selling and administrative expenses	87,462	88,975	81,743
Acquisition and integration expenses	—	—	524
Amortization and earnout expenses	9,683	7,132	20,231
Intangible asset and goodwill impairment	—	7,168	57,923
Loss on divestitures, net of selling costs	4,390	—	—
Restructuring expenses	—	1,895	—
Income (loss) from operations	10,002	8,024	(25,562)
Other (expense) income, net	(365)	106	310
Interest expense	(7,140)	(6,721)	(7,712)
Income (loss) before income taxes	2,497	1,409	(32,964)
Income tax expense	9,618	4,438	5,290
Net loss	(7,121)	(3,029)	(38,254)
Net loss attributable to noncontrolling interest	—	—	(36)
Net loss attributable to CECO Environmental Corp.	$(7,121)	$(3,029)	$(38,218)
Loss per share:			
Basic	$(0.21)	$(0.09)	$(1.12)
Diluted	$(0.21)	$(0.09)	$(1.12)
Weighted average number of common shares outstanding:			
Basic	34,714,395	34,445,256	33,979,549
Diluted	34,714,395	34,445,256	33,979,549

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Year Ended December 31,		
	2018	2017	2016
Net loss	$(7,121)	$(3,029)	$(38,254)
Other comprehensive (loss) income, net of tax:			
Translation (loss) income	(3,858)	4,021	(3,864)
Interest rate swap	76	180	312
Minimum pension liability adjustment	(22)	(78)	87
Comprehensive (loss) income	(10,925)	1,094	(41,719)
Net loss attributable to noncontrolling interest	—	—	(36)
Comprehensive (loss) income attributable to CECO Environmental Corp.	$(10,925)	$1,094	$(41,683)

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

(in thousands)

	Common Stock Shares	Amount	Capital in excess of par value	Accumulated Earnings (Loss)	Accumulated Other Comprehensive Loss	Treasury Stock Shares	Treasury Stock Amount	Total CECO Shareholders' Equity	Noncontrolling Interest	Total Shareholders' Equity
Balance January 1, 2016	34,056	$340	$243,274	$5,472	$(9,577)	(138)	$(356)	$239,153	$5,868	$245,021
Net loss for the year ended December 31, 2016				(38,218)				(38,218)	(36)	(38,254)
Common stock dividends				(8,995)				(8,995)		(8,995)
Exercise of stock options and dividend reinvestment issuances	215	2	1,513					1,515		1,515
Excess tax benefit from stock options exercised			137					137		137
Restricted stock units issued	17	—	(9)					(9)		(9)
Share based compensation earned	27	1	2,457					2,458		2,458
Issuance of shares for cashless warrant exercise (See Note 10)	90	1	(1)					—		—
Stock repurchase and retirement	(105)	(1)	(1,237)					(1,238)		(1,238)
Noncontrolling interest acquisition (See Note 16)			(1,256)					(1,256)	(5,832)	(7,088)
Adjustment for minimum pension liability, net of tax of $53					87			87		87
					312			312		312

Adjustment for interest rate swap net of tax of $181										
Translation loss					(3,864)			(3,864)		(3,864)
Balance December 31, 2016	34,300	343	244,878	(41,741)	(13,042)	(138)	(356)	190,082	—	190,082
Net loss for the year ended December 31, 2017				(3,029)				(3,029)		(3,029)
Cumulative effect adjustment adopting ASU 2016-09 (See Note 1)			177	(111)				66		66
Common stock dividends				(7,792)				(7,792)		(7,792)
Exercise of stock options and dividend reinvestment issuances	291	3	1,292					1,295		1,295
Restricted stock units issued	92	1	(136)					(135)		(135)
Share based compensation earned	25	—	1,959					1,959		1,959
Adjustment for minimum pension liability, net of tax of $48					(78)			(78)		(78)
Adjustment for interest rate swap net of tax of $103					180			180		180
Translation income					4,021			4,021		4,021
Balance December 31, 2017	34,708	347	248,170	(52,673)	(8,919)	(138)	(356)	186,569	—	186,569
Net loss for the year ended December 31, 2018				(7,121)				(7,121)		(7,121)
Cumulative effect adjustment of adopting ASU 2018-02 (See Note 1)				1,037	(1,067)			(30)		(30)
Cumulative effect adjustment of				(622)				(622)		(622)

adopting ASU 2014-09 (See Note 1)									
Cumulative translation adjustment for divestiture					375		375		375
Exercise of stock options and dividend reinvestment issuances	16	—	89				89		89
Restricted stock units issued	192	2	(207)	(48)			(253)		(253)
Share based compensation earned	38	—	3,357				3,357		3,357
Adjustment for minimum pension liability, net of tax of $17					(22)		(22)		(22)
Adjustment for interest rate swap, net of tax of $111					76		76		76
Translation loss					(3,858)		(3,858)		(3,858)
Balance December 31, 2018	34,954	$349	$251,409	$(59,427)	$(13,415)	(138)	$(356)	$178,560	$178,560

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

ACCUMULATED OTHER COMPREHENSIVE LOSS

(in thousands)

($ in thousands)	Translation loss	Interest rate swap adjustment	Minimum pension liability adjustment	Accumulated other comprehensive loss
January 1, 2016	$ (4,407)	$ —	$ (5,170)	$ (9,577)
2016 activity	(3,864)	312	87	(3,465)
Balance December 31, 2016	(8,271)	312	(5,083)	(13,042)
2017 activity	4,021	180	(78)	4,123
Balance December 31, 2017	(4,250)	492	(5,161)	(8,919)
Cumulative effect adjustment adopting ASU 2018-02 (See Note 1)	—	(5)	(1,062)	(1,067)
Cumulative translation adjustment for divestiture	375	—	—	375
2018 activity	(3,858)	76	(22)	(3,804)
Balance December 31, 2018	$ (7,733)	$ 563	$ (6,245)	$ (13,415)

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

($ in thousands)	Year Ended December 31, 2018	2017	2016
Cash flows from operating activities:			
Net loss	$(7,121)	$(3,029)	$(38,254)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	13,272	16,088	18,903
Unrealized foreign currency loss (gain)	836	(2,103)	777
Net (gain) loss on interest rate swaps	(276)	(327)	95
Impairment of property and equipment	300	695	—
Impairment of intangible assets and goodwill	—	7,168	57,923
Fair value adjustments to earnout liabilities	(330)	(6,610)	4,218
Earnout payments	(2,862)	(7,797)	—
Loss on sale of property and equipment	(217)	130	217
Loss on divestitures	4,390	—	—
Amortization of debt discount	1,143	1,033	1,054
Share based compensation expense	3,187	1,768	2,280
Bad debt expense	1,357	3,895	848
Inventory reserve expense	519	240	1,167
Excess tax benefit from stock options exercised	—	—	(137)
Deferred income tax benefit	(42)	(3,123)	(3,750)
Changes in operating assets and liabilities, net of acquisitions and divestitures:			
Accounts receivable	(6,084)	14,107	13,294
Cost and estimated earnings of billings on uncompleted contracts	(4,557)	6,232	2,537
Inventories	(1,704)	887	9,449
Prepaid expenses and other current assets	773	3,530	(2,218)
Deferred charges and other assets	(416)	1,585	(73)
Accounts payable and accrued expenses	21,321	(15,847)	(6,593)
Billings in excess of costs and estimated earnings on uncompleted contracts	70	(15,186)	7,440
Income taxes payable	1,839	(1,827)	143
Other liabilities	(3,446)	5,061	279
Net cash provided by operating activities	21,952	6,570	69,599
Cash flows from investing activities:			
Acquisitions of property and equipment	(3,090)	(1,028)	(1,076)
Net cash proceeds from divestitures	35,052	—	—
Payoff of loans on life insurance policies	—	—	(987)
Net proceeds from sale of assets	6,296	368	657
Net cash provided by (used in) investing activities	38,258	(660)	(1,406)
Cash flows from financing activities:			
Net (repayments) borrowings on revolving credit lines	(3,723)	2,269	(13,407)
Repayments of long-term debt	(41,356)	(11,168)	(41,768)
Deferred financing fees paid	—	(692)	—
Earnout payments	—	(7,396)	(9,270)
Proceeds from sale-leaseback transactions	800	—	14,244

Payments on capital leases and sale-leaseback financing liability	(675)	(711)	(426)
Proceeds from employee stock purchase plan, exercise of stock options, and dividend reinvestment plan	54	1,352	1,685
Cash paid for repurchase of common shares	—	—	(188)
Excess tax benefit from stock options exercised	—	—	137
Dividends paid to common shareholders	—	(7,792)	(8,995)
Net cash used in financing activities	(44,900)	(24,138)	(57,988)
Effect of exchange rate changes on cash and cash equivalents	(1,531)	881	(1,712)
Net increase (decrease) in cash, cash equivalents and restricted cash	13,779	(17,347)	8,493
Cash, cash equivalents and restricted cash at beginning of year	30,659	48,006	39,513
Cash, cash equivalents and restricted cash at end of year	$44,438	$30,659	$48,006

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION

	Year Ended December 31,		
($ in thousands)	2018	2017	2016
Non-cash transactions			
Property, plant and equipment acquired under capital leases	$—	$—	$4,385
Noncontrolling interest acquired through an issuance of a note payable (See Note 16)	$—	$—	$5,300
Earnout settled through an exchange of accounts receivable	$—	$—	$3,272
Accrual of share repurchase	$—	$—	$1,050
Cash paid during the year for:			
Interest	$5,559	$5,686	$6,923
Income taxes	$10,205	$3,048	$6,415

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

CECO ENVIRONMENTAL CORP. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For the Years Ended December 31, 2018, 2017 and 2016

1. Nature of Business and Summary of Significant Accounting Policies

Nature of business— CECO Environmental Corp. and its consolidated subsidiaries ("CECO," the "Company," "we," "us," or "our") is a global leader in industrial air quality and fluid handling serving the energy, industrial and other niche markets through an attractive asset-light business model. CECO provides innovative technology and application expertise that helps companies grow their businesses with safe, clean, and more efficient solutions to help protect our shared environment. CECO serves both established and emerging industries in regions around the world working to improve air quality, optimize the energy value chain, and provide customized engineered solutions in multiple applications that include oil and gas, power generation, water and wastewater, battery production, poly silicon fabrication, chemical and petrochemical processing, along with a wide range of other industries.

Principles of consolidation—Our consolidated financial statements include the Company and its controlled subsidiaries. All intercompany balances and transactions have been eliminated.

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

Use of estimates—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.

Cash equivalents—We consider all highly liquid investments with original maturities of three months or less to be cash equivalents. At December 31, 2018 and 2017, Restricted Cash is 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 Consolidated Statements of Cash Flows.

	December 31,	
	2018	2017
Cash and cash equivalents	$43,676	$29,902
Restricted cash	762	591
Restricted cash included within deferred charges and other assets	—	166
Total cash, cash equivalents and restricted cash	$44,438	$30,659

Accounts Receivable—Receivables are generally uncollateralized customer obligations due under normal terms requiring payment generally within 30 days from the invoice date unless otherwise determined by specific contract

terms, generally due to retainage provisions. The Company's estimate of the allowance for doubtful accounts for trade receivables is primarily determined based upon the length of time that the receivables are past due. In addition, management estimates are used to determine probable losses based upon an analysis of prior collection experience, specific account risks and economic conditions. Accounts are deemed uncollectible based on past account experience and the current financial condition of the account.

Inventories—The Company's inventory is valued at the lower of cost or net realizable value, using the first-in, first-out inventory costing method. Inventory quantities are regularly reviewed and provisions for excess or obsolete inventory are recorded based on the Company's forecast of future demand and market conditions. Significant unanticipated changes to the Company's forecasts could require a change in the provision for excess or obsolete inventory.

Assets Held for Sale—The Company classifies properties as held for sale when certain criteria are met. At such time, the properties, including significant assets that are expected to be transferred as part of a sale transaction, are presented separately on the consolidated balance sheet at the lower of carrying value or estimated fair value less costs to sell and depreciation is no longer recognized. Assets classified as held for sale included buildings, tracts of land and equipment.

Property, plant and equipment—Property, plant and equipment are carried at the cost of acquisition or construction and depreciated over the estimated useful lives of the assets. Depreciation and amortization are provided using the straight-line method in

amounts sufficient to amortize the cost of the assets over their estimated useful lives (buildings and improvements—generally five to 40 years; machinery and equipment—generally two to 15 years). Upon sale or disposal of property, plant and equipment, the applicable amounts of asset cost and accumulated depreciation are removed from the accounts, and the net amount, less any proceeds from sale, is recorded in income.

Intangible assets— Indefinite life intangible assets are comprised of tradenames, while finite life intangible assets are comprised of technology, customer lists, noncompetition agreements and tradenames. Finite life intangible assets are amortized on a straight line or accelerated basis over their estimated useful lives of seven to 10 years for technology, five to 20 years for customer lists, five years for noncompetition agreements and 10 years for tradenames.

Long-lived assets—Property, plant and equipment and finite life intangible assets are reviewed whenever events or changes in circumstances occur that indicate possible impairment. If events or changes in circumstances occur that indicate possible impairment, our impairment review is based on an undiscounted cash flow analysis at the lowest level at which cash flows of the long-lived assets are largely independent of other groups of our assets and liabilities. This analysis requires management judgment with respect to changes in technology, the continued success of product lines, and future volume, revenue and expense growth rates. We conduct annual reviews for idle and underutilized equipment, and review business plans for possible impairment. Impairment occurs when the carrying value of the assets exceeds the future undiscounted cash flows expected to be earned by the use of the asset or asset group. When impairment is indicated, the estimated future cash flows are then discounted to determine the estimated fair value of the asset or asset group and an impairment charge is recorded for the difference between the carrying value and the estimated fair value.

Additionally, the Company evaluates the remaining useful life each reporting period to determine whether events and circumstances warrant a revision to the remaining period of depreciation or amortization. If the estimate of a long-lived asset’s remaining useful life is changed, the remaining carrying amount of the asset is amortized prospectively over that revised remaining useful life.

The Company completes an annual (or more often if circumstances require) impairment assessment of its indefinite life intangible assets. As a part of its annual assessment, typically, the Company first qualitatively assesses whether current events or changes in circumstances lead to a determination that it is more likely than not (defined as a likelihood of more than 50 percent) that the fair value of an asset is less than its carrying amount. If there is a qualitative determination that the fair value of a particular asset is more likely than not greater than its carrying value, we do not need to proceed to the quantitative estimated fair value test for that asset. If this qualitative assessment indicates a more likely than not potential that the asset may be impaired, the estimated fair value is determined by the relief from royalty method. If the estimated fair value of an asset is less than its carrying value, an impairment charge is recorded for the amount by which the carrying value of the asset exceeds its estimated fair value.

Goodwill—The Company completes an annual (or more often if circumstances require) impairment assessment on October 1 of its goodwill on a reporting unit level, at or below the operating segment level. As a part of its annual assessment, the Company first qualitatively assesses whether current events or changes in circumstances lead to a determination that it is more likely than not (defined as a likelihood of more than 50 percent) that the fair value of a reporting unit is less than its carrying amount. If there is a qualitative determination that the fair value of a particular reporting unit is more likely than not greater than its carrying value, the Company does not need to quantitatively test for goodwill impairment for that reporting unit. If this qualitative assessment indicates a more likely than not potential that the asset may be impaired, the estimated fair value is determined using a weighting of the income method and the market method. If the estimated fair value of a reporting unit is less than its carrying value, an impairment charge is recorded.

Deferred charges—Deferred charges include deferred financing costs, which are amortized to interest expense over the life of the related loan. The Company incurred and capitalized $0.7 million of deferred financing fees in 2017 related to long-term debt modifications. Amortization expense was $1.1 million, $1.0 million and $1.1 million for 2018, 2017 and 2016, respectively. As of December 31, 2018 and 2017, remaining capitalized deferred financing costs of $1.7 million and $2.8 million, respectively, are included as a discount to debt in the accompanying Consolidated Balance Sheets.

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 distinct 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 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.

Contract Assets and Contract Liabilities — Contract assets consist of costs and earnings in excess of billings, costs incurred for contracts recognized at a point in time, and retainage. Costs and earnings in excess of billings represent the estimated value of unbilled work for contracts with performance obligations recognized over time and are separately classified as current assets in the Consolidated Balance Sheets. Costs incurred for contracts recognized at a point in time are classified within inventories as work-in-process. Retainage represents a portion of the contract billings that have been billed, but for which the contract allows the customer to retain a portion of the billed amount until final settlement. Retainage is not considered to be a significant financing component because the intent is to protect the customer. Retainage is classified within accounts receivable and deferred charges and other depending on when it is due. Almost all of the Company’s contract assets are classified as current assets in the Consolidated Balance

Sheets.

Billings in excess of costs and estimated earnings on uncompleted contracts are current liabilities, which relate to fixed-price contracts recognized over time, and represents payments in advance of performing the related contract work. Billings in excess of costs and estimated earnings on uncompleted contracts is not considered to be a significant financing component because it is generally used to meet working capital demands that can be higher in the early stages of a contract. Contract liabilities, classified in accounts payable and accrued expenses in the Consolidated Balance Sheets, include 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 reduced when the associated revenue from the contract is recognized, which is generally within one year.

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 18— Business Segment Information.

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. There was no provision for estimated losses on uncompleted contracts at December 31, 2018 and 2017.

Cost of sales—Cost of sales amounts include materials, direct labor and associated benefits, inbound freight charges, purchasing and receiving, inspection, warehousing, and depreciation.

Claims—Change orders arise when the scope of the original project is modified for any of a variety of reasons. The Company will negotiate the extent of the modifications, its expected costs and recovery with the customer. Costs related to change orders are added to the expected total cost of the project. In cases where contract revenues are assured beyond a reasonable doubt to be increased in excess of the expected costs of the change order, incremental profit also is recognized on the contract. Such assurance is generally only achieved when the customer approves in writing the scope and pricing of the change order. Change orders that are in dispute are effectively handled as claims.

Claims are amounts in excess of the agreed contract price that the Company seeks to collect from customers or others for customer-caused delays, errors in specifications and designs, contract terminations, change orders in dispute or unapproved as to both scope and price. Costs attributable to claims are treated as contract costs as incurred.

The Company recognizes certain significant claims for recovery of incurred costs when it is probable that the claim will result in additional contract revenue and when the amount of the claim can be reliably estimated. When the customer or other parties agree in writing to the amount of the claim to be recovered by the Company, the amount of the claim becomes contractual and is accounted for as an increase in the contract's total estimated revenue and estimated cost. As actual costs are incurred and revenues are recognized over time, a corresponding percentage of the revised total estimated profit will therefore be recognized.

Should it become probable that the claim will not result in additional contract revenue, the Company removes the related contract revenues from its previous estimate of total revenues, which effectively reduces the estimated profit margin on the job and negatively impacts profit for the period.

Pre-contract costs—Pre-contract costs are not significant and are primarily internal costs. As most of the Company's contracts are one year of less, the Company expenses all pre-contract costs as incurred regardless of whether or not the bids are successful. A majority of our business is obtained through a bidding process and this activity is on-going with multiple bids in process at any one time. These costs consist primarily of engineering, sales and project manager wages, fringes and general corporate overhead and it is deemed impractical to track activities related to any one specific contract.

Selling and administrative expenses—Selling and administrative expenses on the Consolidated Statements of Operations include sales and administrative wages and associated benefits, selling and office expenses, professional fees, bad debt expense and depreciation. Selling and administrative expenses are charged to expense as incurred.

Acquisition and integration expenses—Acquisition and integration expenses on the Consolidated Statements of Operations are related to acquisition activities, which include retention, legal, accounting, banking, and other expenses.

Amortization and earnout expenses—Amortization and earnout expenses on the Consolidated Statements of Operations include amortization of intangible assets, and changes to earnout and contingent compensation amounts related to acquisitions as more fully presented and described in Note 8.

Restructuring expenses—Restructuring expense on the Consolidated Statements of Operations include expenses related to a restructuring program implemented during the fourth quarter of 2017 to reduce operating costs in the future. Within restructuring expenses are charges related to severance, facility exit, legal and property, plant and equipment impairment. The Company's policy is to recognize restructuring expenses in accordance with the accounting rules related to exit or disposal activities.

Product Warranties—The Company's warranty reserve is to cover the products sold. The warranty accrual is based on historical claims information. The warranty reserve is reviewed and adjusted as necessary on a quarterly basis and is presented within Note 8.

Research and Development—Although not technically defined as research and development, a significant amount of time, effort and expense is devoted to (a) custom engineering which qualifies products for specific customer applications, (b) developing proprietary process technology and (c) partnering with customers to develop new products.

Income Taxes—Income taxes are determined using the asset and liability method of accounting for income taxes in accordance with Financial Accounting Standards Board ("FASB"), ASC Topic 740, "Income Taxes". Income tax expense includes federal, state and foreign income taxes.

Deferred income taxes are provided using the asset and liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry-forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases and are measured using enacted tax rates expected to apply to taxable income in the year in which those temporary differences are expected to be recovered or settled. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment. Tax credits and other incentives reduce income tax expense in the year the credits are claimed.

Management must assess the need to accrue or disclose uncertain tax positions for proposed potential adjustments from various federal, state and foreign tax authorities who regularly audit the Company in the normal course of business. In making these assessments, management must often analyze complex tax laws of multiple jurisdictions, including many foreign jurisdictions. The accounting guidance prescribes a recognition threshold and measurement attribute for the financial statement recognition and

measurement of a tax position taken or expected to be taken in a tax return. The Company records the related interest expense and penalties, if any, as tax expense in the tax provision.

The company has made an accounting policy election to record the U.S. income tax effect of future global intangible low-taxed income ("GILTI") inclusions in the period in which they arise, rather than establishing deferred taxes with respect to the expected future tax liabilities associated with future GILTI inclusion.

Certain of the Company's undistributed earnings of its foreign subsidiaries are not permanently reinvested. A liability has been recorded for the deferred taxes on such undistributed foreign earnings. The amount is attributable primarily to the foreign withholding taxes that would become payable should the Company repatriate cash held in its foreign operations.

Earnings per share—The following table reconciles the numerators and denominators used to calculate basic and diluted earnings per share for 2018, 2017 and 2016.

	For the Year Ended December 31		
	2018	2017	2016
(Table only in thousands)			
Numerator (for basic and diluted earnings per share)			
Net loss	$(7,121)	$(3,029)	$(38,218)
Denominator			
Basic weighted-average shares outstanding	34,714	34,445	33,980
Common stock equivalents arising from stock options and restricted stock awards	—	—	—
Diluted weighted-average shares outstanding	34,714	34,445	33,980

Options and unvested restricted stock units are included in the computation of diluted earnings per share using the treasury stock method. For 2018, 2017 and 2016, outstanding options and unvested restricted stock units of 0.8 million, 0.7 million and 1.6 million, respectively, were excluded from the computation of diluted earnings per share due to their having an anti-dilutive effect.

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

Foreign Currency Translation—The functional currencies of the Company's foreign subsidiaries are their local currencies and their books and records are maintained in the local currency. The assets and liabilities of these foreign subsidiaries are translated into United States Dollars ("USD") based on the end-of period exchange rates and the resultant translation adjustments are reported in Accumulated Other Comprehensive Loss in Shareholders' equity on the Consolidated Balance Sheets.

Income and expenses are translated into USD at average exchange rates in effect during the period.

Transactions denominated in other than the local currency are remeasured into the local currency and the resulting exchange gains or losses are included in "Other income (expense), net" line of the Consolidated Statements of Operations. Transaction gains were $0.7 million, $0.1 million and $0.7 million in 2018, 2017 and 2016, respectively.

New Financial Accounting Pronouncements

Accounting Standards Adopted in 2018

In March 2018, the 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 14 – 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 Consolidated Balance Sheets decreasing by approximately $1.1 million, with a corresponding increase in accumulated other comprehensive loss in the Consolidated Balance Sheets due to the reduction in the federal income tax rate from 35% to 21%. See Note 14 — 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. 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 2018 divestitures. 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 Consolidated Statements of Cash Flows for each period presented.

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 resulted in the reclassification of $1.0 million payoff of loans on life insurance policies in the 2016 Statement of Cash Flows from financing activities to investing activities.

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 $0.6 million cumulative effect adjustment to the opening balance of retained earnings is reflected in the Consolidated Statement of Shareholders' Equity. See Note 1—Nature of Business and Summary of Significant Accounting Policies for details on our accounting policies under the new standard.

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 us January 1, 2021. We are evaluating the impact of the adoption of ASU 2018-14 on our 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. We will 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,” which, together with its related clarifying ASUs, provides revised guidance for lease accounting and related disclosure requirements and 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. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition. This guidance is effective for us on January 1, 2019. We will adopt the standard using the modified retrospective method which will be applied to leases that exist or are entered into on or after January 1, 2019. The Company will elect to utilize the package of practical expedients that allows entities to 1) not reassess whether any expired or existing contracts are or contain leases, 2) retain the existing classification of lease contracts as of the date of adoption, and 3) not reassess initial direct costs for any existing leases. The Company is in the final stages of evaluating its existing lease portfolio and is continuing to assess and quantify the amount of ROU assets and lease liabilities that will be included on its balance sheet as of January 1, 2019. The Company is finalizing its implementation of a new lease accounting and administration software solution to manage and account for leases under the new guidance and is updating certain of its business processes and internal controls to meet the reporting and disclosure requirements of the new standard. We believe that the new standard will have a material impact on our consolidated balance sheet due to the recognition of ROU assets and liabilities for our operating leases, but it is not expected to have a material impact on our statement of operations or liquidity. The ASU will also require disclosures to allow 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 as well as various sale-leaseback transactions.

2. Financial Instruments

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

The fair value of the debt issued under the Credit Agreement was $76.1 million and $114.9 million at December 31, 2018 and 2017, respectively. The fair value of the note payable was $1.7 million and $5.3 million at December 31, 2018 and 2017, respectively. The fair value was determined considering market conditions, our credit worthiness and the current terms of our debt.

In accordance with the terms of the Credit Agreement, 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 9 for further information regarding the interest rate swap.

At December 31, 2018 and 2017, the Company had cash and cash equivalents of $43.7 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.

Concentrations of credit risk:

Financial instruments that potentially subject us to credit risk consist principally of cash and cash equivalents, and accounts receivable. We maintain cash and cash equivalents with various major financial institutions. We perform periodic evaluations of the financial institutions in which our cash is invested. Concentrations of credit risk with respect to trade and contract receivables are

limited due to the large number of customers and various geographic areas. Additionally, we perform ongoing credit evaluations of our customers' financial condition.

3.Accounts Receivable

Accounts receivable consisted of the following:

	December 31,	
(Table only in thousands)	2018	2017
Trade receivables	$7,296	$11,603
Contract receivables	48,826	60,543
Allowance for doubtful accounts	(2,897)	(4,156)
Total accounts receivable	$53,225	$67,990

Balances billed, but not paid by customers under retainage provisions in contracts that are recorded in deferred charges and other assets within the Consolidated Balance Sheets, amounted to approximately $0.9 million and $2.5 million at December 31, 2018 and 2017, respectively. Retainage receivables on contracts in progress are generally collected within a year or two subsequent to contract completion.

Provision for doubtful accounts was $1.4 million, $3.9 million and $0.8 million during 2018, 2017 and 2016, respectively, while accounts charged to the allowance were $0.8 million, $1.5 million and $0.3 million during 2018, 2017 and 2016, respectively.

In 2018, the divestitures impacted contract receivables by $22.2 million as well as $1.2 million on the allowance for doubtful accounts.

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 12 months and any unrecognized billings will be recorded as revenue in that same period. 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)	December 31, 2018	2017
Costs incurred on uncompleted contracts	$174,168	$169,665
Estimated earnings	67,427	61,556
Total costs and estimated earnings on uncompleted contracts, gross	241,595	231,221
Less billings to date	(232,045)	(217,743)
Total costs and estimated earnings on uncompleted contracts, net	$9,550	$13,478
Included in the accompanying consolidated balance sheets under the following captions:		
Costs and estimated earnings in excess of billings on uncompleted contracts	$29,694	$33,947
Billings in excess of costs and estimated earnings on uncompleted contracts	(20,144)	(20,469)
Total costs and estimated earnings on uncompleted contracts, net	$9,550	$13,478

5. Inventories

Inventories consisted of the following:

(Table only in thousands)	December 31, 2018	2017
Raw materials	$15,819	$18,444
Work in process	6,098	3,182
Finished goods	807	940
Obsolescence allowance	(1,907)	(1,597)
Total inventories	$20,817	$20,969

Amounts credited to the allowance for obsolete inventory and charged to cost of sales amounted to $0.5 million, $0.2 million and $1.2 million during 2018, 2017 and 2016, respectively. Items charged to the allowance for inventory write-offs were $0.3 million, $0.6 million and $0.2 million, during 2018, 2017 and 2016, respectively.

6. Property, Plant and Equipment

(Table only in thousands)	December 31, 2018	2017
Land	$1,623	$1,627
Building and improvements	18,185	18,063
Machinery and equipment	25,257	25,068
Property, plant and equipment, gross	45,065	44,758
Less accumulated depreciation	(22,865)	(21,358)
Property, plant and equipment, net	$22,200	$23,400

Depreciation expense was $3.5 million, $4.5 million and $5.0 million for 2018, 2017 and 2016, respectively.

7. Goodwill and Intangible Assets

(Table only in thousands)	Energy Solutions segment	Industrial Solutions segment	Fluid Handling segment	Totals
Balance of goodwill at December 31, 2016	$101,610	$ 22,419	$46,124	$170,153
Impairment charge	(4,443)	—	—	(4,443)
Foreign currency translation	1,241	—	—	1,241

Balance of goodwill at December 31, 2017	98,408	22,419	46,124	166,951
Divestitures	—	—	(14,317)	(14,317)
Foreign currency translation	(478)	—	—	(478)
Balance of goodwill at December 31, 2018	$97,930	$22,419	$31,807	$152,156

As of December 31, 2018 and 2017, the Company has an aggregate amount of goodwill acquired of $212.8 million and $242.3 million, respectively, and an aggregate amount of impairment losses of $60.7 million and $75.3 million, respectively.

The Company’s indefinite lived intangible assets as of December 31, 2018 and 2017 consisted of the following:

	Tradenames	
(Table only in thousands)	2018	2017
Balance beginning of year	$19,691	$22,042
Impairment charge	—	(2,725)
Divestitures	(1,340)	—
Foreign currency adjustments	(93)	374
Balance end of year	$18,258	$19,691

The Company completes an annual (or more often if circumstances require) impairment assessment of its goodwill and indefinite life intangible assets on October 1 at the reporting unit level.

The Company bases its measurement of the fair value of a reporting unit using a 50/50 weighting of the income method and the market method. The income method is based on a discounted future cash flow approach that uses the significant assumptions of projected revenue, projected operational profit, terminal growth rates, and the cost of capital. Projected revenue and operational profit, and terminal growth rates were determined to be significant assumptions because they are three primary drivers of the projected cash flows in the discounted future cash flow approach. Cost of capital was also determined to be a significant assumption as it is the discount rate used to calculate the current fair value of those projected cash flows. The market method is based on financial multiples of comparable companies and applies a control premium. Significant estimates in the market approach include identifying similar companies with comparable business factors such as size, growth, profitability, risk and return on investment and assessing comparable revenue and operating income multiples in estimating the fair value of a reporting unit.

In 2018, because of changes in management and the subsequent changes to the Company's reporting and operating structure, the number of our reporting units was aggregated to three reporting units from 11 prior to the change. Prior to the adoption of the new reporting structure we tested our goodwill impairment under the old reporting unit structure. Based on this analysis, the estimated fair value of all of our reporting units exceeded their carrying value as of October 1, 2018.

There was no goodwill impairment in 2018. There was goodwill impairment of $4.4 million and $53.8 in 2017 and 2016, respectively.

The Company also performed an impairment analysis for all reporting units with indefinite life intangible assets as of October 1, 2018. The Company based its measurement of the fair value of the indefinite life intangible assets utilizing the relief from royalty method. The significant assumptions used under the relief from royalty method are projected revenue, royalty rates, terminal growth rates, and the cost of capital. Projected revenue, royalty rates and terminal growth rates were determined to be significant assumptions because they are three primary drivers of the projected royalty cash flows in the relief from royalty method. Cost of capital was also determined to be a significant assumption as it is the discount rate used to calculate the current fair value of those projected royalty cash flows. Changes in any of the significant assumptions used can materially affect the expected cash flows, and such impacts can result in material non-cash impairment charges. Under this approach, the estimated fair value of the indefinite life intangible assets exceeded their carrying value for all reporting units as of the testing date.

During the annual impairment test of indefinite life intangible assets in 2017 and 2016, the carrying values of four reporting units' indefinite life intangible assets exceeded their fair values. The Company recorded a $2.7 million and $4.2 million impairment charge in 2017 and 2016, respectively.

As described above, the fair value measurement methods used in the Company's goodwill and indefinite life intangible assets impairment analyses utilizes a number of significant unobservable inputs or Level 3 assumptions. These assumptions include, among others, projections of our future operating results, the implied fair value of these assets using an income approach by preparing a discounted cash flow analysis and other subjective assumptions.

The Company's finite lived intangible assets as of December 31, 2018 and 2017 consisted of the following:

(Table only in thousands)	2018		2017	
		Accum.		Accum.
Intangible assets – finite life	Cost	Amort.	Cost	Amort.
Technology	$14,457	$9,414	$15,867	$8,609
Customer lists	68,943	37,873	77,497	35,024
Noncompetition agreements	910	762	1,118	698
Tradename	1,390	579	1,390	440
Foreign currency adjustments	(1,520)	(407)	(1,214)	(69)
Total finite life intangible assets	$84,180	$48,221	$94,658	$44,702

Amortization expense of finite life intangible assets was $9.6 million, $11.5 million and $13.9 million for 2018, 2017 and 2016, respectively. Amortization over the next five years for finite life intangibles is $8.1 million in 2019, $6.5 million in 2020, $5.3 million in 2021, $4.5 million in 2022, and $3.6 million in 2023.

8. Accounts Payable and Accrued Expenses

Accounts payable and accrued expense consisted of the following:

	December 31,	
(Table only in thousands)	2018	2017
Trade accounts payable, including amounts due to subcontractors	$51,984	$45,409
Compensation and related benefits	7,578	5,246
Current portion of earnout liability	—	2,989
Accrued warranty	3,384	4,464
Contract liability	6,541	1,676
Other	10,742	11,002
Total accounts payable and accrued expenses	$80,229	$70,786

The activity in the Company’s earnout liability was as follows for the years ended December 31, 2018 and 2017:

(Table only in thousands)	2018	2017
Earnout accrued at beginning of year	$4,475	$24,213
Fair value adjustment	(330)	(6,610)
Compensation expense adjustment	222	1,240
Foreign currency translation adjustment	(65)	825
Payments	(2,862)	(15,193)
Other reclassifications	(1,440)	—
Earnout accrued at end of year	—	4,475
Less: current portion of earnout	—	(2,989)
Balance of long-term portion of earnout recorded in other liabilities	$—	$1,486

The earnout liability is only associated with the Energy Solutions segment

9. Senior debt

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

	December 31,	
(Table only in thousands)	2018	2017
Outstanding borrowings under Credit Facility (defined below).		

Term loan balance due upon maturity in September 2020.		
– Term loan	$76,147	$113,903
– U.S. Dollar revolving loans	—	1,000
– Unamortized debt discount	(1,691)	(2,834)
Total outstanding borrowings under Credit Facility	74,456	112,069
Outstanding borrowings (U.S. dollar equivalent) under		
Foreign Debt	—	2,764
Total outstanding borrowings	74,456	114,833
Less: current portion	—	11,296
Total debt, less current portion	$74,456	$103,537

In 2018, the Company made prepayments of $36.2 million on the term loan. Due to the prepayments made in 2018, there are no additional payments due on the term loan until the final payment of $76.1 million in September 2020.

Credit Facility

The Company has entered into a credit agreement (the “Credit Agreement”) with various lenders (the “Lenders”) and letter of credit issuers (each, an “L/C Issuer”), and Bank of America, N.A., as Administrative Agent (the “Agent”), swing line lender and an L/C Issuer, providing for various senior secured credit facilities (collectively, the “Credit Facility”).

Pursuant to the amended and restated Credit Agreement, the Lenders currently provided a term loan in an aggregate principal amount of $170.0 million and a U.S. dollar revolving credit commitment in the aggregate principal amount of $60.5 million. The agreement includes a $19.5 million senior secured multi-currency revolving credit facility for U.S. dollar and specific foreign currency loans.

Under the terms of the Credit Facility, the Company is required to maintain certain financial and other covenants including the maintenance of a Consolidated Leverage Ratio as defined in the Credit Agreement. The Company must maintain a Consolidated Leverage Ratio of 3.75 through March 31, 2019, decreasing to 3.50 through September 30, 2019. The ratio will then decrease to 3.25 until the termination of the Credit Facility.

As of December 31, 2018 and 2017, $29.3 million and $24.4 million of letters of credit were outstanding, respectively. Total unused credit availability under the Credit Facility was $50.7 million and $54.6 million at December 31, 2018 and 2017, respectively. Revolving loans may be borrowed, repaid and reborrowed until September 3, 2020, at which time all amounts borrowed pursuant to the Credit Facility must be repaid.

At the Company’s option, revolving loans and the term loans accrue interest at a per annum rate based on either the highest of (a) the federal funds rate plus 0.5%, (b) the Agent’s prime lending rate, (c) one-month LIBOR plus 1.00%, plus a margin ranging from 1.0% to 2.0% depending on the Company’s Consolidated Leverage Ratio (“Base Rate”), or (d) a Eurocurrency Rate (as defined in the Credit Agreement) plus 1.0% to 2.0% depending on the Company’s Consolidated Leverage Ratio. Interest on swing line loans is the Base Rate.

Interest on Base Rate loans is payable quarterly in arrears on the last day of each calendar quarter and at maturity. Interest on Eurocurrency Rate loans is payable on the last date of each applicable Interest Period (as defined in the agreement), but in no event less than once every three months and at maturity. The weighted average interest rate on outstanding borrowings was 5.27% and 4.08% at December 31, 2018 and 2017, respectively.

The Company has granted a security interest in substantially all of its assets to secure its obligations pursuant to the Credit Agreement. The Company’s obligations under the Credit Agreement are guaranteed by the Company’s U.S. subsidiaries and such guaranty obligations are secured by a security interest on substantially all the assets of such subsidiaries, including certain real property. The Company’s obligations under the Credit Agreement may also be guaranteed by the Company’s material foreign subsidiaries to the extent no adverse tax consequences would result to the Company.

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

In accordance with the Credit Facility terms, the Company entered into an interest rate swap on December 30, 2015 to hedge against interest rate exposure related to approximately one-third of the outstanding debt as of the date of the agreement indexed to LIBOR market rates. The fair value of the interest rate swap was an asset of $0.5 million and $0.3 million at December 31, 2018, and 2017, respectively, which is recorded in “Deferred charges and other assets” on the Consolidated Balance Sheets. The Company did not designate the interest rate swap as an effective hedge until the first quarter of 2016. The change in the fair value of the hedge prior to being designated as an effective hedge during the year ended December 31, 2016 of $0.5 million, was recorded in earnings in “Other income (expense), net” in the Consolidated Statements of Operations. From the date of designation, all changes to the fair value of the interest rate swap are recorded in other comprehensive income (loss) as long as the hedge is deemed effective.

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 or cash. As of December 31, 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 December 31, 2018 had no outstanding borrowings. The Company settled the outstanding amount of the overdraft facility in 2018. The Company plans to exit this facility and consolidate it with the Credit Facility.

10. Shareholders' Equity

Dividends

Our dividend policy and the payment of cash dividends under that policy are subject to the Board of Director's continuing determination that the dividend policy and the declaration of dividends are in the best interest of the Company's shareholders. 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. 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 shareholders to suspend dividend payments.

During 2017 and 2016, our Board declared the following quarterly cash dividends on our common stock:

Dividend Per Share	Record Date	Payment Date
$0.075	August 7, 2017	September 29, 2017
$0.075	May 10, 2017	June 30, 2017
$0.075	March 6, 2017	March 31, 2017
$0.066	December 16, 2016	December 30, 2016
$0.066	September 16, 2016	September 30, 2016
$0.066	June 18, 2016	June 30, 2016
$0.066	March 18, 2016	March 31, 2016

Effective August 13, 2012, the Company implemented a Dividend Reinvestment Plan (the "Plan"), under which the Company may issue up to 750,000 shares of common stock. The Plan provides a way for interested shareholders to increase their holdings in our common stock. Participation in the Plan is strictly voluntary and is open only to existing shareholders. The Plan has had limited participation.

Share-Based Compensation

The Company's 2017 Equity and Incentive Compensation Plan (the "2017 Plan") was approved by the Company's stockholders on May 16, 2017 which replaced the 2007 Equity Incentive Plan (the "2007 Plan"). No further grants will be made under the 2007 Plan, but outstanding awards under the 2007 Plan will continue to be unaffected in accordance with their terms. The 2017 Plan permits the granting of stock options with an exercise price equal to or greater than the fair market value of the Company's common stock at the date of the grant, and other stock-based awards, including appreciation rights, restricted stock, restricted stock units, performance shares and dividend equivalents. A total of 1.9 million shares of common stock were authorized for issuance. As of December 31, 2018, 1.3 million shares remain available for future issuance. Stock options granted to employees generally vest equally over a period of four years from the date of the grant. Stock awards granted to employees generally vest over a period of three to four years from the date of the grant.

On June 10, 2017, the Company granted 700,000 performance units to our Chief Executive Officer with a fair value of $175,000 and are being expensed over the vesting period of three years. The maximum shares of common stock that the participant could receive upon vesting is 77,778 shares. The performance units are earned based upon the Company's stock price during 30 consecutive trading days within a specified date range of approximately two years. The performance units are settled in the Company's common stock subsequent to this specified date range. The estimated grant date fair value and compensation expense of each performance share was determined on the date of grant by using the Monte Carlo valuation model.

Share-based compensation expense for stock options and restricted stock awards under these plans was $3.1 million, $1.7 million and $2.2 million for 2018, 2017 and 2016, respectively. The tax benefit related to share based compensation expense was $0.5 million, zero and $0.2 million in 2018, 2017 and 2016, respectively.

Employee Stock Purchase Plan

The 2009 Employee Stock Purchase Plan (“ESPP”) was approved by shareholders on May 21, 2009. The ESPP is administered by the Compensation Committee. The ESPP allows employees to purchase shares of common stock at a 15% discount from market price and pay for the shares through payroll deductions. Eligible employees can enter the plan at specific “offering dates” that occur in six-month intervals.

The aggregate maximum number of shares of the Company's common stock that may be granted under the ESPP is 1,500,000 shares over the ten-year term of the ESPP, subject to adjustment in the event there is a reorganization, merger, consolidation, recapitalization, reclassification, stock split-up, or similar transaction with respect to the common stock. As of December 31, 2018, 1.3 million shares remain available for future issuance.

The Company recognized employee stock purchase plan expense of $90,000, $83,000 and $71,000 in 2018, 2017 and 2016, respectively.

Stock Options

The estimated weighted-average fair value of stock options granted during 2017 and 2016, was $2.68 and $2.07 per option, respectively, using the Black-Scholes option-pricing model based on the following assumptions:

Expected Volatility: The Company utilizes a volatility factor based on the Company's historical stock prices for a period of time equal to the expected term of the stock option utilizing weekly price observations. For 2017 and 2016, the Company utilized weighted-average volatility factors of 39%.

Expected Term: Due to limited historical exercise data, the Company utilizes the simplified method of determining the expected term based on the vesting schedules and terms of the stock options. For 2017 and 2016, the Company utilized weighted-average expected term factors of 6.3 years and 6.5 years, respectively.

Risk-Free Interest Rate: The risk-free interest rate factor utilized is based upon the implied yields currently available on U.S. Treasury zero-coupon issues over the expected term of the stock options. For 2017 and 2016, the Company utilized a weighted-average risk-free interest rate factor of 2.2% and 2.1%, respectively.

Expected Dividends: The Company utilized a weighted average expected dividend rate of 3.3% and 3.6% to value options granted during 2017 and 2016, respectively.

Information related to all stock options under the 2017 Plan and 2007 Plan for 2018, 2017 and 2016 is shown in the tables below:

(Shares in thousands)	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value ($000)
Outstanding at December 31, 2017	655	$ 10.53	6.0 years	
Forfeitures	(132)	11.53		
Exercised	(16)	5.55		
Outstanding at December 31, 2018	507	10.43	5.2 years	$ 186
Exercisable at December 31, 2018	402	10.52	4.6 years	$ 186

(Shares in thousands)	Shares	Weighted	Weighted	Aggregate

		Average Exercise Price	Average Remaining Contractual Term	Intrinsic Value ($000)
Outstanding at December 31, 2016	1,519	$ 10.25	6.1 years	
Granted	128	9.24		
Forfeitures	(700)	12.44		
Exercised	(292)	3.92		
Outstanding at December 31, 2017	655	10.53	6.0 years	$ 78
Exercisable at December 31, 2017	463	10.49	5.2 years	$ 78

(Shares in thousands)	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value ($000)
Outstanding at December 31, 2015	1,877	$ 10.30	6.8 years	
Granted	105	7.36		
Forfeitures	(268)	11.91		
Exercised	(195)	6.90		
Outstanding at December 31, 2016	1,519	10.25	6.1 years	$ 5,816
Exercisable at December 31, 2016	959	9.23	5.3 years	$ 4,608

Restricted Stock Awards

Information related to restricted stock awards under the 2017 Plan and 2007 Plan for 2018, 2017 and 2016 is shown in the table below. The fair value of restricted stock awards is based on the price of the stock in the open market on the date of the grant. The fair value of the restricted stock awards is recorded as compensation expense on a straight-line basis over the vesting periods of the awards and we account for forfeitures when they occur.

(Shares in thousands)	Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2015	321	$ 9.55
Granted	267	9.76
Vested	(17)	10.24
Forfeited	(62)	9.64
Nonvested at December 31, 2016	509	9.64
Granted	405	9.88
Vested	(92)	9.78
Forfeited	(268)	9.70
Nonvested at December 31, 2017	554	9.75
Granted	963	5.21
Vested	(217)	9.50
Forfeited	(49)	9.80

Nonvested at December 31, 2018	1,251	6.30

The Company received $0.1 million, $1.1 million and $1.3 million of cash from employees exercising options in 2018, 2017 and 2016, respectively. The intrinsic value of options exercised during 2018, 2017 and 2016 was $24,000, $2.6 million and $1.0 million, respectively. Unrecognized compensation expense related to nonvested shares of stock options, restricted stock and performance units was $6.3 million at December 31, 2018 and will be recognized over a weighted average vesting period of 2.3 years.

Warrants to Purchase Common Stock

On December 28, 2006, the Company issued warrants to purchase 250,000 shares to Icarus Investment Corp. (“Icarus”), a related party, at an exercise price of $9.07 and an expiration date of December 26, 2016. On December 7, 2016, the Company and Icarus entered into an amendment to the warrant agreement pursuant to which the warrants were amended to provide for the cashless exercise of the warrants. In 2016, all of the outstanding warrants were exercised and the Company issued 89,640 shares of common stock through a cashless exercise at an effective price of $9.07 per share. There are no additional warrants outstanding.

Stock Purchase

During 2016, the Company repurchased 30,000 shares of common stock from a former owner of a subsidiary acquired by the Company in 2014 for a total cost of $0.2 million. In December 2016, the Company entered into an agreement to repurchase 75,000 shares of common stock from a current segment president, who was a former owner of a subsidiary acquired by the Company in 2013, for a total cost of $1.1 million, which was paid in January 2017. The shares were immediately retired subsequent to their repurchase.

11. Pension and Employee Benefit Plans

We sponsor a non-contributory defined benefit pension plan for certain union employees. The accrual of future benefits for all participants who are non-union employees was frozen effective December 31, 2008. The plan is funded in accordance with the funding requirements of the Employee Retirement Income Security Act of 1974.

The following tables set forth the plan changes in benefit obligations, plan assets and funded status on the measurement dates, December 31, 2018, 2017 and 2016, and amounts recognized in our Consolidated Balance Sheets within other long-term liabilities.

(Table only in thousands)	2018	2017	2016
Change in projected benefit obligation:			
Projected benefit obligation at beginning of year	$36,327	$35,012	$36,140
Service cost	—	415	447
Interest cost	1,190	1,314	1,426
Actuarial (gain) / loss	(2,629)	1,787	301
Administrative expenses	—	(402)	(606)
Benefits paid	(1,890)	(1,799)	(2,696)
Projected benefit obligation at end of year	32,998	36,327	35,012
Change in plan assets:			
Fair value of plan assets at beginning of year	26,836	24,063	25,296
Actual (loss) return on plan assets	(1,388)	3,152	2,040
Employer contribution	639	1,822	29
Administrative expenses	—	(402)	(606)
Benefits paid	(1,890)	(1,799)	(2,696)
Fair value of plan assets at end of year	24,197	26,836	24,063
Unfunded status	$(8,801)	$(9,491)	$(10,949)
Defined benefit liability included in other liabilities	$(8,801)	$(9,491)	$(10,949)
Deferred tax benefit associated with accumulated other comprehensive loss	2,116	3,153	3,107
Accumulated other comprehensive loss, net of tax	6,224	5,154	5,074
Other comprehensive (loss) income:			
Net loss (gain)	$271	$358	$90
Amortization of net actuarial gain	(238)	(227)	(212)
Total recognized in other comprehensive (loss) income	$33	$131	$(122)
Amount recognized in accumulated other comprehensive (loss) income - Prior service cost	$8,340	$8,307	$8,181
Weighted-average assumptions used to determine benefit obligations for the year ended December 31:			
Discount rate	4.05 %	3.35 %	3.85 %

Benefits under the plan is not based on wages and, therefore, future wage adjustments have no effect on the projected benefit obligation.

During 2018, 2017 and 2016, the Company updated the mortality tables (RP-2017 Total Mortality Table, RP-2016 Total Mortality Table, and RP-2015 Total Mortality Table for each respective year) in the underlying assumptions used to determine the benefit obligation.

The details of net periodic benefit cost for pension benefits included in the accompanying Consolidated Statements of Operations for the years ended December 31, 2018, 2017 and 2016 are as follows:

(Table only in thousands)	2018	2017	2016
Service cost	$—	$415	$447
Interest cost	1,190	1,314	1,426
Expected return on plan assets	(1,511)	(1,723)	(1,829)
Net amortization and deferral	238	227	212
Net periodic benefit cost (income)	$(83)	$233	$256
Weighted-average assumptions used to determine net periodic benefit costs for the years ended December 31:			
Discount rate	3.35%	3.85%	4.00%
Expected return on assets	5.75%	7.25%	7.50%

The basis of the long-term rate of return assumption reflects the current asset mix for the pension plan of approximately 30% to 40% debt securities and 60% to 70% equity securities with assumed average annual returns of approximately 4% to 6% for debt securities and 8% to 12% for equity securities. The investment portfolio for the pension plan will be adjusted periodically to maintain the current ratios of debt securities and equity securities. Additional consideration is given to the historical returns for the pension plan as well as future long range projections of investment returns for each asset category. The long-term rate of return also considers administrative expenses of the plan.

The net loss and prior service cost for the defined benefit pension plan that will be amortized from accumulated other comprehensive loss into net periodic benefit cost during 2019 are $0.2 million and zero, respectively.

Pension plan assets are invested in trusts comprised primarily of investments in various debt and equity funds. A fiduciary committee establishes the target asset mix and monitors asset performance. The expected rate of return on assets includes the determination of a real rate of return for equity and fixed income investment applied to the portfolio based on their relative weighting, increased by an underlying inflation rate. Our defined benefit pension plan asset allocation by asset category is as follows:

	Target Allocation 2018	Percentage of Plan Assets 2018	2017
Asset Category:			
Cash and cash equivalents	0%	3%	4%
Equity securities	70%	70%	70%
Debt securities	30%	27%	26%
Total	100%	100%	100%

Estimated pension plan cash obligations are $2.1 million, $2.1 million, $2.1 million, $2.1 million, and $2.1 million for 2019 through 2023, respectively, and a total of $10.5 million for the years 2024 through 2028.

Fair Value Measurements of Pension Plan Assets

Following is a description of the valuation methodologies used for pension assets measured at fair value:

- Cash and cash equivalents: Cash and cash equivalents consist primarily of cash on deposit in money market funds. Cash and cash equivalents are stated at cost, which approximates fair value.
- Equity securities: Equity securities consist of various managed funds that invest primarily in common stocks. These securities are valued at the net asset value of shares held by the plans at year end. The net asset value is calculated based on the underlying shares and investments held by the funds.
- Debt securities: Debt securities consist of U.S. government and agency securities, corporate bonds and notes, and managed funds that invest in fixed income securities. U.S governmental and agency securities are valued at closing prices reported in the active market in which the individual securities are traded. Corporate bonds and notes are valued using market inputs including benchmark yields, reported trades, broker/dealer quotes, issuer spreads, two-sided markets, benchmark securities, bids, offers and reference data including market research publications. Inputs may be prioritized differently at certain times based on market conditions. Managed funds are valued at the net asset value of shares held by the plans at year end. The net asset value is calculated based on the underlying investments held by the fund.

The preceding methods described may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The Company's assessment of the significance of a particular input to the fair value measurement requires judgment and may affect the valuation of the fair value of assets and liabilities and their placement within the fair value hierarchy levels.

The levels assigned to the defined benefit plan assets as of December 31, 2018, are summarized in the tables below:

(Table only in thousands)	Level 1	Level 2	Level 3	Total
Pension assets, at fair value:				
Cash and cash equivalents	$685	$ —	$ —	$685
Equity securities	16,994	—	—	16,994
Debt securities	6,518	—	—	6,518
Total assets	$24,197	$ —	$ —	$24,197

The levels assigned to the defined benefit plan assets as of December 31, 2017, are summarized in the tables below:

(Table only in thousands)	Level 1	Level 2	Level 3	Total
Pension assets, at fair value:				
Cash and cash equivalents	$1,147	$ —	$ —	$1,147
Equity securities	18,722	—	—	18,722
Debt securities	6,967	—	—	6,967
Total assets	$26,836	$ —	$ —	$26,836

The Company contributes to a number of multiemployer defined benefit pension plans under the terms of collective-bargaining agreements that cover its union-represented employees. The risks of participating in these multiemployer plans are different from single-employer plans in the following aspects:

- Assets contributed to the multiemployer plan by one employer may be used to provide benefits to employees of other participating employers.
- If a participating employer stops contributing to the plan, the unfunded obligations of the plan may be borne by the remaining participating employers.
-

If the Company chooses to stop participating in some of its multiemployer plans, CECO may be required to pay those plans an amount based on the underfunded status of the plan, referred to as a withdrawal liability.

The Company participation in these plans for the year ended December 31, 2018, is outlined in the table below. The "EIN/Pension Plan Number" column provides the Employer Identification Number and the three-digit plan number, if applicable. Unless otherwise noted, the most recent Pension Protection Act zone status available in 2018 is for the plan's year-end at December 31, 2017. The zone status is based on information that the Company received from the plan and is certified by the plan's actuary. Among other factors, plans in the red zone are generally less than 65% funded, plans in the yellow zone are less than 80% funded, and plans in the green zone are at least 80% funded. The "FIP/RP Status Pending/Implemented" column indicates plans for which a financial improvement plan (FIP) or a rehabilitation plan (RP) is either pending or has been implemented. The last column lists the expiration date(s) of the collective-bargaining agreement(s) to which the plans are subject.

Pension Fund	EIN/Pension Plan Number	Pension Protection Act Zone Status	FIP/RP Status Pending/ Implemented	Surcharge Imposed	Expiration of Collective Bargaining Agreement
Sheet Metal Workers' National Pension Fund	52-6112463/001	Yellow	FIP: Yes - Implemented RP: Yes - Implemented	No	various
Sheet Metal Workers Local 224 Pension Plan	31-6171353/001	Yellow	FIP: Yes - Implemented	No	May 31, 2022
Sheet Metal Workers Local No. 20, Indianapolis Area Pension fund	51-0168516/001	Green	Is not subject	No	May 31, 2020
Sheet Metal Workers Local No. 177 Pension Fund	62-6093256/001	Green	Is not subject	No	May 1, 2019

Kirk and Blum was listed in the Sheet Metal Workers Local No. 177 Pension Fund's Form 5500 as providing more than five percent of total contributions for the year ended December 31, 2017. The Company was not listed in any of the other plans' Forms 5500 as providing more than five percent of the total contributions for the plans and plan years. At the date the financial statements were issued, Forms 5500 were not available for the plan years ended December 31, 2018.

We have no current intention of withdrawing from any plan and, therefore, no liability has been provided in the accompanying consolidated financial statements.

Amounts charged to pension expense under the above plans including the multi-employer plans totaled $1.4 million, $2.0 million and $2.1 million in 2018, 2017 and 2016, respectively.

We have a profit sharing and 401(k) savings retirement plan for employees of certain of our subsidiaries. The plan covers substantially all employees who have 30 days of service, and who have attained 18 years of age. The plan allows us to make discretionary contributions and provides for employee salary deferrals of up to 100%. We made aggregate matching contributions and discretionary contributions of $1.7 million, $1.6 million, and $1.5 million during 2018, 2017 and 2016, respectively.

12. Leases

Sale-leaseback Transactions

Financing Transaction

In 2016, the Company entered into an agreement to sell one of its manufacturing facilities for gross proceeds of $5.0 million, less costs associated with the transaction of $0.3 million, or net proceeds of $4.7 million. As a part of the transaction, the Company entered into a lease for the property from the purchaser for an initial period of 13 years. In June 2017, the agreement was amended extending the term through June 2031. This sale-leaseback has been accounted for as a financing transaction with a current effective interest rate of 4.53%. Payments made by the Company are allocated between interest expense and a reduction to the sale-leaseback financing liability.

As of December 31, 2018, future payments on the sale-leaseback financing liability are as follows (in thousands):

Years	
2019	$414
2020	422
2021	431
2022	439
2023	448
Thereafter	3,658
Total payments	5,812
Less amount representing interest	(1,431)
Total liability	4,381
Less current portion, included in accounts payable and accrued expenses	(220)
Long-term portion included, in other liabilities	$4,161

As of December 31, 2018 and 2017, the net carrying value of the facility assets that are included in property, plant, and equipment on our Consolidated Balance Sheets amounted to $10.2 million and $11.0 million, respectively, which are depreciated over the remaining term of the lease.

Capital Leases

In 2016, the Company entered into agreements to sell two of its manufacturing facilities for gross proceeds of $9.3 million, less costs associated with the transaction of $0.5 million, or net proceeds of $8.8 million. As a part of the transactions, the Company entered into 13-year leases for the properties from the purchasers. In June 2018, the leases were amended extending the expiration date through August 2030.

The Company recorded a $4.4 million deferred gain on the sale of these facilities which is recorded in the Consolidated Balance Sheets as a reduction to property, plant, and equipment. The deferred gain is recognized over the remainder of the lease term. As a result of these transactions, the Company recorded a capital lease obligation of $8.7 million. The current weighted-average effective interest rates of the capital leases are 4.26% to 4.67%.

The future minimum payments for the aforementioned capital leases as of December 31, 2018, are as follows (in thousands):

Fiscal Years	
2019	$838
2020	855
2021	872
2022	889
2023	907
Thereafter	6,407
Total payments	10,768
Less amount representing interest	(2,433)
Present value of future minimum lease payments	8,335
Less current portion, included in accounts payable and accrued expenses	(478)
Long-term portion, included in other liabilities	$7,857

Capital lease assets included in the Consolidated Balance Sheets as part of property, plant, and equipment as of December 31, 2018 and 2017, are as follows (in thousands):

	2018	2017	Depreciable Life (Years)
Building and improvements, net of deferred gain	$4,385	$4,385	13
Less: Accumulated depreciation	(850)	(534)	
Total	$3,535	$3,851	

Rent

We lease certain facilities on a year-to-year basis. We also have future annual minimum rental commitments under noncancelable operating leases as follows:

(Table only in thousands)

December 31,	
2019	$2,745
2020	1,880
2021	1,454
2022	931
2023	851
2024 and thereafter	2,278

	$10,139

Total rent expense under all operating leases for 2018, 2017 and 2016 was $3.7 million, $4.2 million and $4.5 million, respectively.

13. Commitments and Contingencies

Legal Proceedings

Asbestos cases

Our subsidiary, 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 December 31, 2018 for cases involving asbestos-related claims were $2.9 million which together with all legal fees other than corporate counsel expenses; $2.7 million have been paid by the Company's insurers. The average cost per settled claim, excluding legal fees, was approximately $36,000.

Based upon the most recent information available to the Company regarding such claims, there were a total of 208 cases pending against the Company as of December 31, 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 2018, 96 new cases were filed against the Company, and the Company was dismissed from 63 cases and settled 43 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 are 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.

Other

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 reserves 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 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.

14. Income Taxes

On December 22, 2017, the Tax Act was signed into law making significant changes to the U.S. tax code. In conjunction with guidance set forth under SAB 118, the Company recorded provisional amounts at December 31, 2017 for, most significantly, the remeasurement of deferred tax assets and liabilities to reflect the new U.S. statutory rate of 21 percent, and to account for the one-time "transition" tax on unrepatriated foreign earnings. During the year ended December 31, 2018, the Company updated its SAB 118 provisional estimates and completed its accounting for the provisions made as of December 31, 2017, which resulted in a $1.7 million adjustment for deemed distributions on foreign earnings.

Certain of the Company's undistributed earnings of its foreign subsidiaries are not permanently reinvested, as management intends to repatriate foreign-held cash as needed to meet domestic cash needs for operating, investing, and financing activities. A liability of $0.6 million has been recorded for the deferred taxes on such undistributed foreign earnings. The deferred taxes are attributable primarily to the foreign withholding taxes that would become payable should the Company repatriate cash held in its foreign operations.

Income (loss) before income taxes was generated in the United States and globally as follows:

(Table only in thousands)	2018	2017	2016
Domestic	$6,230	$3,891	$(39,623)
Foreign	(3,733)	(2,482)	6,659
	$2,497	$1,409	$(32,964)

Income tax provision consisted of the following for the years ended December 31:

(Table only in thousands)	2018	2017	2016
Current:			
Federal	$5,166	$6,234	$4,957
State	1,660	388	892
Foreign	2,834	939	3,191
	9,660	7,561	9,040
Deferred:			
Federal	1,144	(2,479)	(2,794)
State	56	114	(409)
Foreign	(1,242)	(758)	(547)
	(42)	(3,123)	(3,750)
	$9,618	$4,438	$5,290

The income tax provision differs from the statutory rate due to the following:

(Table only in thousands)	2018	2017	2016
Tax expense (benefit) at statutory rate	$524	$494	$(11,525)
Increase (decrease) in tax resulting from:			
State income tax, net of federal benefit	1,337	367	174
Domestic production activities deduction	—	(235)	(561)
Intangible asset and goodwill impairment	—	1,789	17,859
Change in uncertain tax position reserves	73	465	(624)
Permanent differences related to divestitures	7,048	—	—
Permanent differences	693	1,026	(31)
Impact of rate differences and adjustments	57	(20)	(1,655)
United States and foreign tax incentives	(1,443)	(240)	(1,035)
Earnout (income) expense	(69)	(1,779)	2,573
Change in valuation allowance	1,521	1,044	222
Revaluation of deferred tax assets and liabilities	—	(4,819)	—
Net deemed distribution on repatriation of foreign earnings	(1,713)	6,426	—
Foreign withholding taxes on repatriation of foreign earnings	666	—	—
Other	924	(80)	(107)
	$9,618	$4,438	$5,290

Deferred income taxes reflect the future tax consequences of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and tax credit carry forwards. The net deferred tax liabilities consisted of the following at December 31:

	December 31	
(Table only in thousands)	2018	2017
Gross deferred tax assets:		
Accrued expenses and other	$417	$286
Reserves on assets	1,276	2,000
Share-based compensation awards	459	436
Minimum pension	2,153	2,318
Net operating loss carry-forwards	3,478	3,471
Tax credit carry-forwards	2,352	1,634
Valuation allowances	(5,474)	(3,873)
	4,661	6,272
Gross deferred tax liabilities:		
Depreciation	(646)	(448)
Goodwill and intangibles	(10,907)	(13,588)
Prepaid expenses and inventory	(798)	(585)
Withholding tax on unremitted foreign earnings	(551)	—
Revenue recognition	(514)	(1,861)
	(13,416)	(16,482)
Net deferred tax liabilities	$(8,755)	$(10,210)

As of December 31, 2018, the Company has utilized substantially all of its federal net operating loss carry forwards. State and local net operating loss carry forwards total $29.4 million, which expire from 2019 to 2038. The Company has recorded a valuation allowance on certain of these net operating loss carry forwards to reflect expected realization. A $1.1 million foreign tax credit carryforward was generated in 2017 and a full valuation allowance has been recorded against it. The Company also has net operating loss carry forwards in foreign jurisdictions totaling $11.5 million. A full valuation allowance has been established against substantially all of these losses in foreign jurisdictions. As of December 31, 2018 and 2017, the Company has recorded a valuation reserve in the amount of $5.5 million and $3.9 million, respectively. The changes in the valuation allowance resulted in additional income tax expense of $1.5 million, $1.0 million, and $0.2 million in 2018, 2017, and 2016, respectively.

In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities (including the impact of available carryback and carry forward periods), projected future taxable income, and tax-planning strategies in making this assessment. Based on this assessment, management believes it is more likely than not that the Company will realize the benefits of these deductible differences, net of the existing valuation allowances at December 31, 2018. The amount of the deferred tax assets considered realizable, however, could be reduced in the near term if estimates of future taxable income during the carryforward period are reduced.

The Company accounts for uncertain tax positions pursuant to FASB ASC Topic 740. The Company recognizes the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income

tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. The Company estimates that it may settle one or more foreign and domestic audits in the next twelve months that may result in a decrease in the amount of accrual for uncertain tax positions of up to $0.5 million. A reconciliation of the beginning and ending amount of uncertain tax position reserves included in other liabilities on the Consolidated Balance Sheets is as follows:

(Table only in thousands)	2018	2017
Balance as of January 1,	$866	$401
Additions for tax positions taken in prior years	73	465
Statute expirations	—	—
Reductions of tax positions taken in prior years	—	—
Balance as of December 31,	$939	$866

The Company recognizes interest and penalties related to uncertain tax positions in income tax expense. The reserve for uncertain tax positions includes $0.3 million, $0.3 million and $0.2 million of interest and penalties as of December 31, 2018, 2017 and 2016, respectively. The favorable settlement of all uncertain tax positions would impact the Company's effective income tax rate. Tax years going back to 2014 remain open for examination by Federal authorities, and back to 2013 remain open for all significant state and foreign authorities.

15. Related Party Transactions

During 2018, 2017 and 2016 we paid fees of $0.2 million, $0.3 million and $0.4 million, respectively, for consulting services to Icarus, through which Jason DeZwirek, our Chairman of our Board, provides services. During 2018, 2017 and 2016, we paid fees of $0.1 million in each year for consulting services to JMP Fam Holdings Inc., through which Jonathan Pollack, a member of the Board of Directors, provides services. All services described above are based on verbal agreements with the Company. The Board of Directors approves the above services on an annual basis.

During the year ended December 31, 2016, the Company issued 89,640 shares of common stock to Icarus in connection with a cashless exercise of a warrant. In 2016, the Company entered into an agreement to repurchase 75,000 shares of common stock from a current employee. See Note 10 for further detail related to these transactions.

During 2018, 2017, and 2016, we incurred rent expense of $0.6 million, $0.6 million, and $1.1 million, respectively, to lease facilities owned by the subsidiaries' former owners at Adwest, Zhongli and Emtrol. Effective January 1, 2017, Adwest moved facilities and ended their lease with the former owner of the subsidiary, resulting in zero rent expense paid to the former owner.

During 2018, 2017, and 2016, we purchased $0.3 million, $0.8 million and $0.8 million in inventory from companies owned by the former owner of the Zhongli subsidiary. During 2018, 2017, and 2016, we sold $0.1 million, $0.1 million and zero of inventory to the same companies. The Company employed the former owner in a managerial role at this subsidiary through December 31, 2017.

16. Acquisition of Noncontrolling Interest

In connection with the 2015 Peerless Mfg. Co. acquisition, the Company acquired a 60% equity investment in Peerless Propulsys that entitled the Company to 80% of Peerless Propulsys's earnings. On July 11, 2016, the Company entered into an agreement with the noncontrolling owner of Peerless Propulsys and issued a promissory note in the amount of $5.3 million due on July 11, 2019 in exchange for 100% ownership in the equity and earnings of Peerless Propulsys. The minority interest had a carrying value of $4.1 million on the transaction date, compared to the purchase price of $5.3 million. Since the Company already had control over the equity investment, the $1.2 million excess paid over the carrying value was recorded as a reduction to additional paid in capital. The interest rate on the note is 1.50%, which approximates the market rate given the short-term duration of the note. As of December 31, 2018, the outstanding balance of the note was $1.7 million and was paid off in January 2019. The note is classified as a current liability in the Consolidated Balance Sheets as of December 31, 2018.

17. 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 a gain of $6.9 million, comprised of $27.9 million of net proceeds received as consideration after post-closing purchase price adjustments less net assets disposed of $18.8 million and transaction costs of $2.2 million. The net assets disposed of 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 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 a gain of $4.3 million, comprised of $7.2 million of net proceeds after 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

On November 27, 2018, the Company completed the sale of Jiangyin Zhongli Industrial Technology Co. Ltd ("Zhongli"), a business in our Energy Solutions segment operating in China for a price of $3.6 million. In the third quarter of 2018, we classified the assets and liabilities of Zhongli as held-for-sale. 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 recorded a $15.1 million estimated loss. 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. Zhongli results are reported within the Energy Solutions segment through the date of disposition.

18. 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 are presented in three reportable segments. The results of the segments are reviewed through to the "Income (loss) from operations" line on the Consolidated Statements of Operations. The accounting policies of the segments are the same as those in the consolidated financial statements. Except for the information reported on a segment basis, the Company does not accumulate net sales information by product or service and therefore, the Company does not disclose net sales by product or service because to do so would be impractical.

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. We have reclassified all prior year amounts to reflect the new segment structure.

The Company's reportable segments are organized as groups of similar products and services, as described as follows:

- Energy Solutions segment: Our Energy Solutions segment serves the Energy market, where we are a key part of helping meet the global demand for Clean Energy with products and services that support our customers with efficient solutions and technologies to keep the world clean and safe. Our offerings improve air quality and solves fluid handling needs with market leading, highly engineered, and customized solutions for the power generation, oil & gas, and petrochemical industries.

- Industrial Solutions segment: Our Industrial Solutions segment serves the Industrial Pollution Control market where our aim is to address the growing need to protect the air we breathe and help our customers' desires for sustainability upgrades beyond carbon footprint issues. Our offerings improve 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, and industrial odors.

- Fluid Handling Solutions segment: Our Fluid Handling Solutions segment offers unique pump and filtration solutions that maintain safe and clean operations in some of the most harsh and toxic environments. In this market, we provide solutions for mission-critical applications to a wide variety of industries including, but not limited to, plating and metal finishing, food and beverage, chemical, petrochemical, pharmaceutical, wastewater treatment, desalination and the aquarium & aquaculture markets.

	2018	2017	2016
Net Sales (less intra-, inter-segment sales)			
(Table only in thousands)			
Energy Solutions segment	$211,185	$188,955	$254,806
Industrial Solutions segment	75,414	87,838	101,909
Fluid Handling Solutions segment	50,740	69,159	61,788
Corporate and Other (1)	—	(901)	(1,492)
Net sales	$337,339	$345,051	$417,011

(1) Includes adjustment for revenue on intercompany jobs.

	2018	2017	2016
Income (loss) from Operations			
(Table only in thousands)			
Energy Solutions segment	$28,398	$14,565	$30,582
Industrial Solutions segment	5,635	8,123	8,481
Fluid Handling Solutions segment	8,402	14,736	(36,209)
Corporate and Other (2)	(32,433)	(26,649)	(26,817)
Eliminations	—	(2,751)	(1,599)
Income (loss) from operations	$10,002	$8,024	$(25,562)

(2) Includes corporate compensation, professional services, information technology, acquisition and integration expenses, and other general, administrative corporate expenses and loss on divestitures

	2018	2017	2016
Property and Equipment Additions			
(Table only in thousands)			
Energy Solutions segment	$205	$444	$672
Industrial Solutions segment	756	160	301
Fluid Handling Solutions segment (3)	1,226	382	4,481
Corporate and Other	903	42	7
Property and equipment additions	$3,090	$1,028	$5,461

(3) Includes non-cash additions of $4,385 for property, plant, and equipment acquired under capital leases for 2016. See Note 12 for further detail.

	2018	2017	2016
Depreciation and Amortization			
(Table only in thousands)			
Energy Solutions segment	$8,112	$9,675	$11,557
Industrial Solutions segment	1,067	1,488	1,814
Fluid Handling Solutions segment	3,517	4,754	5,406
Corporate and Other	576	171	126
Depreciation and amortization	$13,272	$16,088	$18,903

	December 31,	
	2018	2017
Identifiable Assets		
(Table only in thousands)		
Energy Solutions segment	$245,842	$258,218
Industrial Solutions segment	54,179	66,723
Fluid Handling Solutions segment	73,910	100,917
Corporate and Other (4)	18,651	12,691
Identifiable assets	$392,582	$438,549

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

	December 31,	
	2018	2017
Goodwill		
(Table only in thousands)		
Energy Solutions segment	$97,930	$98,408
Industrial Solutions segment	22,419	22,419
Fluid Handling Solutions segment	31,807	46,124
Goodwill	$152,156	$166,951

Intra-segment and Inter-segment Revenues

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

	Year Ended December 31, 2018						
			Less Inter-Segment Sales				
	Total Sales	Intra - Segment Sales	Industrial	Energy	Fluid	Corp and Other	Net Sales to Outside Customers
Net Sales							
(Table only in thousands)							
Energy Solutions segment	$220,334	$ (7,912)	$(1,232)	$—	$(5)	$ —	$211,185
Industrial Solutions segment	79,139	(3,084)	—	(600)	(41)	—	75,414
Fluid Handling Solutions segment	52,846	(1,483)	(616)	(7)	—	—	50,740
Corporate and Other	—	—	—	—	—	—	—
Net Sales	$352,319	$ (12,479)	$(1,848)	$(607)	$(46)	$ —	$337,339

	Year Ended December 31, 2017						
			Less Inter-Segment Sales				
	Total Sales	Intra - Segment Sales	Industrial	Energy	Fluid	Corp and Other	Net Sales to Outside Customers
Net Sales							
(Table only in thousands)							
Energy Solutions segment	$197,897	$ (8,833)	$(109)	$—	$—	$—	$188,955
Industrial Solutions segment	91,915	(3,235)	—	(787)	(55)	—	87,838
Fluid Handling Solutions segment	73,652	(3,169)	(492)	(832)	—	—	69,159
Corporate and Other (5)	—	—	—	—	—	(901)	(901)
Net Sales	$363,464	$ (15,237)	$(601)	$(1,619)	$(55)	$(901)	$345,051

	Year Ended December 31, 2016						
			Less Inter-Segment Sales				
	Total Sales	Intra - Segment Sales	Industrial	Energy	Fluid	Corp and Other	Net Sales to Outside Customers
Net Sales							
(Table only in thousands)							
Energy Solutions segment	$258,710	$ (3,506)	$(398)	$—	$—	$—	$254,806
Industrial Solutions segment	109,524	(4,256)	—	(3,153)	(206)	—	101,909
Fluid Handling Solutions segment	64,332	(1,714)	(317)	(513)	—	—	61,788
Corporate and Other (5)	—	—	—	—	—	(1,492)	(1,492)
Net Sales	$432,566	$ (9,476)	$(715)	$(3,666)	$(206)	$(1,492)	$417,011

(5) Includes adjustment for revenue on intercompany jobs.

No single customer represented greater than 10% of consolidated net sales or accounts receivable for 2018, 2017, or 2016.

For 2018, 2017, and 2016, sales to customers outside the United States, including export sales, accounted for approximately 33%, 32%, and 37%, respectively, of consolidated net sales. The largest portion of export sales in 2018 was destined for Asia (11.5%),

Europe (11.0%), and Middle East and Africa (6.2%). Of consolidated long-lived assets, $19.1 million and $29.7 million were located outside of the United States as of December 31, 2018 and 2017, respectively. The largest portion of long-lived assets located outside the United States at December 31, 2018 were in Europe ($14.5 million).

19. Quarterly Data (Unaudited)

Earnings per share amounts are computed independently each quarter. Accordingly, the sum of each quarter's per share amount may not equal the total per share amount for the respective year.

	Quarter			
(Table only in thousands, except per share data)	First	Second	Third	Fourth
Year ended December 31, 2018				
Net sales	$74,139	$81,089	$88,256	$93,854
Gross profit	25,561	27,525	28,674	29,777
Net income (loss) attributable to CECO Environmental Corp.	5,763	(901)	(12,915)	931
Basic earnings (loss) per share	$0.17	$(0.03)	$(0.37)	$0.03
Diluted earnings (loss) per share	$0.17	$(0.03)	$(0.37)	$0.03
Year ended December 31, 2017				
Net sales	$92,651	$93,870	$84,987	$73,543
Gross profit	31,929	28,486	27,133	25,646
Net income (loss) attributable to CECO Environmental Corp.	38	5,486	3,036	(11,589)
Basic earnings (loss) per share	$0.00	$0.16	$0.09	$(0.34)
Diluted earnings (loss) per share	$0.00	$0.16	$0.09	$(0.34)