CVD EQUIPMENT CORP
Form 10-K
April 01, 2019

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

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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

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

For the transition period from ___ to _____

Commission file number: 1-16525

CVD EQUIPMENT CORPORATION

(Exact name of registrant as specified in its charter)

New York	**11-2621692**
(State or Other Jurisdiction of Incorporation or Organization)	*(I.R.S. Employer Identification No.)*

355 South Technology Drive

Central Islip, New York 11722
(Address including zip code of registrant's Principal Executive Offices)

(631) 981-7081

(Registrant's Telephone Number, Including Area Code)

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

Title of each class	Name of each exchange on which registered
Common Stock, Par value $0.01	**NASDAQ Capital Market**

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 13or 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 and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of the 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

State the aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold, or the average bid and asked price of such common equity, as of the last business day of the registrant's most recently completed second fiscal quarter: $34,195,157 at June 30, 2018

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date: 6,538,388 shares of Common Stock, $0.01 par value at March 22, 2019.

DOCUMENTS INCORPORATED BY REFERENCE: None.

PART I

INFORMATION CONCERNING FORWARD-LOOKING STATEMENTS

Except for historical information contained herein, this Annual Report on Form 10-K contains forward–looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended. Readers are cautioned not to place undue reliance on forward-looking statements, as there can be no assurance that the plans, intentions or expectations upon which they are based will occur. These statements involve known and unknown risks and uncertainties that may cause our actual results or outcomes to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. These forward-looking statements are based on various factors and are derived utilizing numerous important assumptions and other important factors that could cause actual results to differ materially from those in the forward-looking statements. Important assumptions and other factors that could cause actual results to differ materially from those in the forward-looking statements, include, but are not limited to: competition in our existing and potential future product lines of business; our ability to obtain financing on acceptable terms if and when needed; uncertainty as to our future profitability, uncertainty as to the future profitability of acquired businesses or product lines, uncertainty as to any future expansion of the Company. Other factors and assumptions not identified above were also involved in the derivation of these forward-looking statements and the failure of such assumptions to be realized as well as other factors may also cause actual results to differ materially from those projected. We assume no obligation to update these forward-looking statements to reflect actual results, changes in assumptions, or changes in other factors affecting such forward-looking statements. Past performance is no guaranty of future results.

Item 1. Description of Business.

The use of the words “CVD,” “we,” “us” or “our” refers to CVD Equipment Corporation, a New York corporation incorporated on October 13, 1982, and its wholly owned subsidiaries, CVD Materials Corporation (including its wholly owned subsidiaries CVD Tantaline ApS, and CVD MesoScribe Technologies Corporation) collectively “CVD Materials”), FAE Holdings 411519R LLC and 555 N Research Corporation except where the context otherwise requires.

We design, develop and manufacture a broad range of chemical vapor deposition, gas control and other state-of-the-art equipment and process solutions used to develop and manufacture materials and coatings for research and industrial applications. This equipment is used by our customers to research, design, and manufacture these materials or coatings for aerospace engine components, medical implants, semiconductors, solar cells, smart glass, carbon nanotubes, nanowires, LEDs, MEMS and other applications. Through CVD Materials and our Application Laboratory, we develop new material systems, provide material coating services, process development support and process startup

assistance with the focus on *enabling tomorrow's technologies™*.

Based on more than 36 years of experience, we use our capabilities in engineering, manufacturing and process development to transform new applications into leading-edge manufacturing solutions.

This enables university, research and industrial scientists at the cutting edge of technology to develop next generation aerospace, medical, nano, LEDs, semiconductors and other electronic components. We develop, manufacture and provide equipment for research and production based on our proprietary designs. We have built a significant library of design expertise, know-how and innovative solutions to assist our customers in developing these intricate processes and to accelerate their commercialization. This library of solutions, along with our vertically integrated manufacturing facilities, allows us to provide superior design, process and manufacturing solutions to our customers on a cost-effective basis.

Our strategy is to target opportunities in the research, development and production equipment market, with a focus on higher-growth applications such as aerospace, medical, smart glass, carbon nanotubes, nanowires, graphene, MEMS and LEDs. To expand our penetration into these growth markets, we have developed a line of proprietary standard products and custom systems. Historically, we manufactured products for research and development on a custom one-at-a-time basis to meet an individual customer's specific research requirements. Our proprietary systems leverage the technological expertise that we have developed through designing these custom systems onto a standardized basic core. This core is easily adapted through a broad array of available options to meet the diverse product and budgetary requirements of the research community. By manufacturing the basic core of these systems in higher volumes, we are able to reduce both the cost and delivery time for our systems. These systems, which we market and sell under the EasyTube® and CVD product lines, are sold to researchers at universities, research laboratories, and startup companies in the United States and throughout the world.

Sales of our proprietary standard, custom systems and process solutions have been driven by our installed customer base, which includes several Fortune 500 companies. The strong performance and success of our products has historically driven repeat orders from existing customers as well as business from new customers. However, with our proprietary solutions and expanded focus on "*accelerating the commercialization of tomorrow's technologies*™" we have been developing a new customer base in addition to growing with our existing customers. We have generally gained new customers through word of mouth, limited print advertising and trade show attendance. We are now also gaining new customers by their awareness of our company in the marketplace with results from our Application Laboratory, relationships with startup companies, increased participation in trade shows and expanded internet advertising.

The core competencies we have developed in equipment and software design, as well as in systems manufacturing and process solutions, are used to engineer our finished products and to accelerate the commercialization path of our customer base. Our proprietary-real-time, software allows for rapid configuration, and provides our customers with powerful tools to understand, optimize and repeatedly control their processes. Our vertically integrated structure allows us to control the manufacturing process, from bringing raw metal and components into our manufacturing facilities to shipping out finished products. These factors significantly reduce cost, improve quality and reduce the time it takes from customer order to shipment of our products. Our Application Laboratory allows selected customers to bring up their process tools in our Application Laboratory and to work together with our scientists and engineers to optimize process performance.

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Business Developments

CVD Materials Segment:

On October 31, 2017, through our newly formed and wholly-owned subsidiary, CVD MesoScribe Technologies Corporation ("CVD MesoScribe Technologies"), we acquired substantially all of the operating assets and business of MesoScribe Technologies, Inc. ("MTI"). Formed in 2002, by a group from Stony Brook University, MTI established itself as a pioneer and leader in the direct deposition of thermal sensors, heaters, and instrumentation for harsh environments.

MTI specialized in materials processing using Direct Write MesoPlasma™ printing technology. This technology is an enabling additive manufacturing process whereby materials are printed onto conformal components in precise patterns. MTI has provided MesoPlasma™ printing services and products to its customers for use in aerospace, power generation, satellite, and defense markets, focusing on developing and manufacturing innovative products for advanced sensing, heating, and communication.

This acquisition provides CVD access to additional materials deposition technology, a presence in new markets, a broader presence in aviation and defense markets and additional end user applications. In addition, the proprietary MesoPlasma™ technology complements our Tantaline® business which we acquired in the fourth quarter of 2016. The two technologies when combined provide a treatment and coating which can provide both corrosion and wear resistance. This is consistent with our strategic plan to leverage our equipment know-how, business infrastructure and proven ability to scale up new technologies, all offering high value-added materials, products, and services and is another step in our combined organic and acquisition growth strategy.

To support the expected growth of CVD Materials and to relocate the California MesoScribe operations as well as Tantaline USA business on November 30, 2017, we purchased the premises located at 555 North Research Place, Central Islip, NY (the "Premises"). The purchase price of the building was $13,850,000, exclusive of closing costs. On November 30, 2017, the Company's newly formed wholly-owned subsidiary, 555 N Research Corporation (the "Assignee") and the Islip IDA, entered into a Fee and Leasehold Mortgage and Security Agreement (the "Loan") with HSBC Bank USA, N.A. (the "Bank") in the amount of $10,387,500, which was used to finance a portion of the purchase price to acquire the Premises. The Loan was evidenced by the certain Note, dated November 30, 2017 (the "Note"), by and between Assignee and the Bank, and secured by a certain Fee and Leasehold Mortgage and Security Agreement, dated November 30, 2017 (the "Mortgage"), as well as a collateral Assignment of Leases and Rents ("Assignment of Leases").

The Loan is payable in sixty consecutive equal monthly installments of $62,481, including interest. The Loan bears interest for each Interest Period (as defined in the Note), at the fixed rate of 3.9148%. The maturity date for the Note is December 1, 2022.

As a condition of the Bank making the Loan, the Company was required to guaranty Assignee's obligations under the Loan pursuant to that certain Unlimited Guaranty, dated November 30, 2017 (the "Guaranty").

With the completed purchase of the additional facility, we now have the manufacturing space to accelerate our capabilities of providing materials, coatings and surface treatments to meet our customers' needs. We have now positioned ourselves for the expansion of our carbon composites and electronic materials, Tantaline® and MesoScribe Technologies product lines. Our expectation is to have operations for Tantaline® and MesoScribe commencing in the second or third quarter of 2019.

It is common and required to have coating services located near or at least in the country or territory of the customers being service. With regard to Tantaline® our Demark facility provides both local and global deposition services. The majority of the business though has been in Europe. The Central Islip, NY facility will primarily support the US customer base as well as serve as our application and technology center. This is an essential element of our growth strategy for Tantaline®. With respect to CVD MesoScribe Technologies group, we are in the process of consolidating the manufacturing and development operations in Central Islip by mid 2019. This will result in a reduction of our operating expenses associated with our leased space in California and will further provide synergy with the Central Islip sales and marketing functions and place the operations near the local Thermal Spray Center of Excellence located at Stony Brook University.

Segments

CVD/First Nano supplies state-of-the-art chemical vapor deposition systems for use in the research, development and manufacturing of aerospace and medical components, semiconductors, LEDs, carbon nanotubes, nanowires, solar cells and a number of other industrial applications. We utilize our expertise in the design and manufacture of chemical vapor deposition systems to work with laboratory scientists to bring state-of-the-art processes from the research laboratory into production, as well as to provide production equipment and process solutions based on our designs. CVD/First Nano also operates our Application Laboratory where our personnel interact effectively with the scientists and engineers of our customer base. CVD/First Nano operates from our main facility in Central Islip, New York.

SDC designs and manufactures ultra-high purity gas and chemical delivery control systems for state-of-the-art semiconductor fabrication processes, solar cells, LEDs, carbon nanotubes, nanowires, and a number of industrial applications. Our SDC products are sold on either a stand-alone basis, or together with our CVD/First Nano systems. SDC operates from a 22,000 square foot facility fitted with Class 10 and Class 100 clean room manufacturing space located in Saugerties, New York.

CVD Materials Has several elements and product groups. These are the Tantaline corrosion resistant surface treatment, the MesoScribe robust material direct write, the Electronic Materials for advance electronics and Carbon Composite products.

Tantaline® treatment is a diffusion bonded protective layer of tantalum formed by chemical vapor deposition on the surface of common materials. Tantalum is the most corrosion resistant metal commercially available. This surface layer provides protection against many of the most aggressive environments, including high temperature concentrated acid. Global sales and technical support is provided by our facility in Central Islip, New York with production provided from our European facility located in Nordborg, Denmark. Future expansion of production capacity in the US has previously been announced and is expected in the second or third quarter of 2019. We continue to develop new Tantalum processes to improve the corrosion resistance of additional base material such as Nickel based alloys. In 2018, we announced that two patents applications were filed.

MesoScribe Technologies provides MesoPlasma™ printing services and products (heaters, antennas, & sensors) to aerospace, satellite, power generation, defense, and other markets requiring high performance. MesoScribe Technologies operated from a 22,000 square foot facility located in Huntington Beach, CA, which is relocating to Central Islip, New York by 2019, with sales and marketing support from our main facility in Central Islip, New York.

Carbon Composites

Our applications for the Carbon composite business come from achievements in our applications laboratory. In the fourth quarter of 2018, we announced the development of a family of advanced Fluid Reactors based on our innovations in nanotechnology and chemical vapor deposition technology. The Fluid Reactor is enabled by a novel reactor core element which allows the efficient transfer of gases into and out of liquids. The market adoption of this technology could supplant existing hollow fiber membrane technology for applications including filtration and liquid gasification or degasification. One such application is blood oxygenation cartridges, known as Extra Corporeal Membrane Oxygenators, which are typically used during cardio pulmonary bypass (CPB) surgery and are essential for life support. CVD has a patent pending embodying this technology. While holding promise the technology is in the evaluation phase and is not expected to generate revenue in near future.

The applications lab along with the sales and marketing team are exploring other possible Carbon based products that can be made from this technology.

Principal Equipment Products

Chemical Vapor Deposition - A process which passes a gaseous compound over a target material surface that is heated to such a degree that the compound decomposes and deposits a desired layer onto substrate material. The process is accomplished by combining appropriate gases in a reaction chamber, of the kind produced by the Company, at elevated temperatures (typically 150-1,600° Celsius). Our chemical vapor deposition systems are complete and include all necessary instrumentation, subsystems and components and include state-of-the-art process control software. We provide both standard and specifically engineered products for particular customer applications. Some of the standard systems we offer are for silicon, silicon-germanium, silicon dioxide, silicon nitride, polysilicon, liquid phase epitaxial, metalorganic chemical vapor deposition, carbon nanotubes, graphene nanowires, solar cell research and solar material quality control.

Chemical Vapor Deposition Systems - Used in a variety of models for laboratory research and production. All models are offered with total system automation, a microprocessor control system by which the user can measure, predict and regulate gas flow, temperature, pressure and chemical reaction rates, thus controlling the process in order to enhance the quality of the materials produced. Our standard microprocessor control system is extremely versatile and capable of supporting the complete product line and most custom system requirements.

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These chemical vapor deposition systems are typically priced between $80,000 and $2,000,000, but can be significantly higher for plant size chemical vapor deposition systems.

Rapid Thermal Processing ("RTP") - Used to heat semiconductor materials to elevated temperatures of up to 1,200° Celsius at rapid rates of up to 200° Celsius per second. Our RTP systems are offered for implant activation, oxidation, silicide formation and many other processes. We offer systems that can operate both at atmospheric or reduced pressures. Our RTP systems are priced up to $600,000.

Annealing, Diffusion and Low Pressure Chemical Vapor Deposition (LPCVD) Furnaces - Used for diffusion, oxidation, implant anneal, solder reflow, solar cell manufacturing and other processes. The systems are normally operated at atmospheric and/or reduced pressure with gaseous atmospheres related to the process. An optional feature of the system allows for the heating element to be moved away from the process chamber allowing the wafers to rapidly cool or be heated in a controlled environment. Our cascade temperature control system enables more precise control of the wafers. The systems are equipped with an automatic process controller, permitting automatic process sequencing and monitoring with safety alarm provisions. Our annealing and diffusion furnace systems are priced up to $900,000.

Ultra-high Purity Gas and Liquid Control Systems - Our standard and custom designed gas and liquid control systems, which encompass gas cylinder storage cabinets, custom gas and chemical delivery systems, gas and liquid valve manifold boxes and gas isolation boxes, provide safe storage and handling of pressurized gases and chemicals. Our system design allows for automatic or manual control from both a local and remote location. A customer order often includes multiple systems and can total up to $1,000,000.

Principal Materials Products

Quartz-ware - We provide standard and custom fabricated quartz-ware used in our equipment and other customer tools. We also provide repair and replacement of existing quartz-ware. The business volume is favorably impacted by introduction of our CVD/First Nano systems and equipment into production applications, as quartz is a consumable item.

MesoPlasma™ Direct Write Printing: A materials deposition process that provides high definition traces, fine feature patterns, and coatings onto conformal components. Powder materials are injected into a thermal plasma where they are rapidly heated and deposited onto the substrate or component. A 6-axis robotic system ensures pattern placement accuracy and manufacturing consistency. The versatility of the process enables a wide range of materials to be deposited including ceramic dielectrics, nickel-based sensor alloys, metallic conductors, precious metals, and protective coatings. Products include temperature sensors, heaters, antennas and patterns per customer specifications.

Tantaline® Corrosion Resistant Coating: Tantaline® treatment is provided as part of either a finished product or as a service applied to customer sourced components. These include valves, fittings, fasteners, vessels, bellows, and a wide range of custom designed items. The Tantaline® treatment drastically improves the corrosion resistance of these base stainless steel parts extending the service life and increasing value in a wide range of applications.

Markets and Marketing

We serve multiple global markets including aerospace, defense, biomedical implants, microelectronic and micromechanical devices, semiconductor, universities and research centers. Due to the highly technical nature of our products, we believe it is essential to contact customers directly through our sales personnel and through a network of domestic and international independent sales representatives and distributors specializing in the type of equipment, products and services that we sell. In addition to our traditional customer base, we are now accessing new markets and new customers through Tantaline,® MesoScribe,® and other components of our expanding materials business. Our primary marketing activities include direct sales contacts, participation in trade shows and our internet websites www.cvdequipment.com, cvdmaterialscorporation.com, www.stainlessdesign.com, www.firstnano.com, tantaline.com and www.mesoscribe.com. We are also focusing our efforts on being in the top listings on many search engines in order to increase the number of “hits” to our websites.

Customers

We continue to work on expanding our product and service offerings. Our systems and products are used in research and in production applications. We market and sell primarily to electronic component manufacturers, institutions involved in electronic component research (such as universities, government and industrial laboratories) and to industries such as aerospace and medical that require specialized coatings. We have both a domestic and international customer base with hundreds of installed systems.

Given the complexity of some of the systems we sell, revenue from a single customer in any one year can exceed 10.0% of our total sales. In fiscal years 2018 and 2017 one customer represented 38.2% and 66.1% of our annual revenues respectively. The loss of such a key customer, if not replaced by others with a similar amount of revenue, may have a material adverse effect on our business and financial condition.

For the twelve months ended December 31, 2018, approximately $2.4 million or 9.9% of our revenues were generated by sales to customers outside the U.S., compared to approximately $3.9 million or 9.6% for the twelve months ended December 31, 2017.

Warranties

Warranties on our equipment are typically for twelve months but can range up to twenty-four months from shipment with extended contracts. We furnish any warranties from original manufacturers of components used in our products.

We provide service and support for our installed base of equipment with in-house field service personnel. Warranty costs, including those incurred in fiscal years 2018 and 2017, have been historically insignificant and expensed as incurred.

Competition

We can experience intense direct competition from both domestic and international competitors in all of our equipment segments. Our MesoScribe operations, which is in the adoption phase, faces barriers from established indirect competitors of existing solution providers. We are aware of other competitors that offer a substantial number of products and services comparable to ours. Many of our competitors (including customers who may elect to manufacture systems for internal use) have financial, marketing and other resources greater than ours. To date, we believe that each of our product and service segments has been able to compete favorably in markets that include these competitors, primarily on the basis of know-how, technical performance, quality, delivery, price and aftermarket support.

CVD/First Nano competes with companies located in Asia, Europe and the US in the research market. These companies have limited support and safety and system design capabilities. For the academia market, we also compete with laboratory built systems. Our equipment for production applications competes with in-house design and engineering capability and the capacity to build their own equipment internally. Additionally, there are large, established companies who compete with us and pose a competitive risk in the market. Due to budgetary and funding constraints, many customers are price sensitive. We believe that our systems are among the most advanced available for the targeted market. and coupled with our vertical integration in engineering and manufacturing, we can be very competitive.

SDC's gas management and chemical delivery control systems are among the most advanced available. We further believe that SDC is differentiated from our competitors through our intimate understanding of how the systems in which our products are incorporated are actually used in field applications. We have gained this understanding as a result of having designed and built complex process gas systems for CVD/First Nano as well as for a number of the world's leading semiconductor, aerospace, medical, solar manufacturers, research laboratories and universities.

Sources of Supply

Many of the components used in producing our products are purchased from unrelated suppliers. We have OEM status with our suppliers but we are not obligated to purchase a pre-determined quantity. We are not dependent on a principal or major supplier and alternate suppliers are available. Subject to lead times, the components and raw materials we use in manufacturing our products are readily obtainable.

We maintain a fully-equipped machine shop that we use to fabricate a significant portion of our metal components in-house, including the most complex designed parts of our equipment. The investment in our machine shop has significantly helped in increasing our efficiencies while significantly reducing labor costs and time in production.

Similarly, our quartz fabrication capability is sufficient to meet our quartz-ware needs.

Materials procured from the outside and/or manufactured internally undergo a rigorous quality control process to ensure that the parts meet or exceed our requirements and those of our customers. Upon final assembly, all equipment undergoes a final series of complete testing to ensure maximum product performance.

Backlog

As of December 31, 2018, our order backlog was approximately $3 million and, since that time, we have received additional orders in excess of $6 million. Although our overall backlog is lower than our historical high, we continue to work at diversifying our customer base away from any one customer as we focus on new opportunities with new and existing customers within our existing marketplaces and in new applications, including the start-up of the CVD Materials operations expected in the second or third quarter of 2019. The timing for completion of backlog varies depending on the product mix and can be as long as two years. Order backlog is usually a reasonable management tool to indicate expected revenues, however, it does not provide an assurance of future achievement or profits as order cancellations or delays are possible.

Intellectual Property

Our success is dependent, in part upon our proprietary technology and other proprietary rights. We have historically protected our proprietary information and intellectual property such as design specifications, blueprints, technical processes and employee know-how through the use of non-disclosure agreements. In addition, where we deem appropriate, we have, and will continue to file for patent protection of our proprietary technology that we believe has the potential to be incorporated into our products and sold to multiple customers. We also maintain and/or assert rights in certain trademarks relating to certain of our products and product lines, and claim copyright protection for certain proprietary software and documentation.

In the fourth quarter of 2018, we announced the development of a family of advanced Fluid Reactors based on our innovations in nanotechnology and chemical vapor deposition technology. The Fluid Reactor is enabled by a novel reactor core element which allows the efficient transfer of gases into and out of liquids. The market adoption of this technology could supplant existing hollow fiber membrane technology for applications including filtration and liquid gasification or degasification. One such application is blood oxygenation cartridges, known as Extra Corporeal Membrane Oxygenators, which are typically used during cardio pulmonary bypass (CPB) surgery and are essential for life support. CVD has a patent pending embodying this technology.

In addition to the above, we continue to develop new Tantalum processes under our Tantaline line to improve the corrosion resistance of additional base material such as Nickel-based alloys. In 2018, we announced that two patents applications were filed.

While patent, copyright and trademark protections for our intellectual property are important to different degrees for our various products and solutions, we believe our future success in highly dynamic markets is most dependent upon the technical competence and creative skills of our personnel and our ability to accelerate the commercialization of

next generation intellectual properties. We attempt to protect our trade secrets and other proprietary information through non-disclosure agreements with our customers, suppliers, employees and consultants and other security measures.

Research and Development

The university research community is at the forefront of nanotechnology research, and we are focused on providing state-of-the-art systems to this market that will help bridge the gap between pioneering research and marketable products. Our Application Laboratory, together with a number of leading universities and startup companies with whom we partner from time to time, conducts cutting-edge research on the growth and infiltration of carbon nanotubes, graphene and nanowires as well as on selected aerospace manufacturing processes. The results of this research could have far reaching implications concerning the use and manufacture of carbon nanotubes, graphene, nanowires and aerospace coatings for many markets. Our intention is that together with leading edge universities and start-up companies and major aerospace/defense companies, we will leverage our collective expertise in this field, which will allow us to capitalize on commercial opportunities in the future.

In 2018, we incurred approximately $607,000 in research and development expenses as compared to $437,000 in 2017.

Government Regulation

We are subject to a variety of federal, state and local government regulations, such as environmental, labor and export control. We believe that we have obtained all necessary permits to operate our business and that we are in material compliance with all laws and regulations applicable to us.

Insurance

Our products are used in our customers' manufacturing processes which in some cases contain explosive, flammable, corrosive and toxic gases. There are potential exposures to personal injury as well as property damage, particularly if operated without regard to the design limits of the systems and components. Additionally, the end products of some of our customers are used in areas such as aerospace and high-tech devices where safety is of great concern. Management reviews its insurance coverage on an annual basis or more frequently if appropriate and we believe we have the types and amounts of insurance coverage that are sufficient for our business.

Employees

At December 31, 2018, we had 197 employees. We had 96 employees in manufacturing, 44 in engineering (including research and development and efforts related to product improvement) 9 in field service, 16 in sales and marketing and 32 in general management, maintenance and administration, compared to 231 employees as of December 31, 2017.

Item 1A. Risk Factors

In addition to the other information set forth in this Annual Report on Form 10-K, our shareholders should carefully consider the risk factors described below. The risks set forth below may not be the only risk factors relating to the Company. Any of these factors, many of which are beyond our control, could materially adversely affect our business, financial condition, operating results, cash flow and stock price.

We have significant investments in our CVD Materials segment, which could be met with further delays and ongoing losses that could materially and adversely impact our financial results and cash flow.

To support the expected growth of our CVD Materials segment and to house the US based business, on November 30, 2017, we purchased the premises located at 555 North Research Place, Central Islip, NY (the "Premises"). The purchase price of the building was $13,850,000, exclusive of closing costs. We have monthly principle and interest payments of $62,481 and we have invested $2.5 million during 2018, principally for capital improvements and equipment for this business. We anticipate investing approximately $1.5 to $2 million for additional building improvements and machinery.

Expenses for this building totaled $750,000 in 2018 related to interest expense of $405,000 and real estate taxes and other operating costs $345,000. If we are unable to reach profitable operations and not recover our investment, it could have a material adverse effect on our financial condition.

We have a highly concentrated customer base so that changes in ordering patterns, delays or order cancellations could have a material adverse effect on our business and results of operations.

In fiscal 2018 and 2017, approximately 38.2% and 66.1% of our net sales, respectively, was accounted for by one customer. We expect that contracts or orders from a relatively limited number of customers will continue to account for a substantial portion of our business. The mix and type of customers, and sales to any single customer, may vary significantly from quarter to quarter and from year to year. If any of our significant customers do not place orders, or they substantially reduce, delay or cancel orders, we may not be able to replace the business in a timely manner or at all, which can and has had a material adverse effect on our results of operations and financial condition. Major customers may also seek, and on occasion receive, pricing, payment, intellectual property-related, or other commercial terms that are less favorable to us and can hurt our competitive position.

Our lengthy and variable sales cycle makes it difficult to predict our financial results.

The marketing, sale and manufacture of our products, often requires a lengthy sales cycle ranging from several months to over one year before we can complete production and delivery. The lengthy sales cycle makes forecasting the volume and timing of sales difficult, and raises additional risks that customers may cancel or decide not to enter into contracts. The length of the sales cycle depends on the size and complexity of the project, the customer's in-depth evaluation of our products, and, in some cases, the protracted nature of a bidding process.

Because a significant portion of our operating expenses are fixed, we may incur substantial expense before we earn associated revenue. If customer cancellations occur, they could result in the loss of anticipated sales without allowing us sufficient time to reduce our operating expenses.

Our success is highly dependent on the technical, sales, marketing and managerial contributions of key individuals, including Leonard A. Rosenbaum, Chairman of the Board of Directors, Chief Executive Officer and President, and we may be unable to retain these individuals or recruit others.

We depend on our senior executives, including Leonard A. Rosenbaum, our Chairman of the Board of Directors, Chief Executive Officer and President, and certain key managers as well as, engineering, research and development, sales, marketing and manufacturing personnel, who are critical to our business. We do not have long-term employment agreements with our key employees. We presently have a key person life insurance policy on the life of Leonard A. Rosenbaum, for a total insured amount of $5 million, which may not be sufficient to cover our loss of Mr. Rosenbaum's services. Furthermore, larger competitors may be able to offer more generous compensation packages to our executives and key employees, and therefore we risk losing key personnel to those competitors. If we were to lose the services of any of our key personnel, our engineering, product development, manufacturing and sales efforts could be slowed. We may also incur increased operating expenses, and be required to divert the attention of our senior executives to search for their replacements. The integration of any new personnel could disrupt our ongoing operations.

Acquisitions can result in an increase in our operating costs, divert management's attention away from other operational matters and expose us to other associated risks.

We continually evaluate potential acquisitions of businesses and technologies, and we consider targeted acquisitions that expand our core competencies to be an important part of our future growth strategy. In the past, we have made acquisitions of other businesses with synergistic products, services and technologies, and plan to continue to do so in the future.

Acquisitions involve numerous risks, which include but are not limited to:

- difficulties and increased costs in connection with the integration of the personnel, operations, technologies, services and products of the acquired companies into our existing facilities and operations;
- diversion of management's attention from other operational matters;
- failure to commercialize the acquired technology;
- the potential loss of key employees of the acquired companies;
- lack of synergy, or inability to realize expected synergies, resulting from the acquisitions;

the risk that the issuance of our common stock, if any, in an acquisition or merger could be dilutive to our shareholders;
the inability to obtain and protect intellectual property rights in key technologies and
the acquired assets becoming impaired as a result of technological advancements or worse-than-expected performance of the acquired assets.

If demand declines for chemical vapor deposition, gas control and related equipment, or for carbon nanotube and nanowire deposition systems, our financial position and results of operations could be materially adversely affected.

Our products are utilized to develop and manufacture materials and coatings for industrial and research applications that are used in numerous markets including but not limited to aerospace, medical, solar, nano and advanced electronic components. A significant part of our growth strategy involves continued expansion of the sales of our products for industrial as well as research and development purposes by companies, universities and government-funded research laboratories. The availability of funds for these purposes may be subject to budgetary and political restrictions, as well as cost-cutting measures by manufacturers in the markets in which we operate.

If the availability of funds or the demand for capital equipment in the markets in which we operate declines, the demand for our products would also decline and our financial position and results of operations could be harmed.

The conditions of the markets in which we operate are volatile. The demand for our products and the profitability of our products can change significantly from period to period as a result of numerous factors.

The industries in which we operate are characterized by ongoing changes, including:

- the availability of funds for research and development;
- global and regional economic conditions;
- governmental budgetary and political constraints;
- changes in the capacity utilization and production volume for research and industrial applications in the markets in which we operate;
- the profitability and capital resources of manufacturers in the markets in which we operate; and
- changes in technology.

For these and other reasons, our results of operations for past periods may not necessarily be indicative of future operating results.

Volatile and cyclical demand for our products may make it difficult for us to accurately budget our expense levels, which are based in part on our projections of future revenues.

Demand for our equipment and related consumable products may be volatile as a result of sudden changes in supply and demand, and other factors in the manufacturing process. Our orders tend to be more volatile than our revenue, as any change in demand is reflected immediately in orders booked, which are net of cancellations, while revenue, tends to be recognized over multiple quarters as a result of procurement and production lead times, and the deferral of certain revenue under our revenue recognition policies. The fiscal period in which we are able to recognize revenue is also at times subject to the length of time that our customers require to evaluate the performance of our equipment. This could cause our quarterly operating results to fluctuate.

When cyclical fluctuations result in lower than expected revenue levels, operating results may be materially adversely affected and cost reduction measures may be necessary for us to remain competitive and financially sound. During a down cycle, we must be able to make timely adjustments to our cost and expense structure to correspond to the prevailing market conditions. In addition, during periods of rapid growth, we must be able to increase manufacturing capacity and the number of our personnel to meet customer demand, which may require additional liquidity. We can provide no assurance, that these objectives can be met in a timely manner in response to changes within the industry cycles in which we operate. If we fail to respond to these cyclical changes, our business could be seriously harmed.

We do not have long-term volume production contracts with our customers, and we do not control the timing or volume of orders placed by our customers. Whether and to what extent our customers place orders for any specific products, and the mix and quantities of products included in those orders are factors beyond our control. Insufficient orders would result in under-utilization of our manufacturing facilities and infrastructure, and will negatively affect our financial position and results of operations.

We face significant competition and we are relatively small in size and have fewer resources in comparison with many of our competitors.

We face significant competition throughout the world, which may increase as certain markets in which we operate continue to evolve. Our future performance depends, in part, upon our ability to continue to compete successfully worldwide. Some of our competitors are diversified companies that have substantially greater financial resources and more extensive research, engineering, manufacturing, marketing and customer service and support capabilities than we can provide. We face competition from companies whose strategy is to provide a broad array of products, some of which compete with the products and services that we offer, as well as companies, universities and research laboratories that have the capacity to design and build their own equipment internally. These competitors may bundle their products and services in a manner that may discourage customers from purchasing our products. In addition, we face competition from smaller emerging processing equipment companies, whose strategy is to provide a portion of the products and services that we offer at often lower prices than ours, using innovative technology to sell products into specialized markets. Loss of competitive position could impair our prices, customer orders, revenue, gross margin and market share, any of which would negatively affect our financial position and results of operations. Our failure to compete successfully with these other companies would seriously harm our business. There is a risk that larger, better financed competitors will develop and market more advanced products than those we currently offer, or that competitors with greater financial resources may decrease prices, thereby putting us under financial pressure.

The health and environmental effects of nanotechnology are unknown, and this uncertainty could adversely affect the expansion of our business.

The health and environmental effects of nanotechnology are unknown. There is no scientific agreement on the health effects of nanomaterials in general and carbon nanotubes, in particular, but some scientists believe that in some cases,

nanomaterials may be hazardous to an individual’s health or to the environment.

The science of nanotechnology is based on arranging atoms in such a way as to modify or build materials not made in nature; therefore, the effects are unknown. Future research into the effects of nanomaterials in general, and carbon nanotubes in particular, on health and environmental issues, may have an adverse effect on products incorporating nanotechnology. Since part of our growth strategy is based on sales of research equipment for the production of carbon nanotubes and the sale of such materials, the determination that these materials are harmful could adversely affect the expansion of our business.

We may experience increasing price pressure.

Our historical business strategy for many of our products has focused on product performance and customer service rather than on price. As a result of budgetary constraints, many of our customers are extremely price sensitive when purchasing of capital equipment. If we are unable to obtain prices that allow us to continue to compete on the basis of product performance and customer service, our profit margins will be reduced.

We may not be able to keep pace with the rapid change in the technology we use in our products.

We believe that our continued success in the markets in which we operate depends, in part, on our ability to continually improve existing technologies and to develop and manufacture new products and product enhancements on a timely and cost-effective basis. We must be able to introduce these products and product enhancements into the market in a timely manner, in response to customer's demands for higher-performance research and assembly equipment, customized to address rapid technological advances in capital equipment designs.

Technological innovations are inherently complex, and require long development cycles and appropriate professional staffing. Our future business success depends on our ability to develop and introduce new products, or new uses for existing products, that successfully address changing customer needs. Our success also depends on our ability to achieve market acceptance of our new products. In order to maintain our success in the marketplace, we may have to substantially increase our expenditures on research and development. If we do not develop and introduce new products, technologies or uses for existing products in a timely manner and continually find ways to reduce the cost of developing and producing them in response to changing market conditions or customer requirements, our business could be seriously harmed.

Manufacturing interruptions or delays could affect our ability to meet customer demand and lead to higher costs, while the failure to estimate customer demand accurately could result in excess or obsolete inventory.

Our business depends on timely supply of equipment, services and related products that meet the rapidly changing technical and volume requirements of our customers. Some key parts to our products are subject to long lead-times and/or obtainable only from a single supplier or limited group of suppliers. Cyclical industry conditions and the volatility of demand for manufacturing equipment increase capital, technical, operational and other risks for us and for companies throughout our supply chain. Further, these conditions may cause some suppliers to scale back operations, exit businesses, merge with other companies, or file for bankruptcy protection and possibly cease operations.

We may also experience significant interruptions of our manufacturing operations, delays in our ability to deliver products or services, increased costs or customer order cancellations as a result of:

- The failure or inability of suppliers to timely deliver sufficient quantities of quality parts on a cost-effective basis;
- Volatility in the availability and cost of materials, including rare earth elements;
- Difficulties or delays in obtaining required import or export approvals;
- Information technology or infrastructure failures; and
- Natural disasters or other events beyond our control (such as earthquakes, floods or storms, regional economic downturns, pandemics, social unrest, political instability, terrorism, or acts of war).

If a supplier fails to meet our requirements concerning quality, cost, socially-responsible business practices, or other performance factors, we may transfer our business to alternative sources, which could entail manufacturing delays, additional costs, or other difficulties. In addition, if we need to rapidly increase our business and manufacturing capacity to meet increases in demand or expedited shipment schedules, this may exacerbate any interruptions in our manufacturing operations and supply chain and the associated effect on our working capital.

If any of our customers cancel or fail to accept a large system order, our financial position and results of operations could be materially and adversely affected.

Our backlog, largely consists of orders for customized systems including our chemical vapor deposition equipment and annealing and diffusion furnaces which are built to client specifications. We also have a significant concentration of revenue in a single customer. In 2018, our largest customer accounted for 38.2% of our revenue as compared to 66.1% in 2017. These customized systems can have prices that range from $100,000 to several million dollars, depending on the configuration, specific options included and any special requirements of the customer. Because our orders are subject to cancellation or delay by the customer, our backlog at any particular point in time is not necessarily representative of actual sales for succeeding periods, nor does our backlog provide any assurance of achievement of revenues or that we will realize a profit from completing these orders. Our financial position and results of operations could be materially and adversely affected should any large system order be cancelled prior to shipment, or not be accepted by the customer due to alleged non-conformity with product specifications or otherwise. Likewise, a significant change in the liquidity or financial position of any of our customers that purchase large systems, could have a material impact on the collectability of our accounts receivable and our future operating results. Our backlog does not provide any assurance that we will realize a profit from those orders, or indicate in which period revenue will be recognized.

We may not be able to hire or retain the number of qualified personnel, particularly engineering personnel, required for our business, which would harm the development and sales of our products and limit our ability to grow.

Competition in our industry for senior management, technical, sales, marketing and other key personnel is intense. If we are unable to retain our existing personnel, or attract and train additional qualified personnel, our growth may be limited due to a lack of capacity to develop and market our products.

In particular, we have, from time to time, experienced difficulty in hiring and retaining skilled engineers with appropriate qualifications to support our growth strategy. Our success depends on our ability to identify, hire, train and retain qualified engineering personnel with experience in equipment design. Specifically, we need to continue to attract and retain mechanical, electrical, software and field service engineers to work with our direct sales force to technically qualify and perform on new sales opportunities and orders, and to demonstrate our products.

Our financial position and results of operations may be materially harmed if we are unable to recoup our investment in research and development.

The rapid change in technology in our industry requires that we continue to make substantial investments in research and development and selective acquisitions of technologies and products, in order to enhance the performance and functionality of our product line, to keep pace with competitive products and to satisfy customer demands for improved performance, features and functionality. These efforts include those related to the development of technology for the commercialization of carbon nanotubes. There can be no assurance that revenue from future products or enhancements will be sufficient to recover the development costs associated with such products, enhancements or acquisitions, or that we will be able to secure the financial resources necessary to fund future research and development or acquisitions. Research and development costs are typically incurred before we confirm the technical feasibility and commercial viability of a product, and not all development activities result in commercially viable products. In addition, we cannot ensure that products or enhancements will receive market acceptance, or that we will be able to sell these products at prices that are favorable to us. Our business could be seriously harmed if we are unable to sell our products at favorable prices, or if our products are not accepted by the markets in which we operate.

We have made investments in our proprietary technologies. If third parties violate our proprietary rights, or accuse us of infringing upon their proprietary rights, such events could result in a loss of value of some of our intellectual property or costly litigation.

Our success is dependent in part on our technologies and our other proprietary rights. We believe that while patents can be useful and may be utilized by us in the future, they are not always necessary or feasible to protect our intellectual property. The process of seeking patent protection is lengthy and expensive, and we cannot be certain that applications will actually result in issued patents or that issued patents will be of sufficient scope or strength to provide meaningful protection or commercial advantage to us. In addition to patent protection, we have also historically protected our proprietary information and intellectual property such as design specifications, blueprints, technical processes and employee know-how, by limiting access to this confidential information and trade secrets and through the use of non-disclosure agreements. Other companies and individuals, including our larger competitors, may develop technologies that are similar or superior to our technology, or design around the intellectual property that we own or license. Our failure to adequately protect our intellectual property, could result in the reduction or extinguishment of our rights to such intellectual property. We also assert rights to certain trademarks relating to certain of our products and product lines. We have not filed trademark applications to protect such marks with any governmental agency, including, but not limited to the U.S. Patent and Trademark Office. We claim copyright protection for certain proprietary software and documentation, but we have not filed any copyright applications with the U.S. Copyright Office in connection with those works. As a result, we can give no assurance that our trademarks and copyrights will be upheld or successfully deter infringement by third parties.

While patent, copyright and trademark protection for our intellectual property may be important, we believe our future success in highly dynamic markets is most dependent upon the technical competence and creative skills of our personnel. We attempt to protect our trade secrets and other proprietary information through confidentiality agreements with our customers, suppliers, employees and consultants, and through other internal security measures. However, these employees, consultants and third parties may breach these agreements, and we may not have adequate remedies for wrongdoing. In addition, the laws of certain territories in which we sell our products may not protect our intellectual property rights to the same extent as do the laws of the United States.

Occasionally, we may receive communications from other parties asserting the existence of patent rights or other intellectual property rights that they believe cover certain of our products, processes, technologies or information. If such cases arise, we will evaluate our position and consider the available alternatives, which may include seeking licenses to use the technology in question on commercially reasonable terms, or defending our position. Nevertheless, we cannot ensure that we will be able to obtain licenses, or, if we are able to obtain licenses, that related terms will be acceptable, or that litigation or other administrative proceedings will not occur. Defending our intellectual property rights through litigation could be very costly. If we are not able to negotiate the necessary licenses on commercially reasonable terms or successfully defend our position, our financial position and results of operations could be materially and adversely affected.

Our reputation and operating performance may be negatively affected if our products are not

timely delivered.

We provide complex products that often require substantial lead-time for design, ordering parts and materials, and for assembly and installation. The time required to design, order parts and materials and to manufacture, assemble and install our products, may in turn lead to delays or shortages in the availability of some products. If a product is delayed or is the subject of shortage because of problems with our ability to design, manufacture or assemble the product on a timely basis, or if a product or software otherwise fails to meet performance criteria, we may lose revenue opportunities entirely, or experience delays in revenue recognition associated with a product or service. In addition, we may incur higher operating expenses during the period required to correct the problem.

We need to manage our growth effectively or we may experience difficulty in filling customer orders, declining product quality, increased costs or other operating challenges.

We anticipate that continued growth of our operations will be required to satisfy our projected increase in demand for our products and to avail ourselves of new market opportunities. The expanding scope of our business and the growth in the number of our employees, customers and products have placed and will continue to place a significant strain on our management, information technology systems, manufacturing facilities and other resources. To properly manage our growth, we may need to hire additional employees, upgrade our existing financial and reporting systems and improve our business processes and controls. We may also be required to expand our manufacturing facilities or add new manufacturing facilities. Failure to effectively manage our growth could make it difficult to manufacture our products and fill orders, as well as lead to declines in product quality or increased costs; any of these would adversely impact our business and results of operations.

Historically, we have only manufactured in unit or small batch quantities. If we receive orders for a large number of our systems, we may not have the internal manufacturing capacity to fill these orders on a timely basis, if at all, and may be forced to subcontract or outsource some of the fabrication of these systems to third parties. We cannot assure you that we will be able to successfully subcontract or outsource the fabrication of our systems at a reasonable cost to us, or that such third parties will adhere to our quality control standards.

Our business might be adversely affected by our dependence on foreign business.

During the year ended December 31, 2018, approximately $2.4 million or 9.9% of our revenues were generated by sales to customers outside the U.S. compared to approximately $3.9 million or 9.6% for the year ended December 31, 2017.

Because a portion of our revenues are derived from international customers, our operating results could be negatively affected by a decline in the economies of any of the countries or regions in which we do business. Each region can exhibit unique characteristics, which can cause capital equipment investment patterns to vary significantly from period to period. Periodic local or international economic downturns, trade balance issues and political instability, as well as fluctuations in interest and currency exchange rates, could negatively affect our business and results of operations.

All of our sales to date have been primarily priced in U.S. dollars. While our business has not been materially affected in the past by currency fluctuations, there is a risk that it may be materially adversely affected in the future. Such risks include possible losses due to both currency exchange rate fluctuations and from possible social and political instability.

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If our critical suppliers fail to deliver sufficient quantities of quality materials and components in a timely and cost-effective manner, it could negatively affect our business.

We do not manufacture many components used in the production of our products, and consequently, we use numerous unrelated suppliers of materials and components. We generally do not have guaranteed supply arrangements with our suppliers. Because of the variability and uniqueness of our customer's orders, we try to avoid maintaining an extensive inventory of materials and components for manufacturing. While we are not dependent on any principal or major supplier for most of our material and component needs, switching over to an alternative supplier may take significant amounts of time and added expense, which could result in a disruption of our operations and adversely affect our business.

It is not always practical or even possible to ensure that component parts are available from multiple suppliers; accordingly, we procure some key parts from a single supplier or a limited group of suppliers. At certain times, increases in demand for capital equipment can result in longer lead-times for many important system components, which may cause delays in meeting shipments to our customers. The delay in the shipment of even a few systems could cause significant variations in our quarterly revenue, operating results and the market value of our common stock.

We cannot assure you that our financial position and results of operations will not be materially and adversely affected if, in the future, we do not receive in a timely and cost-effective manner a sufficient quantity of quality component parts and materials to meet our production requirements.

We might require additional financing to expand our operations.

Although we recently purchased an additional facility, we could require additional financing to support our investment in our CVD Materials segment and to further implement our overall growth plans. If any additional financing is not available if and when required on commercially reasonable terms, if at all, or, even if available and we issue additional common stock, it may materially dilute the ownership interests of the then existing shareholders.

We may be required to take additional impairment charges on assets.

We are required to assess goodwill and indefinite-lived intangible assets annually for impairment, or on an interim basis, whenever certain events occur or circumstances change, such as an adverse change in business climate or a decline in the overall industry, that would more likely than not reduce the fair value below its carrying amount. We

are also required to test our long-lived assets, including acquired intangible assets and property, plant and equipment, for recoverability and impairment whenever there are indicators or impairment, such as an adverse change in business climate.

As part of our long-term strategy, we have pursued acquisitions of other companies or assets, such as our recent acquisitions of assets owned by Tantaline ApS and MesoScribe Technologies, Inc. and may pursue future acquisitions of other companies or assets which could potentially increase our assets. Adverse changes in business conditions could materially impact our estimates of future operations and result in impairment charges to these assets. If our assets were impaired, our financial condition and results of operations could be materially and adversely affected.

The price of our common shares is volatile and could decline significantly.

The stock market in general and the market for technology stocks in particular has experienced volatility. If those industry-based market fluctuations continue, the trading price of our common shares could decline significantly independent of the overall market, and shareholders could lose all or a substantial part of their investment. The market price of our common shares could fluctuate significantly in response to several factors, including, among others:

- difficult macroeconomic conditions, unfavorable geopolitical events, and general stock market uncertainties, such as those occasioned by a global liquidity crisis and a failure of large financial institutions;
- receipt of large orders or cancellations of orders for our products;
- issues associated with the performance and reliability of our products;
- actual or anticipated variations in our results of operations;
- announcements of financial developments or technological innovations;
- changes in recommendations and/or financial estimates by investment research analysis;
- strategic transactions, such as acquisitions, divestitures, or spin-offs; and
- the occurrence of major catastrophic events
- trading volume is low

Significant price and value fluctuations have occurred with respect to our publicly traded securities and technology companies generally. The price of our common shares is likely to be volatile in the future. In the past, securities class action litigation often has been brought against a company following periods of volatility in the market price of its securities. If similar litigation were pursued against us, it could result in substantial costs and a diversion of management's attention and resources, which could materially and adversely affect our financial condition, results of operations, and liquidity.

We face the risk of product liability claims.

The manufacture and sale of our products, which in operation sometimes involve the use of toxic materials and extreme temperatures, and could result in product liability claims. For example, our rapid thermal processing systems used to heat semiconductor materials to temperatures in excess of 1000º Celsius have certain inherent risks. A failure of our product(s) at a customer site could also result in losses due to interruption of the business operations of our customer. While we regularly evaluate the nature and limits of our insurance coverages, there can be no assurance that our existing policies of insurance will be adequate to protect us from all liabilities that we might incur in connection with the manufacture and sale of our products in the event of a successful product liability claim or series of successful claims against us.

We are subject to environmental regulations, and our inability or failure to comply with these regulations could adversely affect our business.

We are subject to environmental regulations in connection with our business operations, including regulations related to the development and manufacture of our products and our customers' use of our products. Our failure or inability to comply with existing or future environmental regulations could result in significant remediation liabilities, the imposition of fines or the suspension or termination of development, manufacturing or use of certain of our products, or affect the operation of our facilities, use or value of our real property, each of which could damage our financial position and results of operations.

If we are subject to cyber-attacks we could incur substantial costs and, if such attacks are successful, we could incur significant liabilities, reputational harm, and disruption to our operations.

We manage, store and transmit proprietary information and sensitive data relating to our operations. We may be subject to breaches of the information technology systems we use for these purposes. Experienced computer programmers and hackers may be able to penetrate our network security and misappropriate and/or compromise our confidential information (and or third-party confidential information), create system disruptions, or cause shutdowns. Computer programmers and hackers also may be able to develop and deploy viruses, worms, and other malicious software programs that attack our systems or our products, or that otherwise exploit any security vulnerabilities.

The costs to address the foregoing security problems and security vulnerabilities before or after a cyber-incident could be significant. Our remediation efforts may not be successful and could result in interruptions, delays, or cessation of service, and loss of existing or potential customers, impeding our sales, manufacturing, distribution, or other critical functions. In addition, breaches of our security measures and the unapproved dissemination of proprietary information or sensitive data about us, our customer, or other third parties, could expose us, our customers, or other third parties to a risk of loss or misuse of this information, result in litigation and potential liability for us, damage our reputation, or otherwise harm our business.

Regulations related to conflict minerals will force us to incur additional expenses, may make our supply chains more complex, and may result in damage to our relationships with customers.

Under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, the SEC adopted requirements for companies that manufacture products that contain certain minerals and metals known as "conflict minerals". These rules require public companies to perform diligence and to report annually to the SEC whether such minerals originate from the Democratic Republic of Congo and adjoining countries. The implementation of these requirements could adversely affect the sourcing, availability, and pricing of minerals we use in the

manufacture of our products. In addition, we have incurred and will continue to incur additional costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals used in our products. Given the complexity of our supply chain, we may not be able to ascertain the origins of these minerals used in our products through the due diligence procedures that we implement, which may harm our reputation. We may also face difficulties in satisfying customers who may require that our products be certified as conflict mineral free, which could harm our relationships with these customers and lead to a loss of revenue. These requirements could limit the pool of suppliers that can provide conflict-free minerals, and we may be unable to obtain conflict-free minerals at competitive prices, which could increase our costs and adversely affect our manufacturing operations and our profitability.

Failure to comply with the United States Foreign Corrupt Practices Act could subject us to penalties and other adverse consequences.

We are subject to the United States Foreign Corrupt Practices Act, which generally prohibits United States companies from engaging in bribery or other prohibited payments to foreign officials for the purpose of obtaining or retaining business. We have agreements with third parties and make sales in countries known to experience corruption, extortion, bribery, pay-offs, theft and other fraudulent practices. We can make no assurance, however, that our employees or other agents will not engage in such conduct for which we might be held responsible. If our employees or other agents are found to have engaged in such practices, we could suffer severe penalties and other consequences that may have a material adverse effect on our business, financial condition and results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Description of Property.

Owned Locations	**Size (sf)**	**Segment**	**Mortgage/Loan**	**Principal use**
Central Islip, NY	130,000	CVD Equipment	Yes	Corporate: R&D; Manufacturing
Central Islip, NY	179,000	CVD Materials	Yes	Manufacturing and R&D
Saugerties, NY	22,000	SDC	No	Admin; Manufacturing
Leased Locations	**Size (sf)**	**Segment**	**Lease term**	**Principal use**
Nordborgvej, Denmark	7,793	CVD Materials	2 years	Process coatings, Admin
Huntington Beach Ca.	22,142	CVD Materials	5 months	Manufacturing

Item 3. Legal Proceedings.

None

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Our common stock is listed on the NASDAQ Capital Market under the symbol "CVV." The following table sets forth, for the periods indicated, the high and low prices of our common stock on the NASDAQ Capital Market.

	High	Low
Year Ended December 31, 2018:		
1st Quarter	$11.97	$8.75
2nd Quarter	9.95	6.39
3rd Quarter	7.78	5.25
4th Quarter	6.33	3.35

	High	Low
Year Ended December 31, 2017:		
1st Quarter	$10.94	$8.27
2nd Quarter	12.68	9.88
3rd Quarter	11.90	9.80
4th Quarter	13.50	10.16

As of March 22, 2019, there were approximately 93 holders of record and approximately 1,200 beneficial owners of our common stock, and the closing sales price of our common stock as reported on the NASDAQ Capital Market was $4.03.

Dividend Policy

We have never paid dividends on our common stock and we do not anticipate paying dividends on common stock at the present time. We currently intend to retain earnings, if any, for use in our business. There can be no assurance that we will ever pay dividends on our common stock. Our dividend policy with respect to our common stock is within the discretion of the Board of Directors and its policy with respect to dividends in the future will depend on numerous factors, including earnings, financial requirements and general business conditions.

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Equity Compensation Plan Information Table

The following table provides information about shares of our common stock that may be issued upon the exercise of options under all of our existing compensation plans as of December 31, 2018.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights(1)	Weighted-average exercise price of outstanding options, warrants and rights(2)	Number of securities remaining available for future issuance
Equity compensation plans approved by security holders	407,930	$11.74	660,410
Equity compensation plans not approved by security holders	--	N/A	--
Total	407,930	$11.74	660,410

(1) Reflects aggregate options and restricted stock awards outstanding under our 2001 Stock Option Plan, 2007 Share Incentive Plan and 2016 Equity Incentive Plan.

(2) Calculation is exclusive of the value of any unvested restricted stock awards.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

None.

Item 6. Selected Financial Data.

	2018	2017
Revenue	$24,334,331	$41,128,639
Cost of revenue	19,156,201	23,528,427
Gross profit	5,178,130	17,600,212
Operating expenses		
Research and development	606,618	437,157
Selling and shipping	1,620,089	1,404,938
General and administrative	8,205,942	8,539,244
Total operating expenses	10,432,649	10,381,339
Operating (loss) income	(5,254,519)	7,218,873
Other income (expense):		
Interest income	159,953	80,518
Interest expense	(463,017)	(106,280)
Other income (expense)	-	2,244
Total other expense, net	(303,064)	(23,518)
(Loss) income before income tax	(5,557,583)	7,195,355
Income tax (benefit) expense	(356,562)	1,933,944
Net (loss) income	$(5,201,021)	$5,261,411

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

Except for historical information contained herein, this "Management's Discussion and Analysis of Financial Condition and Results of Operations" contains forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, as amended. These statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance, or achievements of the Company to be materially different from any future results, performance, or achievements expressed or implied by such forward-looking statements. These forward-looking statements were based on various factors and were derived utilizing numerous important assumptions and other important factors that could cause actual results to differ materially from those in the forward-looking statements. Important assumptions and other factors that could cause actual results to differ materially from those in the forward-looking statements, include but are not limited to: competition in the Company's existing and potential future product lines of business; the Company's ability to obtain financing on acceptable terms if and when needed; uncertainty as to the Company's future profitability, uncertainty as to the future profitability of acquired businesses or product lines, uncertainty as to any future expansion of the Company. Other factors and assumptions not identified above were also involved in the derivation of these forward-looking statements and the failure of such assumptions to be realized as well as other factors may also cause actual results to differ materially from those projected. The Company assumes no obligation to update these forward-looking statements to reflect actual results, changes in assumptions or changes in other factors affecting such forward-looking statements. Past results are no guaranty future performance. You should not place undue reliance on any forward-looking statements, which speak only as of the dates they are made. When used with this Report, the words "believes", "anticipates", "expects", "estimates", "plans", "intends", "will" and similar expressions are intended to identify forward-looking statements.

Executive Level Summary

We design, develop and manufacture a broad range of chemical vapor deposition, gas control and other state-of-the-art equipment and process solutions used to develop and manufacture materials and coatings for research and industrial applications. This equipment is used by our customers to research, design, and manufacture these materials or coatings for aerospace engine components, medical implants, semiconductors, solar cells, smart glass, carbon nanotubes, nanowires, LEDs, MEMS and other applications. Through CVD Materials and our Application Laboratory, we develop new material systems, provide material coating services, process development support and process startup assistance with the focus on *enabling tomorrow's technologies*^{TM}.

Based on more than 36 years of experience, we use our capabilities in engineering, manufacturing and process development to transform new applications into leading-edge manufacturing solutions. This enables university, research and industrial scientists at the cutting edge of technology to develop next generation aerospace, medical, nano, LEDs, semiconductors and other electronic components. We develop, manufacture and provide equipment for research and production based on our proprietary designs. We have built a significant library of design expertise, know-how and innovative solutions to assist our customers in developing these intricate processes and to accelerate their commercialization. This library of solutions, along with our vertically integrated manufacturing facilities, allows

us to provide superior design, process and manufacturing solutions to our customers on a cost-effective basis.

Our strategy is to target opportunities in the research, development and production equipment market, with a focus on higher-growth applications such as aerospace, medical, smart glass, carbon nanotubes, nanowires, graphene, MEMS and LEDs. To expand our penetration into these growth markets, we have developed a line of proprietary standard products and custom systems. Historically, we manufactured products for research and development on a custom one-at-a-time basis to meet an individual customer's specific research requirements. Our proprietary systems leverage the technological expertise that we have developed through designing these custom systems onto a standardized basic core. This core is easily adapted through a broad array of available options to meet the diverse product and budgetary requirements of the research community. By manufacturing the basic core of these systems in higher volumes, we are able to reduce both the cost and delivery time for our systems. These systems, which we market and sell under the EasyTube® and CVD product lines, are sold to researchers at universities, research laboratories, and startup companies in the United States and throughout the world.

Sales of our proprietary standard, custom systems and process solutions have been driven by our installed customer base, which includes several Fortune 500 companies. The strong performance and success of our products has historically driven repeat orders from existing customers as well as business from new customers. However, with our proprietary solutions and expanded focus on "*accelerating the commercialization of tomorrow's technologies*™" we have been developing a new customer base in addition to growing with our existing customers. We have generally gained new customers through word of mouth, limited print advertising and trade show attendance. We are now also gaining new customers by their awareness of our company in the marketplace with results from our Application Laboratory, relationships with startup companies, increased participation in trade shows and expanded internet advertising.

The core competencies we have developed in equipment and software design, as well as in systems manufacturing and process solutions, are used to engineer our finished products and to accelerate the commercialization path of our customer base. Our proprietary-real-time, software allows for rapid configuration, and provides our customers with powerful tools to understand, optimize and repeatedly control their processes. Our vertically integrated structure allows us to control the manufacturing process, from bringing raw metal and components into our manufacturing facilities to shipping out finished products. These factors significantly reduce cost, improve quality and reduce the time it takes from customer order to shipment of our products. Our Application Laboratory allows selected customers to bring up their process tools in our Application Laboratory and to work together with our scientists and engineers to optimize process performance.

Current Developments

As a result of past delays in the permitting process for construction of modifications needed for our new CVD Materials facility in Central Islip, NY, which have now been received, we expect that we will initiate operations at this facility in the second or third quarter of 2019 and we believe the CVD Materials segment will contribute to the Company's future success.

Revenue for the fourth quarter of 2018 remains below expectation. Additionally, the level of new orders from customers has not been received as anticipated, and without these orders, we believe our level of revenue for the first two quarters of 2019 may approximate our revenue in the last two quarters of 2018. As a result, we expect to report operating losses for the first and second quarters of 2019 and the timing for a return to profitability depends upon, among other things, the receipt of new orders, the ramp up of the materials business, as well as reviewing our planned expenditures and operating expenses for potential cost savings to minimize these losses, including our ability to sublet the new facility. At December 31, 2018, we have reduced our employees 15% to 197. We continue to monitor our staffing level to support current operations and level of current and expected orders.

As previously reported, our line of credit expired by its terms in September 2018. We have elected not to renew our credit line at that time because (a) renewal terms were not acceptable to us, (b) we have not borrowed on our line of credit in the past 10 years, and (c) we have sufficient cash and cash equivalents (approximately $11.4 million as of December 31, 2018 and approximately $11.2 million at March 22, 2019) to meet our working capital and capital expenditure requirements over the next twelve months.

During the fourth quarter, we continued our mission to develop and enable the commercialization of next-generation technologies, by incorporating our technology into equipment built for customers' manufacturing processes. Our endeavors in applications for LED materials, medical implants and coatings, aerospace coatings, carbon composites for MEMs and medical devices are some of the areas we have been working on.

We continued to make a significant investment in our CVD Materials business. In November 2018, we filed a provisional patent application for a family of advanced Fluid Reactors based on our innovations in nanotechnology and chemical vapor deposition technology. The Fluid Reactor is enabled by a novel reactor core element which allows the efficient transfer of gases into and out of liquids. The market adoption of this technology could supplant existing hollow fiber membrane technology for applications including filtration and liquid gasification or degasification. One application is blood oxygenation cartridges known as an Extra Corporeal Membrane Oxygenator which is typically used during cardio pulmonary bypass (CPB) surgery and is essential for life support.

Our MesoScribe™ Direct Write Technology continues to make progress in specialized applications for temperature sensors, conformal antennas, flexible electronics and heaters for applications in aerospace and electronics where standard solutions have been unable to meet the physical constraints that need to be addressed. MesoScribe™ has been notified that they have been selected for three (3) government sponsored awards, two of which were received in the first quarter of 2019, and one is anticipated to be received in the second quarter 2019.

Investments in our Application Laboratory and CVD Materials are necessary and not related to our quarterly revenue fluctuations. We continue to believe that expansion and innovation in key markets like aerospace, medical, MEMs, semiconductors is the key to securing our growth over the long-term**.**

We continue to dedicate significant portions of our technical and manufacturing resources to new materials development and opening of the new CVD Materials facility. They pave the way for future expansion across our portfolio and to improve and streamline revenue growth and profitability over the longer term.

Constant investment in expansion and innovation is necessary, even during times of reduced order levels, to strengthen and secure our competitive position and open up new opportunities in the markets we serve. We believe we are well capitalized and will continue to work to produce increased yet stable revenue, productivity and profitability over the long-term**.**

Revenue

	2018	2017	Change	%Change
CVD Equipment	$17,860,025	$34,964,365	$(17,104,340)	(48.9%)
SDC	4,731,638	5,626,267	(894,629)	(15.9%)
CVD Materials	1,742,668	538,007	1,204,661	223.9 %
Total	$24,334,331	$41,128,639	$(16,794,308)	(40.8%)

Our revenue for the year ended December 31, 2018 was $24.3 million compared to $41.1 million for the year ended December 31, 2017, resulting in a decrease of 40.8% which was primarily attributable to the completion of orders received from our largest customer. This customer, in the aerospace industry from which we have secured multiple orders, represented $9.3 million or approximately 38.2% of our revenue for the twelve months ended December 31, 2018 compared to $27.2 million or approximately 66.1% of our revenue for the year ended December 31, 2017. We continue to receive additional orders and opportunities with new and current customers, and exclusive of our largest customer, sales increased $.8 million from $7.8 million to $8.6 million at December 31, 2018.

The revenue contributed for the year ended December 31, 2018, by the CVD Equipment segment, of $17.8 million, which totaled 73.4% of our overall revenue, was 48.9% or $17.1 million less than the segment's $34.9 million contribution made in the prior year, which totaled 85% of our overall revenue.

Annual revenue for our SDC segment decreased to $4.7 million in 2018 as compared to $5.6 million in 2017, a decrease of 15.9%. The decrease is primarily attributable to a higher sales activity level from one customer in the prior year. The SDC segment represented 19.4% and 13.7% of our total revenue during the years ended December 31, 2018 and December 31, 2017, respectively.

Revenues for our CVD Materials segment were $1.7 million in the year ended December 31, 2018 as compared to $.5 million for 2017. The increase of $1.2 million was comprised of a $.9 million increase from MesoScribe, due to a full year of revenue since the acquisition on October 31, 2017, as well as an increase in sales from Tantaline of $.3 million.

Gross Profit

Gross profit for the year ended December 31, 2018 amounted to $5.2 million, with a gross profit margin of 21.3 %, compared to a gross profit of $17.6 million and a gross profit margin of 42.8% for the year ended December 31, 2017. The decreased gross profit and gross profit margin were the result of the reduction in sales from our largest customer and delays in receiving new orders, while costs principally remained at levels to support our anticipated expansion of the CVD Materials segment and future growth.

Research and Development, Selling and General and Administrative Expenses

Research and Development:

Due to the technical development required on our custom orders, our research and development team and their expenses are charged to costs of goods sold when they are working directly on a customer project. When they are not working on a customer project, they work in our Application Laboratory and their costs are charged to research and development. In 2018 and 2017, we incurred $0.6 million and $0.4 million respectively of internal research and development costs.

Selling:

Selling expenses were $1.6 million or 6.7 % of the revenue for the year ended December 31, 2018 as compared to $1.4 million or 3.4% for the year ended December 31, 2017. The increase was a result of additional employees and trade show related expenses in the current period as well as increased expenses related to CVD Materials, including its recently established subsidiaries CVD Tantaline ApS and CVE MesoScribe Technologies effective with the October 31, 2017 acquisition.

General and Administrative:

General and administrative expenses for the year ended December 31, 2018 were $8.2 million or 33.7% of revenue compared to $8.5 million or 20.8% during the year ended December 31, 2017, a decrease of $.3 million. The decrease attributable to the CVD Equipment segment was primarily the result of $1.2 million reduction in salary and related costs as a result of the overall lower sales demand, offset in part by $.4 million increased consulting costs related to systems implementation and accounting services. CVD Materials incurred increased costs of $.4 million from its new facility purchased on November 30, 2017 related to real estate taxes, insurance and other operating costs, as well as $.2 million increased costs at its recently established subsidiaries CVD Tantaline ApS and CVD Mesoscribe Technologies.

Operating Income/(Loss)

As a result of the decreased revenues and gross margins, we recorded an operating loss of $5.3 million for the year ended December 31, 2018 as compared to operating income of $7.2 million for the year ended December 31, 2017, which was driven primarily by the reduced revenue from our largest customer.

Other (Expenses)/Income

Other expenses were $303,000 and $24,000 for the years ended December 31, 2018 and 2017, respectively. This increase was the result of higher interest expense of $463,000 in 2018 from our building purchased for our CVD Materials group on November 30, 2017, offset partially by increased interest income.

Income Taxes

For the year ended December 31, 2018, we recorded an income tax benefit of $357,000 as compared to an income tax expense of $1.9 million in the year ended December 31, 2017. During 2018, our corporate tax rate was reduced to 21% as a result of The Tax Cuts and Jobs Act ("TCJA") enacted December 22, 2017. This rate was partially offset by permanent differences related to fixed and intangible assets, stock-based compensation and other items resulting in an effective tax rate of 6.4%.

During 2017, our corporate tax rate was 34%. This rate was partially offset by the utilization of net operating losses. In addition, we were required by TCJA to remeasure our deferred tax assets, primarily related to R&D tax credits and stock-based compensation, and incurred an additional expense in the amount of $689,000. This resulted in an effective tax rate of 26.9%.

Net Income/(Loss)

As a result of the foregoing factors, for the year ended December 31, 2018, we had a net loss of $5.2 million or $.80 per diluted share compared to a net income of $5.3 million or $0.82 per diluted share for the year ended December 31, 2017.

Inflation

Inflation has not materially impacted our operations.

Liquidity and Capital Resources

As of December 31, 2018, we had aggregate working capital of $15.4 million compared to aggregate working capital of $22.4 million at December 31, 2017. Our cash and cash equivalents of at December 31, 2018 and 2017 were $11.4 million and $14.2 million, respectively. At March 22, 2019 our cash and cash equivalents were approximately $11.2 million. The decrease in working capital of $7 million is primarily attributable to the overall sales reductions and resulting operating loss for the year and debt service payments of approximately $1.2 million, including payments on our investment in the CVD Materials building on November 30, 2017. We have continued to invest in activities primarily related to preparing CVD Materials for operations which we anticipate will commence in the second or third

quarter of 2019. Our total capital invested in 2018 was $2.5 million, primarily related to building improvements and machinery for the CVD Materials operations and we also incurred operating costs of approximately $.4 million, exclusive of interest expense. Further, there were decreases in contract assets of $7 million, cash of $2.8 million, inventories $1.1 million, offset in part by increases in accounts receivable of $2 million and decreases in accounts payable and accrued expenses of 1.7 million.

Accounts receivable, net of allowance for doubtful accounts, increased by $2 million or 97.5% at December 31, 2018 to $4.1 million compared to $2.1 million at December 31, 2017. This increase is principally due to the timing of shipments and customer payments.

Inventories as of December 31, 2018 were approximately $1.9 million representing a decrease of approximately $1.1 million or a decrease of 37.2% compared to the balance of approximately $3.0 million as of December 31, 2017. The decrease was driven primarily by management’s efforts to better utilize existing inventories.

As previously reported, our Revolving Line of Credit expired on September 1, 2018. We have elected not to renew our credit line at this time because (a) renewal terms were not acceptable to us, (b) we have not borrowed on our line of credit in the past 10 years, and (c) we have sufficient cash and cash equivalents to meet our working capital and capital expenditure requirements over the next twelve months.

We have a loan agreement with HSBC which is secured by a mortgage against our Central Islip facility at 355 South Technology Drive. The loan is payable in 120 consecutive equal monthly installments of $25,000 in principal plus interest and a final balloon payment upon maturity in March 2022. The balances as of December 31, 2018 and December 31, 2017 were approximately $2.7 million and $3.0 million respectively. Interest accrues on the Loan, at our option, at the variable rate of LIBOR plus 1.75% or Prime less 0.5%.

On November 30, 2017, we purchased the premises located at 555 North Research Place, Central Islip, NY which is intended to house the CVD Materials segment. The purchase price of the land and the building was $13,850,000 exclusive of closing costs.

As part of the acquisition, our newly formed wholly-owned subsidiary, 555 N Research Corporation (the" Assignee") and the Islip IDA, entered into a Fee and Leasehold Mortgage and Security Agreement (the "Loan") with HSBC USA, N.A. (the "Bank") in the amount of $10,387,500, which was used to finance a portion of the purchase price to acquire the premises located at 555 North Research Place, Central Islip, New York (the "Premises"). The Loan was evidenced by the certain Note, dated November 30, 2017 (the "Note"), by and between Assignee and the Bank, and secured by a certain Fee and Leasehold Mortgage and Security Agreement, dated November 30, 2017 (the "Mortgage"), as well as a collateral Assignment of Leases and Rents ("Assignment of Leases").

The Loan is payable in 60 consecutive equal monthly installments of $62,481, including interest. The Loan shall bear interest for each Interest Period (as defined in the Note), at the fixed rate of 3.9148%. The maturity date for the Note is December 1, 2022. As a condition of the Bank making the Loan, we were required to guaranty Assignee's obligations under the Loan.

At December 31, 2018, we were not in compliance with the only financial covenant (fixed charge coverage ratio) contained in the Mortgage. On March 26, 2019 the Company received a waiver from HSBC until April 1, 2020.

At December 31, 2018 we have reduced our employee headcount by 15% to 197. We are continuing to evaluate our staffing levels to support the CVD Materials new building and related operations commencing during the second or third quarter of 2019, and the level of current and expected orders. We believe that our cash and cash equivalent positions and cash flow from operations will be sufficient to meet our working capital and capital expenditure requirements for the next twelve months.

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Critical Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America 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. Our significant estimates include accounting for certain items such as revenues on long-term contracts recognized on the input method; valuation of inventories at the lower of cost or market; allowance for doubtful accounts receivable; recognition of stock-based compensation; estimated lives and recoverable value of our long-lived assets and certain components of the current and deferred income tax provisions which ae based on estimates of future taxable events.

Revenue Recognition

On January 1, 2018, we adopted accounting standard ASC 606, Revenue from Contracts with Customers and all the related amendments using the modified retrospective method for all customer contracts not yet completed as of the adoption date. The adoption of ASC 606 did not have a significant impact on our Consolidated Financial Statements and, as a result, comparisons of revenues and operating profits performance between periods are not affected by the adoption of this ASU. Results for reporting periods beginning January 1, 2018 are presented under ASC 606, while prior period amounts were not adjusted.

We design, manufacture and sell custom chemical vapor deposition equipment through contractual agreements. These system sales require us to deliver functioning equipment that is generally completed within three to eighteen months from commencement of order acceptance. We recognize revenue over time by using an input method based on costs incurred as it depicts our progress toward satisfaction of the performance obligation. Under this method, revenue arising from fixed price contracts is recognized as work is performed based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligations.

Incurred costs include all direct material and labor costs and those indirect costs related to contract performance, such as indirect labor, supplies, tools, repairs and depreciation costs. Contract material costs are included in incurred costs when the project materials have been purchased or moved to work in process as required by the project’s engineering design. Cost based input methods of revenue recognition require us to make estimates of costs to complete the projects. In making such estimates, significant judgment is required to evaluate assumptions related to the costs to complete the projects, including materials, labor and other system costs. If the estimated total costs on any contract are greater than the net contract revenues, we recognize the entire estimated loss in the period the loss becomes known

and can be reasonably estimated.

We have been engaged in the production and delivery of goods on a continual basis under contractual arrangements for many years. Historically, we have demonstrated an ability to accurately estimate total revenues and total expenses relating to our long-term contracts. However, there exist many inherent risks and uncertainties in estimating revenues, expenses and progress toward completion, particularly on larger or longer-term contracts. If we do not estimate the total sales, related costs and progress toward completion on such contracts, the estimated gross margins may be significantly impacted or losses may need to be recognized in future periods. Any such resulting changes in margins or contract losses could be material to our results of operations and financial condition.

Stock-Based Compensation

We record stock-based compensation in accordance with the provisions set forth in the Financial Accounting Standard Board ("FASB") Accounting Standards Codification ("ASC") 718, "Stock Compensation," using the modified prospective method. ASC 718 requires companies to recognize the cost of employee services received in exchange for awards of equity instruments based upon the grant date fair value of those awards.

Long-Lived Assets and Intangibles

Long-lived assets consist primarily of property, plant and equipment. Intangibles consist of patents, copyrights, intellectual property, licensing agreements and certifications. Long-lived assets are reviewed for impairment whenever events or circumstances indicate their carrying value may not be recoverable. When such events or circumstances arise, an estimate of the future undiscounted cash flows produced by the asset, or the appropriate grouping of assets, is compared to the asset's carrying value to determine if impairment exists pursuant to the requirements of ASC 360-10-35, "Impairment or Disposal of Long-Lived Assets." If the asset is determined to be impaired, the impairment loss is measured on the excess of its carrying value over its fair value. Assets to be disposed of are reported at the lower of their carrying value or net realizable value. We had no recorded long-lived asset impairment charges in the statement of operations during each of the years ended December 31, 2018 and 2017.

Off-Balance Sheet Arrangements

None.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Not applicable.

Item 8. Financial Statements and Supplementary Data.

The consolidated financial statements and supplementary data required by this item are included in this annual report beginning on page F-1.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures. We maintain a system of disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act). As required by Rule 13a-15(b) under the Exchange Act, management of the Company, under the direction of our Chief Executive Officer and Chief Financial Officer, reviewed and performed an evaluation of the effectiveness of design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of December 31, 2018.

Based on that review and evaluation, our Chief Executive Officer and Chief Financial Officer, along with others in our management, have determined that as of the end of the period covered by the Report on Form 10-K, the disclosure controls and procedures were not effective to provide reasonable assurance that such information is accumulated and communicated to our management, including our principal executive and financial officers, as appropriate to allow timely decisions regarding disclosures. Specifically, we have identified the following material weaknesses in our disclosure controls: (1) The Company lacks sufficient internal controls over monitoring the accounting activity and consolidation of its foreign subsidiary into the Company's consolidated financial statements. (2) Also, the Company has not fully integrated its new project accounting software into its general ledger accounting system and continues to rely on manual reconciliations using electronic spreadsheets. (3) The Company has a deficiency in internal controls regarding the estimation of costs on contracts in progress

To remediate such weaknesses, we have implemented the following changes: (1) established stricter formal procedures with respect to how and when our management will communicate to the auditors and Audit Committee on a more timely basis, (2) is adopting sufficient written policies and procedures for accounting and financial reporting, (3) we have appointed and /or designated additional qualified personnel to ensure timely filing of the reports that we file or submit under the Exchange Act, (4) added additional, multiple review levels, (5) receives from the staff of the foreign subsidiary financial information on a weekly and monthly basis in order to monitor more closely. During the year ended December 31, 2018, we integrated three more entities into its accounting software and is planning the integration of the remaining two entities shortly. In addition, we have reevaluated our internal controls regarding the estimation of costs on contracts in progress and have implemented changes as needed.

Changes in Internal Controls

There were no changes in our internal controls over financial reporting as defined in Rule 13a-15(f) or Rule 15d-15(f) under the Exchange Act that occurred during the most recent fiscal year that have materially affected, or are reasonably likely to materially affect, the internal controls over financial reporting.

Limitations on the Effectiveness of Controls

We believe that a control system, no matter how well designed and operated, cannot provide absolute assurance that the objectives of the control systems are met, and no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected.

Management's Annual Report on Internal Control Over Financial Reporting. Our management is responsible for establishing and maintaining effective internal control over financial reporting (as defined in Rule 13a – 15(f) of the Exchange Act). There are inherent limitations to the effectiveness of any internal control, including the possibility of human error and the circumvention or overriding of controls. Accordingly, even effective internal controls can provide only reasonable assurance with respect to financial statement preparation. Further, because of changes in conditions, the effectiveness of internal control may vary over time. We have assessed the effectiveness of our internal controls over financial reporting (as defined in Rule 13a -15(f) of the Exchange Act) as of December 31, 2018. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in "Internal Control – Integrated Framework (2013)". Management concluded that, as of December 31, 2018, our internal control over financial reporting was effective based on the criteria established by the COSO Internal Control Framework.

This annual report does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by our registered public accounting firm pursuant to the rules of the Securities and Exchange Commission that permit us to provide only management's report in this annual report.

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers, and Corporate Governance.

Background and Experience of Directors

When considering whether directors and nominees have the experience, qualifications, attributes or skills, taken as a whole, to enable the Board of Directors to satisfy its oversight responsibilities effectively in light of our business and structure, the Nominating, Governance and Compliance Committee focused primarily on each person's background and experience as reflected in the information discussed in each of the directors' individual biographies set forth immediately below. We believe that our directors provide an appropriate mix of experience and skills relevant to the size and nature of our business. As more specifically described in such person's individual biographies set forth below, our directors possess relevant and industry-specific experience and knowledge in the engineering financial and business fields, as the case may be, which we believe enhances the Board's ability to oversee, evaluate and direct our overall corporate strategy. The Nominating, Governance and Compliance Committee annually reviews and makes recommendations to the Board regarding the composition and size of the Board so that the Board consists of members with the proper expertise, skills, attributes, and personal and professional backgrounds needed by the Board, consistent with applicable regulatory requirements.

The Nominating, Governance and Compliance Committee believes that all directors, including nominees, should possess the highest personal and professional ethics, integrity, and values, and be committed to representing the long-term interests of our shareholders. The Nominating, Governance and Compliance Committee will consider criteria including the nominee's current or recent experience as a senior executive officer, whether the nominee is independent, as that term is defined in existing independence requirements of the NASDAQ Capital Market and the Securities and Exchange Commission, the business, scientific or engineering experience currently desired on the Board, geography, the nominee's industry experience, and the nominee's general ability to enhance the overall composition of the Board.

The Nominating, Governance and Compliance Committee does not have a formal policy on diversity; however, in recommending directors, the Board and the Committee consider the specific background and experience of the Board members and other personal attributes in an effort to provide a diverse mix of capabilities, contributions and viewpoints which the Board believes enables it to function effectively as the Board of Directors of a company with our size and the nature of our business.

Legal Proceedings Involving Directors

None.

Board Leadership

While the Board has not separated the positions of Chairman and CEO, it has appointed Lawrence J. Waldman as the Lead Independent Director. The Lead Independent Director is appointed by the Board and is responsible for coordinating the activities of the independent directors and the Chief Executive Officer of the Company to set agendas for Board meetings and chair executive sessions of the independent directors. The Lead Independent Director is also responsible for meeting, from time to time, with the Company's Compensation Committee to discuss the Chief Executive Officer's performance.

Our Corporate Governance practices contain several features which we believe will ensure that the Board maintains effective and independent oversight of management, including the following:

- Executive sessions without management and non-independent directors present are a standing Board agenda item.
- Executive sessions of the independent directors are held at any time requested by an independent director and, in any event, are held in connection with at least 100% of regularly schedule Board meetings.
- The Board regularly meets in executive session with the CEO without other members of management present.
- All Board committee members are independent directors. The committee chairs have authority to hold executive sessions with management and non-independent directors present.

While our Board has no formal policy with respect to separation of the positions of Chairman and CEO or with respect to whether the Chairman should be a member of management or an independent director, we believe that the creation of the position of Lead Independent Director properly facilitates better communication between the Independent Directors on the one hand and the non-Independent Directors and members of management on the other hand and leads to improved oversight and discussions by the Board as a whole. The Chief Executive Officer of the Company, Leonard Rosenbaum, is tasked with the responsibility or implementing our corporate strategy, we believe he is best suited for leading discussions with input from the Lead Independent Director, at the Board level, regarding performance relative to our corporate strategy and this discussion accounts for a significant portion of the time devoted at the Board meetings.

Our Certificate of Incorporation and Bylaws provide for our Company to be managed by or under the direction of the Board of Directors. Under our Certificate of Incorporation and Bylaws, the number of directors is fixed from time to time by the Board of Directors. The Board of Directors currently consists of six members. Directors are elected for a period of one year and thereafter serve, subject to the Bylaws, until the next annual meeting at which their successors are duly elected by the shareholders.

The following table sets for the names, ages and positions with the Company of each of our directors and executive officers, as of March 22, 2019.

Name	Age	Position(s) with the Company
Leonard A. Rosenbaum	73	Chairman of the Board of Directors, Chief Executive Officer, President
Martin J. Teitelbaum	68	Director, General Counsel and Assistant Secretary
Conrad J. Gunther	72	Director, Chairperson-Compensation Committee
Lawrence J. Waldman	72	Lead Independent Director, Chairperson-Audit Committee
Robert M. Brill	72	Director, Chairperson – Strategic Planning Committee
Raymond A. Nielsen	68	Director, Chairperson-Nominating, Governance and Compliance Committee
Thomas McNeill	56	Chief Financial Officer, Secretary and Treasurer
Steven Aragon	57	Chief Operating Officer
Karlheinz Strobl	59	Vice President of Business Development
Kevin R. Collins	53	Vice President and General Manager-SDC Division
Emmanuel Lakios	57	Vice President of Sales and Marketing

Leonard A. Rosenbaum

Leonard A. Rosenbaum founded the Company in 1982 and has been our President, Chief Executive Officer and has served as Chairman of the Board of Directors since that time. From 1971 until 1982, Mr. Rosenbaum was president, director and a principal stockholder of Nav-Tec Industries, a manufacturer of semiconductor processing equipment similar to the type of equipment we manufacture. From 1966 to 1971, Mr. Rosenbaum was employed by a division of General Instrument, a manufacturer of semiconductor materials and equipment.

Martin J. Teitelbaum, Esq.

Martin J. Teitelbaum has served as a member of our Board of Directors and General Counsel since 1985 and as our in-house General Counsel since May 16, 2011. Mr. Teitelbaum is an attorney, who prior to May 16, 2011, conducted his own private practice, the Law Offices of Martin J. Teitelbaum. Prior to establishing his own firm in 1988, Mr. Teitelbaum was a partner at Guberman and Teitelbaum from 1977 to 1987. In addition, Mr. Teitelbaum currently acts as our Assistant Secretary. Mr. Teitelbaum earned a B.A. in Political Science from the State University of New York at Buffalo and a Juris Doctor from Brooklyn Law School. Mr. Teitelbaum has served as our outside General Counsel for many years and his legal expertise makes him an asset to the Company’s board of directors.

Conrad J. Gunther

Conrad J. Gunther has served as a member of our Board of Directors since 2000. Mr. Gunther has extensive experience in mergers and acquisitions and in raising capital through both public and private means. He has been an executive officer and director of several banks, both public and private, and has served on the boards of two other public companies. He most recently served on the board of GVC Venture Corp., a public company from June 2004 until it merged with the Halo Companies in September 2009. Since January 2008, Mr. Gunther has served as an Executive Vice President and Senior Loan Officer for Community National Bank, a Long Island, New York based commercial bank, where he is responsible for all commercial lending. Mr. Gunther qualifies to serve on our board of directors as a result of his experience and expertise in the financial community.

Lawrence J. Waldman

Lawrence J. Waldman was appointed a member of the Board of Directors on October 5, 2016 and serves as Chairman of the Audit Committee as well as the Lead Independent Director. Mr. Waldman has over forty years of experience in public accounting. He joined First Long Island Investors LLC, an investment and wealth management firm, as a Senior Advisor in May 2016. Prior to that Mr. Waldman served as an advisor to the accounting firm of EisnerAmper LLP, where he was previously the Partner-in-Charge of Commercial Audit Practice Development for Long Island since September 2011. Prior to joining EisnerAmper LLP, Mr. Waldman was the Partner-in-Charge of Commercial Audit Practice Development for Holtz Rubenstein Reminick, LLP from July 2006 to August 2011. Mr. Waldman was the Managing Partner of the Long Island office of KPMG LLP from 1994 through 2006, the accounting firm where he began his career in 1972. Mr. Waldman has served as a director of Apyx Medical Corporation, formerly Bovie Medical Corporation, since 2011 and he is currently the Chair of the Audit Committee and Lead Independent Director of the Board. Mr. Waldman has served as a member of the Board of Directors of Northstar/RXR Metro Income Fund, a non-traded Real Estate Investment Trust, and has served as a member of its audit committee from 2014 until October of 2018. Mr. Waldman was elected to the Board of Directors of Comtech Telecommunications Corp. in August of 2015, and since December 2015, serves as Chair of its Audit Committee. Mr. Waldman is also the Chair of the Supervisory Committee of Bethpage Federal Credit Union. Mr. Waldman previously served as a member of the State University of New York's Board of Trustees and as chair of its audit committee. He also previously served as the Chairman of the Board of Trustees of the Long Island Power Authority and as Chair and a member of the finance and audit committee of its Board of Trustees. Mr. Waldman is a Certified Public Accountant.

Raymond Nielsen

Raymond Nielsen was appointed a member of the Board of Directors on October 5, 2016. Mr. Nielsen was the Director of Finance for The Beechwood Organization until January 2019 and has been responsible for Project and Corporate Finance including Strategic Planning Initiatives since 2014. He has been a member of the Board of Directors of Bridgehampton National Bank and Bridge Bancorp Inc., its Parent holding company since 2013, serving on the Compensation Committee, Corporate Governance & Nominating Committee, ALCO, Loan, and the Compliance, BSA & CRA Committees. Mr. Nielsen is the former CEO of Reliance Federal Savings Bank and Herald National Bank, and a 45 year veteran of the banking industry. Mr. Nielsen also served as a Director of North Fork Bancorporation and its subsidiary North Fork Bank for 6 years where he chaired both the Compensation Committee and Audit Committee as well as having served as Lead Independent Director. Mr. Nielsen’s extensive public company, banking and real estate development experience will provide a valuable resource to the Board of Directors and Executive Management.

Robert M. Brill

Robert M. Brill was appointed a member of the Board of Directors on April 12, 2018. Dr. Brill is a co-founder and managing partner of Newlight Management since 1997, which manages venture capital funds that focus on early stage technology companies. Prior to co-founding Newlight, Dr. Brill was a general partner of Poly Ventures, a Long Island based venture capital fund. Newlight and Poly Ventures have collectively invested in over 50 private companies including Long Island based Fatwire, Invision and Globecomm. He is a member of the Board of Directors of the L.I. Angel Network, the L.I. High Tech Incubator and several private companies. Prior to joining Poly ventures, Dr. Brill was a successful turnaround CEO at both private and public companies. Dr. Brill served as General Manager of Harris Corporation’s CMOS microprocessors. He also held various technical and management positions at IBM’s semiconductor operation. Dr. Brill holds a PhD in nuclear physics from Brown University and a B.A. and B.S. in engineering physics from Lehigh University. He is a member of Phi Beta Kappa and Tau Beta Pi. He is a founding member of the Technical Advisory Board of the Semiconductor Research Corporation and was elected to the L.I. Technology Hall of Fame. He holds multiple patents and invention disclosures. Mr. Brill’s extensive technical knowledge and experiences from serving on the boards of other companies provides a valuable resource to the Company.

Thomas McNeill

Thomas McNeill was appointed as the Company’s Chief Financial Officer, Secretary and Treasurer effective as of March 4, 2019. Mr. McNeill has been a Chief Financial Officer ("CFO") since 1996 and has seventeen years' of SEC reporting experience with two public companies, as well as a full range of financial and operational experience. Since April 2015, he has been CFO at Century Direct, LLC, a printing and mailing company serving the direct mail marketing industry. From November 2014 to April 2015, he was a consultant at Mailmen Inc. until its assets were purchased by Century Direct, LLC. Mr. McNeill was CFO/COO at Nina McLemore from July 2013 to June 2014, a woman's retail apparel Company. On the Public reporting side, he was CFO at DineWise, Inc. from April 2006 to April 2013, a direct to consumer prepared frozen foods company, and from October 1996 to April 2006, was CFO at Global Payment Technologies, Inc, a hi-tech manufacturing and engineering company. Mr. McNeill is a Certified Public Accountant who began his career at KPMG, achieving the position of audit manager. Mr. McNeill holds a BBA in accounting from Hofstra University.

Steven Aragon

Dr. Steven Aragon was appointed Chief Operating Officer by the Board of Directors on October 20, 2014. Dr. Aragon has over 25 years of thin-film process, materials, and system expertise applied to photovoltaic, optical, electronic, and magnetic device fabrication. He received his Ph.D. in Physical Chemistry from the University of California, Santa Cruz, in 1990 and his MBA from Santa Clara University in 1996. He is the holder of five process equipment design patents. Dr. Aragon was a co-founder of Optimus Energy Systems International Inc. and served as its Chief Technical Officer and Senior Vice-President – Engineering from November 2011 to October 2014. From June 2008 to October 2011, He has also served as Vice-President – Engineering at Stion Corp of San Jose, California, a maker of nanostructure-based CIGS (copper indium gallium sulphur-diselenide) thin-film photovoltaic panels and as the Vice President – Engineering at Day Star Technologies Inc. from June 2001 to June 2008.

Karlheinz Strobl

Dr. Karlheinz Strobl has been the Vice President of Business Development since October 2007. From 1997 to 2007, he was the founder and President of eele Laboratories, LLC, a technology and manufacturing solutions development company for a novel Light Engine for the video and data projection display market. Dr. Strobl holds over 14 patents and earned an MBA from Boston University, a PhD from the University of Innsbruck and an MS from both the University of Innsbruck and the University of Padova. He has also worked at the Max Planck Institute and at Los Alamos National Laboratory.

Kevin R. Collins

Prior to his appointment as Vice President and General Manager-SDC Division, Mr. Collins served as the General Manager of CVD’s SDC Division since 1999. From 1990 to 1999 he was employed by Stainless Design Corp. as Manager of Field Operations and Product Development Advisor. Mr. Collins attended Columbia University School of Engineering and Applied Science.

Emmanuel Lakios

Mr. Lakios has over thirty (30) years of experience serving the semiconductor, data storage and optical device industries and is the holder of several patents in the field of process equipment and device structure. From 2015 until earlier this year, Mr. Lakios was the President and Chief Executive Officer at Sensor Electronic Technology, Inc., overseeing that company’s transition from R&D to a leading global commercial UV LED supplier. From 2003 to 2011

he was the Executive Vice President of Field Operations and President and Chief Operating Officer at Imago Scientific, bringing it from pre-revenue to a commercial leadership position in the 3D atomic scale tomography field. Mr. Lakios was previously employed at Veeco Instruments Inc. from 1984 until 2003, where he held several positions, including President of the Process Equipment Group and Executive Vice President of Field Operations. He has been involved in several acquisitions and numerous product line launches. He received his BE in Mechanical Engineering with focus in Material Science from SUNY Stony Brook in 1984.

Code Of Ethics

We have adopted a Corporate Code of Conduct and Ethics that applies to our employees, senior management and Board of Directors, including the Chief Executive Officer and Chief Financial Officer. The Corporate Code of Conduct and Ethics is available on our website, http://www.cvdequipment.com, by clicking on “About Us” and then clicking on “Corporate Overview.”

Audit Committee

Our Board of Directors has an Audit Committee that currently consists of, Lawrence J. Waldman, Chairman, Conrad J. Gunther, Raymond A. Nielsen and Dr. Robert M. Brill. During the fiscal year ended December 31, 2018, the Audit Committee held four meetings. Pursuant to the Audit Committee Charter, the Audit Committee is directly responsible for the appointment, compensation, retention and oversight of the work of any independent registered public accounting firm engaged for the purpose of preparing or issuing an audit report or performing other audit, review or attest services for us, and each such independent auditor shall report directly to the Committee. The Audit Committee also reviews with management and the independent auditors, our annual audited financial statements (including the disclosures under “Management’s Discussion and Analysis of Financial Condition and Results of Operations”), the scope and results of annual audits and the audit and non-audit fees of the independent registered public accounting firm. Messrs. Gunther, Waldman, Nielsen and Brill are “independent” under the requirements of the NASDAQ Stock Market.

The Board of Directors has determined that each of Messrs. Gunther and Waldman is an “audit committee financial expert” as that term is defined in the rules and regulations of the Securities and Exchange Commission.

Section 16(a) Beneficial Ownership Reporting Compliance

The rules of the Securities and Exchange Commission require us to disclose late filings of reports of stock ownership and changes in stock ownership by our directors, officers and ten percent shareholders. To our knowledge, based solely on our review of (a) the copies of such reports and amendments thereto furnished to us and (b) written representations that no other reports were required, during our fiscal year ended December 31, 2018, all of the filings for our officers, directors and ten percent shareholders were made on a timely basis except for Conrad J. Gunther, Lawrence Waldman and Raymond Nielsen who inadvertently failed to timely file a Form 4, by one day, showing one transaction and Robert M. Brill, who failed to timely file his Form 3 by one day.

Item 11. Executive Compensation.

Summary Compensation Table

The following table sets forth the compensation of our chief executive officer and chief financial officer, and our "named executive officers," for the years ended December 31, 2018 and 2017.

Name and principal position	Year	Salary ($)	Bonus ($)	Option Awards ($) (1)	Stock Awards ($) (1)	All Other Compensation		Total ($)
Leonard A. Rosenbaum President and	2018	314,008	-	-	21,912	11,923	(2)	347,843
Chief Executive Officer	2017	302,742	22,500	-	21,936	197,948	(2)	545,126
Glen R. Charles (3)	2018	165,481	-	-	21,912	9,519	(2)	196,912
Secretary and Chief Financial Officer	2017	157,981	20,000	-	21,936	-		199,917
Steven Aragon	2018	185,866	-	-	46,912	7,115	(2)	239,893
Chief Operating Officer	2017	181,731	20,000	-	46,936	-		248,667
Martin J. Teitelbaum	2018	277,170	-	-	21,912	-		299,082
General Counsel and Assistant Secretary	2017	265,074	20,000	-	21,936	-		307,010

(1) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown reflect the total remaining compensation on restricted stock and option awards granted, that have not previously been shown, as determined pursuant to ASC 718. The assumptions used to calculate the value of stock and option awards are set forth under Note 11 of the Notes to Consolidated Financial Statements. This column represents the grant date fair value of the awards as calculated in accordance with FASB ASC 718 (Stock Compensation). Pursuant to SEC rule changes effective February 28, 2010, we are required to reflect the total grant date fair values of the option grants in the year of grant, rather than the portion of this amount that was recognized for financial statement reporting purposes in a given fiscal year which was required under the prior SEC rules, resulting in a change to the amounts reported in prior Annual Reports, which was valued utilizing the grant date fair value in the year granted.

(2) Represents payment for accrued and unused vacation time.

(3) Glen Charles' last day of employment with the company was March 1, 2019. Effective March 4, 2019, Thomas McNeill was appointed CFO, Secretary and Treasurer.

Employment Agreements and Potential Payments Upon Termination or Change in Control

There are no arrangements for compensation of directors and there are no employment contracts between the company and its directors or any change in control arrangements.

Outstanding Equity Awards at December 31, 2018

The following table sets forth the outstanding equity awards held by our named executive officers as of December 31, 2018.

	OPTION AWARDS				STOCK AWARDS			
Name	Number of Securities Underlying Options Exercisable	Number of Securities Underlying Options Unexercisable	Exercise Price	Option Expiration Date	Number of shares or units of stock that have not vested	Market value of shares or units of stock that have not vested	Equity Incentive Plan Awards: Number of unearned shares or units that not vested	Equity Incentive Plan Awards: Market or payout value of unearned shares or units that have not vested
Leonard A. Rosenbaum	-						3,049 (1)	$ 10,824
Steven Aragon	100,000	100,000	$ 11.17	Various (3)			2,687 (2)	$ 9,539
Glen R. Charles (4)	-						2,687 (4)	$ 9,539
Martin J. Teitelbaum	5,310 1,400		$ 4.25 $ 7.90	1/15/2020 1/15/2021			2,687 (2)	$ 9,539

(1) Restricted stock units vest as to 1,449 shares respectively on July 1, 2019 and 800 shares respectively on October 1, 2019 and October 1, 2020.

(2) Restricted stock units vest as to 1,087 shares respectively on July 1, 2019 and 800 shares respectively on October 1, 2019 and October 1, 2020.

(3)

(4) Options vest as to 20,000 shares on October 20 each year consecutively through 2019 and expire 10 years from date of issuance.
Glen Charles resigned as CFO of the company as of the close of business on March 1, 2019. Pursuant to a separation agreement, all Options became fully vested and exercisable. In addition, Mr. Charles received a payment of $25,000 in connection with the separation agreement. Effective March 4, 2019, Thomas McNeill was appointed CFO, Secretary and Treasurer.

2018 Director Compensation

The following table sets forth a summary of the compensation we paid to our non-employee directors in 2018.

Name	Fees Earned or Paid in Cash	Option Awards (1)	Restricted Stock Awards (1)	Total
Conrad J. Gunther	$23,000	-	$ 30,856	$53,856
Lawrence J. Waldman	20,000	-	30,856	50,856
Raymond A. Nielsen	20,000	-	30,856	50,856
Dr. Robert Brill	15,000		23,218	38,218

(1) Amounts shown do not necessarily reflect compensation actually received by the named director. Instead, the amounts shown are the compensation costs recognized by CVD in fiscal 2018 for awards as determined pursuant to ASC 718. The assumptions used to calculate the value of option awards are set forth under Note 12 of the Notes to Consolidated Financial Statements.

On May 9, 2016, the Board of Directors adopted a Director Compensation Plan for all non-employee directors, which retroactively from January 1, 2016, provided for annual compensation of approximately fifty thousand dollars ($50,000) to each non-employee director in a combination of 40% cash and 60% stock grant.

On December 14, 2018, the Board of Directors approved a new Director Compensation Plan for all non-employee directors which is effective January 1, 2019 and provides for additional compensation to Committee Chairs as well as for the Independent Lead Director and ranging from amounts from $5,000 to $30,000 in a combination of cash and stock grants.

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

The following table sets forth, as of March 22, 2019, information regarding the beneficial ownership of our common stock by (a) each person who is known to us to be the owner of more than five percent (5%) of our common stock, (b) each of our directors, (c) each of the named executive officers, and (d) all directors and executive officers and executive employees as a group. For purposes of the table, a person or group of persons is deemed to have beneficial ownership of any shares that such person has the right to acquire within 60 days of March 22, 2019.

Name and Address of Beneficial Owner(1)	Amounts and Nature of Beneficial Ownership (2)		Percent of Class (%)
Leonard A. Rosenbaum	830,568	(3)	12.7
Martin J. Teitelbaum	77,020	(4)	1.2
Conrad J. Gunther	62,188	(5)	1.0
Lawrence J. Waldman	9,650	(6)	*
Raymond A. Nielsen	8,900	(7)	*
Dr. Robert M. Brill	4,875	(8)	*
Thomas McNeill	-	(9)	*
Steven Aragon	92,449	(10)	1.4
Karlheinz Strobl	121,779	(11)	1.9
Kevin R. Collins	89,556	(12)	1.4
Emmanuel Lakios	48,180	(13)	*
All directors and executive officers and executive employees as a group (eleven) persons)	1,345,165		20.6

*Less than 1% of the outstanding common stock or less than 1% of the voting power

(1) The address of Messrs. Rosenbaum, Teitelbaum, Gunther, Waldman, Nielsen, Brill, McNeill, Strobl, Aragon and Lakios is c/o CVD Equipment Corporation, 355 South Technology Drive, Central Islip, New York 11722. The address of Mr. Collins is c/o Stainless Design Concepts, 1117 Old Kings Highway, Saugerties, NY 12477.

(2) All of such shares are owned directly with sole voting and investment power, unless otherwise noted below.

(3) Does not include 3,049 shares of unvested restricted stock units.

(4) Includes 2,000 shares held by Mr. Teitelbaum's wife as to which beneficial ownership thereof is disclaimed by Mr. Teitelbaum. Does not include 2,687 shares of unvested restricted common stock units.

(5) Does not include options to purchase 15,000 shares of our common stock. Does not include 6,300 shares of unvested restricted common stock.

(6) Does not include options to purchase 15,000 shares of our common stock. Does not include 8,500 shares of unvested restricted common stock.

(7) Does not include options to purchase 15,000 shares of our common stock. Does not include 6,300 shares of unvested restricted common stock.

(8) Does not include options to purchase 15,000 shares of our common stock. Does not include 6,825 shares of unvested restricted common stock.

(9) Does not include 10,000 shares of unvested restricted common stock units.

(10) Does not include options to purchase 20,000 shares of our common stock. Does not include 2,687 shares of unvested restricted common stock units.

(11) Does not include 6,689 shares of unvested restricted common stock units.

(12) Does not include 1,304 shares of unvested restricted common stock units.

(13) Does not include unvested options to purchase 60,000 shares of our common stock. Does not include 1,200 shares of unvested restricted common stock units.

See Item 5, Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities under the heading "Equity Compensation Plan Information" for information regarding our securities authorized for issuance under equity compensation plans.

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

Transactions with related persons, promoters and certain control persons.

None.

Director Independence

The current members of our Board of Directors are Leonard A. Rosenbaum, Martin J. Teitelbaum, Conrad J. Gunther, Lawrence J. Waldman and Raymond A. Nielsen. Messrs. Gunther, Waldman, Nielsen and Dr. Brill have been determined to be "independent" as defined under Rule 4200 of the Nasdaq Stock Market.

Item 14. Principal Accountant Fees and Services.

The following presents fees for professional audit services rendered by MSPC, Certified Public Accountants and Advisors, A Professional Corporation ("MSPC"), for the audit of our financial statements for the years ended December 31, 2018 and December 31, 2017.

	2018	2017
Audit Fees	$161,511	$138,000
Audit-Related Fees	5,000	10,000
All Other Fees	-	9,000
Total Fees	$166,511	$157,000

Audit-Related Fees

Audit-related fees consisted of the audit of the Company's Defined Contribution Plan 401(k) for the years 2018 and 2017 by MSPC.

All Other Fees

We did not incur any other fees in 2018. In 2017, the firm of Baker, Tilley, Virchow and Krause, LLP was retained to prepare a comprehensive appraisal report to determine the fair value of certain stock options granted to an officer of the corporation for a fee of $9,000.

Audit Committee Approval

The engagement of the Company's independent registered public accounting firm is pre-approved by the Company's Audit Committee. The Audit Committee pre-approves all fees billed and all services rendered by the Company's independent registered public accounting firm.

PART IV

Item 15. Exhibits, Financial Statement Schedules

3.1	Certificate of Incorporation dated October 12, 1982 of Certificate of Corporation incorporated herein by reference to Exhibit 3.1 to our Form S-1 filed on July 3, 2007.
3.2	Certificate of Amendment dated April 25, 1985 of Certificate of Corporation incorporated herein by reference to Exhibit 3.1 to our Form S-1 filed on July 3, 2007.
3.3	Certificate of Amendment dated August 12, 1985 of Certificate of Corporation incorporated herein by reference to Exhibit 3.1 to our Form S-1 filed on July 3, 2007.
3.4	Certificate of Amendment of the Certificate of Incorporation, dated December 9, 2016 incorporated herein by reference to Exhibit 3.1 on our Current Report on Form 8-K filed on December 14, 2016.
3.5	Bylaws of CVD Equipment Corporation, incorporated herein by reference to Exhibit 3.2 to our Form S-1 filed on July 3, 2007.
3.6	Amended and restated By-laws of CVD Equipment Corporation, dated as of October 5, 2016, incorporated herein by reference to Exhibit 3.5 to our Current Report on Form 8-K filed on October 11, 2016.
10.1	CVD Equipment Corporation 2001 Stock Option Plan incorporated herein by reference to Exhibit 10.2 to our Form S-1 filed on July 3, 2007.*
10.2	Form of Non-Qualified Stock Option Agreement incorporated herein by reference to Exhibit 3.1 to our Form 10-KSB filed on March 26, 2007.*
10.3	CVD Equipment Corporation 2007 Share Incentive Plan incorporated herein by reference to our Schedule 14A filed November 5, 2007.
10.4	Lease Agreement, dated February 9, 2012, by and between FAE Holdings 411519R, LLC and the Company incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.

10.5	Assignment Agreement, dated February 9, 2012, by and between FAE Holdings 411519R, LLC and the Company incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.
10.6	Qualified Exchange Accommodation Agreement, dated February 9, 2012, by and between FAE Holdings 411519R, LLC and the Company incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.
10.7	Joint and Several Hazardous Material Guaranty and Indemnification Agreement, dated March 15, 2012, by and between FAE Holdings 411519R, LLC and the Company incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.
10.8	Assignment of Leases and Rents, dated March 15, 2012, by and among FAE Holdings 411519R, LLC, the Town of Islip Industrial Development Agency and HSBC Bank USA, National Association incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.

10.9	Amended and Restated Fee and Leasehold Mortgage, dated March 15, 2012, by and among FAE Holdings 411519R, LLC, the Town of Islip Industrial Development Agency and HSBC Bank USA, National Association incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012
10.10	Amended and Restated Note, dated March 15, 2012, by and among FAE Holdings 411519R, LLC, the Town of Islip Industrial Development Agency and HSBC Bank USA, National Association incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.
10.11	Note and Mortgage Assumption Agreement, dated March 15, 2012, by and among FAE Holdings 411519R, LLC, the Town of Islip Industrial Development Agency and HSBC Bank USA, National Association incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.
10.12	Guaranty of Payment, dated March 15, 2012, by the Company incorporated by reference from the Company's Report on Form 10-Q filed with the Commission on May 15, 2012.
10.13	Agreement of Purchase and sale dated October 24, 2017, by and between the Company and Creative Bath Products, Inc., incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.
10.14	Asset Purchase Agreement, dated October 31, 2017, by and between MesoScribe Technologies, Inc. and CVD MesoScribe Technologies Corporation, incorporated by reference from the Company's Current Report on Form 8-K filed on November 6, 2017.
10.15	ADA and Environmental Indemnity Agreement by 555 N Research Corporation and CVD Equipment Corporation dated November 30, 2017, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.
10.16	Assignment of Leases and Rents dated November 30, 2017 by and between 555 N Research Corporation and HSBC Bank USA, National Association, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.
10.17	Unlimited Guaranty between CVD Equipment Corporation and HSBC Bank USA, National Association dated November 30, 2017, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.
10.18	Town of Islip Industrial Development Agency and CVD Equipment Corporation, Agency Compliance Agreement dated as of November 1, 2017, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.

10.19	Town of Islip Industrial Development Agency and CVD Equipment Corporation Amended and Restated Agency Compliance Agreement dated November 30, 2017, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.
10.20	Fee and Leasehold Mortgage and Security Agreement from town of Islip Industrial Development Agency and 555 N Research Corporation to HSBC Bank USA, national Association, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.

10.21 Town of Islip Industrial Development Agency and FAE Holdings 411519R,LLC Amended and Restated Lease and Project Agreement dated as of November 1, 2017, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.

10.22 Amended and Restated Note by and between 555 N Research Corporation and HSBC Bank USA, National Association, incorporated by reference to the Company's Annual Report on Form 10-K filed with Commission on April 2, 2018.

21.1** List of Subsidiaries.

23.1** Consent of MSPC, Certified Public Accountants and Advisors, A Professional Corporation (S-8).

23.2** Consent of MSPC, Certified Public Accountants and Advisors, A Professional Corporation (S-8).

23.3** Consent of MSPC, Certified Public Accountants and Advisors, A Profession Corporation (S-8)

31.1** Rule 13a-14(a)/15d-14(a) Certification of Chief Executive Officer.

31.2** Rule 13a-14(a)/15d-14(a) Certification of Chief Financial Officer.

32.1** Section 1350 Certification of Principal Executive Officer.

32.2** Section 1350 Certification of Principal Financial Officer.

101.INS*** XBRL Instance

101.SCH*** XBRL Taxonomy Extension Schema

101.CAL*** XBRL Taxonomy Extension Calculation

101.DEF*** XBRL Taxonomy Extension Definition

101.LAB*** XBRL Taxonomy Extension Labels

101.PRE*** XBRL Taxonomy Extension Presentation

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* Management contract or compensatory plan or arrangement required

** Filed herewith

*** XBRL information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and otherwise is not subject to liability under these sections.

SIGNATURES

In accordance with 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.

DATE: April 1, 2019

CVD EQUIPMENT CORPORATION

By: /s/ Leonard A. Rosenbaum
Name: Leonard A. Rosenbaum
Title: President and Chief Executive Officer

By: /s/ Thomas McNeill
Name: Thomas McNeill
Title: Chief Financial Officer and Secretary
Principal Financial and Accounting Officer

In accordance with 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 below.

NAME	POSITION	DATE
/s/ Leonard A Rosenbaum Leonard A. Rosenbaum	President, Chief Executive Officer and Director (Principal Executive Officer)	4/1/2019
/s/ Martin J. Teitelbaum Martin J. Teitelbaum	Director, General Counsel and Assistant Secretary	4/1/2019
/s/ Conrad J. Gunther Conrad J. Gunther	Director	4/1/2019
/s/ Lawrence J. Waldman Lawrence J. Waldman	Director	4/1/2019
/s/ Raymond A. Nielsen Raymond A. Nielsen	Director	4/1/2019
/s/ Dr. Robert M. Brill	Director	4/1/2019

Dr. Robert M. Brill

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CVD EQUIPMENT CORPORATION AND SUBSIDIARies

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders

CVD Equipment Corporation and Subsidiaries

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of CVD Equipment Corporation and Subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related consolidated statements of operations, changes in stockholders' equity, and cash flows for each of the two years in the two-year period ended December 31, 2018, and the related notes (collectively referred to as the consolidated financial statements). In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of CVD Equipment Corporation and Subsidiaries as of December 31, 2018 and 2017, and the results of their operations and their cash flows for each of the years in the two-year period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the 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 opinions.

/s/ MSPC

Certified Public Accountants and Advisors,

A Professional Corporation

We have served as the Company's auditor since 2004.

New York, New York

April 1, 2019

F-1

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

Consolidated Balance Sheets

As of December 31, 2018 and 2017

	2018	2017
ASSETS		
Current Assets		
Cash and cash equivalents	$11,439,361	$14,210,909
Accounts receivable, net	4,065,220	2,058,617
Contract assets	1,357,797	8,397,024
Inventories, net	1,861,873	2,965,623
Other current assets	723,204	167,425
Total Current Assets	19,447,455	27,799,598
Property, plant and equipment, net	30,402,558	28,839,457
Deferred income taxes	2,104,414	1,609,186
Other assets	64,583	67,847
Intangible assets, net	495,552	662,162
Total Assets	$52,514,562	$58,978,250
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current Liabilities		
Accounts payable	$713,194	$1,174,968
Accrued expenses	1,503,309	2,738,373
Current maturities of long-term debt	857,590	747,324
Contract Liabilities	536,524	466,313
Deferred revenue	459,899	291,953
Total Current Liabilities	4,070,516	5,418,931
Long-term acquisition related contingent payments	-	200,000
Long-term debt, net of current portion	12,051,720	12,705,683
Total Long-Term Liabilities	12,051,720	12,905,683
Total Liabilities	16,122,236	18,324,614
Commitments and contingencies	-	-
Stockholders' Equity:		

Common stock - $0.01 par value – 20,000,000 shares authorized; issued and outstanding 6,535,888 at December 31, 2018 and 6,458,714 at December 31, 2017	65,358	64,587
Additional paid-in capital	26,148,256	25,209,316
Retained earnings	10,178,712	15,379,733
Total Stockholders' Equity	36,392,326	40,653,636
Total Liabilities and Stockholders' Equity	$52,514,562	$58,978,250

The accompanying notes are an integral part of the consolidated financial statements

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

Consolidated Statements of Operations

Years ended December 31, 2018 and 2017

	2018	2017
Revenue	$24,334,331	$41,128,639
Cost of revenue	19,156,201	23,528,427
Gross profit	5,178,130	17,600,212
Operating expenses		
Research and development	606,618	437,157
Selling and shipping	1,620,089	1,404,938
General and administrative	8,205,942	8,539,244
Total operating expenses	10,432,649	10,381,339
Operating (loss) income	(5,254,519)	7,218,873
Other income (expense):		
Interest income	159,953	80,518
Interest expense	(463,017)	(106,280)
Other income (expense)	-	2,244
Total other expense, net	(303,064)	(23,518)
(Loss) income before income tax	(5,557,583)	7,195,355
Income tax (benefit) expense	(356,562)	1,933,944
Net (loss) income	$(5,201,021)	$5,261,411
Basic (loss) income per common share	$(0.80)	$0.83
Diluted (loss) income per common share	$(0.80)	$0.82
Weighted average common shares Outstanding-basic	6,495,597	6,375,848
Weighted average common shares Outstanding-diluted	6,495,597	6,387,464

The accompanying notes are an integral part of the consolidated financial statements

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

Consolidated Statements of Changes in Stockholders' Equity

	Common Stock Shares	Amount	Additional Paid In Capital	Retained Earnings	Total Stockholders' Equity
December 31, 2016	6,346,590	$63,466	$24,131,474	$10,118,322	$34,313,262
Exercise of stock options	36,800	368	145,852		146,220
Stock-based compensation	75,324	753	931,990		932,743
Net income				5,261,411	5,261,411
December 31, 2017	6,458,714	64,587	25,209,316	15,379,733	40,653,636
Exercise of stock options	-	-	-		-
Stock-based compensation	77,174	771	938,940		939,711
Net loss				(5,201,021)	(5,201,021)
December 31, 2018	6,535,888	$65,358	$26,148,256	$10,178,712	$36,392,326

The accompanying notes are an integral part of the consolidated financial statements

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

Consolidated Statements of Cash Flows

Years ended December 31, 2018 and 2017

	2018	2017
Cash flows from operating activities:		
Net (loss) income	$(5,201,021)	$5,261,411
Adjustments to reconcile net (loss) income to net cash used in operating activities		
Stock-based compensation	939,711	932,743
Depreciation and amortization	1,141,161	867,277
Deferred income tax benefit	(495,228)	831,148
Provision for inventory obsolescence	135,819	606,856
Provision for bad debts	24,000	2,000
Increase (decrease) in operating assets		
Accounts receivable	(2,030,603)	(1,453,094)
Contract assets	7,039,227	(5,800,506)
Inventories	967,931	(260,940)
Other current assets	(555,779)	68,112
Increase (decrease) in operating liabilities		
Accounts payable	(461,774)	431,836
Accrued expenses	(1,235,064)	795,552
Contract liabilities	70,211	(4,796,025)
Deferred revenue	167,946	134,133
Total adjustments	5,707,558	(7,640,908)
Net cash provided (used in) by operating activities	506,537	(2,379,497)
Cash flows from investing activities:		
Capital expenditures	(2,537,652)	(889,298)
Purchase of building	-	(14,000,886)
Purchase of MesoScribe Technologies	-	(419,813)
Other assets	3,264	(10,503)
Net cash (used in) investing activities	(2,534,388)	(15,320,500)
Cash flows from financing activities		
Current maturities of long-term debt	110,266	-
Net proceeds from stock options exercised	-	146,220
Proceeds from mortgage payable	-	10,387,500
Payments of long-term debt	(853,963)	(300,000)
Net cash (used in) provided by financing activities	(743,697)	10,233,720
Net decrease in cash and cash equivalents	(2,771,548)	(7,466,277)
Cash and cash equivalents at beginning of year	14,210,909	21,677,186

Cash and cash equivalents at end of year	$11,439,361	$14,210,909
Supplemental disclosure of cash flow information:		
Income taxes paid	$472,542	$601,800
Interest paid	$463,850	$71,263

The accompanying notes are an integral part of the consolidated financial statements

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 1 – Business Description

CVD Equipment Corporation and its subsidiaries (the "Company"), a New York corporation, was organized and commenced operations in October 1982. Its principal business activities include the manufacturing of chemical vapor deposition equipment, customized gas control systems, the manufacturing of process equipment suitable for the synthesis of a variety of one-dimensional nanostructures and nanomaterials and a line of furnaces, all of which are used primarily to produce semiconductors and other electronic components. The Company engages in business throughout the United States and internationally.

Note 2 - Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of CVD Equipment Corporation and its wholly owned subsidiaries. The Company has five wholly owned subsidiaries: CVD Materials Corporation, which provides material coatings, process development support and process startup assistance through Tantaline ApS and CVD MesoScribe Technologies Corporation, FAE Holdings 411519R, LLC, a real estate holding company whose sole asset is its interest in the real estate and building housing our corporate headquarters and 555 N Research Corporation whose sole asset is its interest in the real estate and building located at 555 North Research Place, Central Islip, NY. All significant intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America 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.

The Company’s significant estimates are the accounting for certain items such as revenues on long-term contracts recognized on the input method, depreciation and amortization, valuation of inventories at the lower of cost or market; allowance for doubtful accounts receivable; valuation allowances for deferred tax assets, impairment considerations of long-lived assets and stock-based compensation.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

Revenue Recognition

On January 1, 2018, we adopted accounting standard ASC 606, Revenue from Contracts with Customers and all the related amendments using the modified retrospective method for all customer contracts not yet completed as of the adoption date. The adoption of ASC 606 did not have a significant impact on our Consolidated Financial Statements and, as a result, comparisons of revenues and operating profits performance between periods are not affected by the adoption of this ASU. Results for reporting periods beginning January 1, 2018 are presented under ASC 606, while prior period amounts were not adjusted.

Impact to Previously Reported Results

(In thousands)	As Reported	Adoption of ASC 606	As Adjusted
Costs and estimated earnings in excess of billings	$ 8,397	$ (8,397)	$ ---
Contract assets	---	8,397	8,397
Billings in excess of costs and estimated earnings	466	(466)	---
Contract liabilities	---	466	466

The Company designs, manufactures and sells custom chemical vapor deposition equipment through contractual agreements. These system sales require the Company to deliver functioning equipment that is generally completed within three to eighteen months from commencement of order acceptance. The Company recognizes revenue over time by using an input method based on costs incurred as it depicts the Company’s progress toward satisfaction of the performance obligation. Under this method, revenue arising from fixed price contracts is recognized as work is performed based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligations.

Incurred costs include all direct material and labor costs and those indirect costs related to contract performance, such as indirect labor, supplies, tools, repairs and depreciation costs. Contract material costs are included in incurred costs when the project materials have been purchased or moved to work in process as required by the project's engineering design. Cost based input methods of revenue recognition require the Company to make estimates of costs to complete the projects. In making such estimates, significant judgment is required to evaluate assumptions related to the costs to complete the projects, including materials, labor and other system costs. If the estimated total costs on any contract are greater than the net contract revenues, the Company recognizes the entire estimated loss in the period the loss becomes known and can be reasonably estimated.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

“Contract assets,” include unbilled amounts typically resulting from sales under contracts when revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer. The amount may not exceed their estimated net realizable value. Contract assets are classified as current based on our contract operating cycle.

“Contract liabilities,” include advance payments and billings in excess of revenue recognized. Contract liabilities are classified as current based on our contract operating cycle and reported on a contract-by-contract basis, net of revenue recognized, at the end of each reporting period.

For outright sales of products, revenue is recognized when control of the promised products or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those products or services (the transaction price). A performance obligation is a promise in a contract to transfer a distinct product or service to a customer and is the unit of account under ASC 606.

Inventories

Inventories are valued at the lower of cost (determined on the first-in, first-out method) or net realizable value.

Income Taxes

On December 22, 2017, the Tax Cuts and Jobs Act was adopted into law. The tax Act made broad and complex changes to the Internal Revenue Code of 1986, including, but not limited to, (i) reducing the U.S. federal corporate tax rate from 35% to 21%; (ii) eliminating the corporate alternative minimum tax (“AMT”) and changing how existing AMT credits are realized; (iii) creating a new limitation on deductible interest expense and (iv) changing rules related to uses and limitation of net operating loss carryforwards created in tax years beginning after December 31, 2017.

Deferred tax assets and liabilities are determined based on the estimated future tax effects of temporary differences between the financial statements and tax bases of assets and liabilities, as measured by using the future enacted tax rates. Deferred tax expense (benefit) is the result of changes in the deferred tax assets and liabilities. The Company records a valuation allowance against deferred tax assets when it is more likely than not that future tax benefits will not be utilized based on a lack of sufficient positive evidence.

Investment tax credits are accounted for by the flow-through method, reducing income taxes currently payable and the provision for income taxes in the period the assets giving rise to such credits are placed in service. To the extent such credits are not currently utilized on the Company’s tax return, deferred tax assets, subject to considerations about the need for a valuation allowance, are recognized for the carryforward amount.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

The Company recognizes the tax benefit from an uncertain tax position only if it is more-likely-than-not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such positions are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

The accounting guidance on accounting for uncertainty in income taxes also addresses derecognition, classification, interest and penalties on income taxes, and accounting in interim periods. The Company does not believe it has any uncertain tax positions through the year ending December 31, 2018 which would have a material impact on the Company's consolidated financial statements.

The Company and its subsidiaries file combined income tax returns in the U.S. Federal and New York State jurisdiction. In addition, the parent company files standalone tax returns in California, Delaware, Michigan, Minnesota, New Hampshire and Wisconsin. The Company is no longer subject to U.S. federal and state income tax examinations for tax periods before 2015.

Impairment of Long Lived Assets and Intangibles

Long-lived assets consist primarily of property, plant, and equipment. Intangibles consist of patents, copyrights and intellectual property, licensing agreements and certifications. Long-lived assets are reviewed for impairment whenever events or circumstances indicate their carrying value may not be recoverable. When such events or circumstances arise, an estimate of the future undiscounted cash flows produced by the asset, or the appropriate grouping of assets, is compared to the asset's carrying value to determine if impairment exists pursuant to the requirements of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 360-10-35, "Impairment or Disposal of Long-Lived Assets." If the asset is determined to be impaired, the impairment loss is measured on the excess of its carrying value over its fair value. Assets to be disposed of are reported at the lower of their carrying value or net realizable value. The Company had no recorded impairment charges in the consolidated statement of operations during each of the years ended December 31, 2018 and 2017.

Computer Software

The Company follows ASC 350-40, “Internal Use Software.” This standard requires certain direct development costs associated with internal-use software to be capitalized including external direct costs of material and services and payroll costs for employees devoting time to the software projects. There were no costs for December 31, 2018 and $427,000 for the year ended December 31, 2017, and are included in Property, Plant and Equipment. All computer software is amortized using the straight-line method over its estimated useful life of three to five years. Amortization expense related to computer software totaled $144,500 and $36,000 for the years ended December 31, 2018 and 2017, respectively.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

Intangible Assets

The cost of intangible assets is being amortized on a straight-line basis over their estimated initial useful lives which ranged from 5 to 20 years. Amortization expense recorded by the Company in 2018 and 2017 totaled $115,800 and $46,000, respectively.

Research & Development

Research and development costs are expensed as incurred. In 2012 we expanded our laboratory staff and began conducting research and development independent of customer orders. In 2018, we incurred approximately $607,000 of research and development expenses compared to 2017, when we incurred approximately $437,000 of research and development expenses.

Accounts Receivable

The Company sells products and services to various companies across several industries in the ordinary course of business. The Company performs ongoing credit evaluations to assess the probability of accounts receivable collection based on a number of factors, including past transaction experience, evaluation of their credit history and review of the invoicing terms of the contract to determine the financial strength of its customers. The Company has accounts receivables from certain customers that exceed 10%. As of December 31, 2018 and 2017, the accounts receivable balance includes amounts from two customers, which total 42% and three customers which total 60%, respectively.

Accounts receivable is presented net of an allowance for doubtful accounts of $24,000 and $2,000 as of December 31, 2018 and 2017, respectively. The allowance is based on historical experience and management’s evaluation of the

collectability of accounts receivable. Management believes the allowance is adequate. However, future estimates may fluctuate based on changes in economic and customer conditions. The Company doesn't require collateral from its customers.

Sales Concentrations

Revenue to a single customer in any one year can exceed 10.0% of our total sales. One customer represented 38.2% and 66.1% respectively, of our annual revenues in fiscal years 2018 and 2017. Previously, we have not been generally dependent on any single customer, and the loss of any customer would be replaced by others, however, the dynamic has changed and although, we believe that our relationship with our current largest customer may provide us with ongoing continuous sustainability for years to come, the loss of our largest customer would have to be replaced by others, and our inability to do so may have a material adverse effect on our business and financial condition.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

Export sales to customers represented approximately 9.9% and 9.6% of sales for the years ended December 31, 2018 and 2017, respectively. Export sales in both 2018 and 2017 were primarily to customers in Europe and Asia. All contracts except those entered into by CVD Tantaline ApS are denominated in U.S. dollars. The Company does not enter into any foreign exchange contracts.

Product Warranty

The Company records warranty costs as incurred and does not provide for possible future costs. Management estimates such costs are immaterial, based on historical experience.

Earnings Per Share

Basic earnings per common share is computed by dividing the net income by the weighted average number of shares of common stock outstanding during each period. When applicable, diluted earnings per common share is determined using the weighted-average number of common shares outstanding during the period, adjusted for the dilutive effect of common stock equivalents, consisting of shares that might be adjusted upon exercise of common stock options and warrants.

Potential common shares issued are calculated using the treasury stock method, which recognizes the use of proceeds that could be obtained upon the exercise of options and warrants in computing diluted earnings per share. It assumes that any proceeds would be used to purchase common stock at the average market price of the common stock during the period.

Cash and Cash Equivalents

The Company had cash and cash equivalents of $11.4 million and $14.2 million at December 31, 2018 and 2017, respectively. The Company invests excess cash in treasury bills, certificates of deposit or money market accounts, all with maturities of less than three months. Cash equivalents were $7.5 million and $0 for the years ended December 31, 2018 and December 31, 2017, respectively.

The Company places most of its temporary cash investments with financial institutions, which from time to time may exceed the Federal Deposit Insurance Corporation limit. The amount at risk at December 31, 2018 and at December 31, 2017 was $6,920,000 and $12,198,000 respectively.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash, cash equivalents, and accounts receivable. The Company places its cash equivalents with high credit-quality financial institutions and invests its excess cash primarily in treasury bills, certificates of deposit or money market instruments. The Company has established guidelines relative to credit ratings and maturities that seek to maintain stability and liquidity.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

The Company sells products and services to various companies across several industries in the ordinary course of business. The Company routinely assesses the financial strength of its customers and maintains allowances for anticipated losses based upon historical experience.

Fair value of Financial Instruments

The carrying amounts of financial instruments including cash and cash equivalents, accounts receivable, net, accounts payable and accrued expenses, deferred revenue and customer deposits approximate fair value due to the relatively short-term maturity of these instruments. The carrying value of long-term debt approximates fair value based on prevailing borrowing rates currently available for loans with similar terms and maturities.

Business Combination

The Company has accounted for its acquisitions of the assets of both Tantaline A/S and MesoScribe Technologies, Inc. using the acquisition method. The Company has allocated the purchase price to the assets acquired based on their estimated fair values at the acquisition dates.

Acquisition-Related Contingent Consideration

Acquisition-related contingent consideration represents an obligation of the Company to transfer additional assets or equity interests if specified future events occur or conditions are met. This contingency is accounted for at fair value either as a liability or equity depending on the terms of the acquisition agreement. The Company determines the estimated fair value of contingent consideration as of the acquisition date, and subsequently at the end of each reporting period. In doing so, the Company makes significant estimates and assumptions regarding future events or

conditions being achieved under the subject contingent agreement as well as the appropriate discount rate to apply.

Stock-Based Compensation

The Company records stock-based compensation in accordance with the provisions set forth in ASC 718, “Stock Compensation” using the modified prospective method. ASC 718 requires companies to recognize the cost of employee services received in exchange for awards of equity instruments based upon the grant date fair value of those awards.

Shipping and Handling

It is the Company’s policy to include freight charges billed to customers in total revenue. The amount included in revenue was $61,200 and $42,000 for the years ended December 31, 2018 and 2017, respectively.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

Recently Adopted Accounting Pronouncement

In February 2018, the FASB issued ASU 2018-02, *Income Statement-Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. The ASU permits companies to elect a reclassification of disproportionate tax effects in accumulated other comprehensive income (AOCI) caused by the Tax Cuts and Jobs Act of 2017 to retained earnings. The ASU also requires additional disclosures. This update is effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years, with early adoption permitted. We are currently evaluating the effect of this ASU on our consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326)*, which require that financial assets measured at amortized cost be presented at the net amount expected to be collected. The allowance for credit losses is a valuation account that is deducted from the amortized cost basis of the financial asset to present the net carrying value at the amount expected to be collected. The income statement reflects the measurement of credit losses for newly recognized financial assets, as well as the increase or decreases of expected credit losses that have taken place during the period. The measurement of expected credit losses is based upon historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amount. The amendments in this update are effective for fiscal years beginning after December 15, 2019 and interim periods within those annual periods. Early adoption for fiscal years beginning after December 15, 2018 is permitted. We are currently evaluating the effect of this update on our consolidated financial statements.

In February 2016 the FASB issued ASU No. 2016-02, "Leases (Topic 842)" (ASU 2016-02). The primary difference between previous GAAP and ASU 2016-02 is the recognition of lease assets and lease liabilities by lessees for those leases classified as operating leases under previous GAAP. The guidance requires a lessee to recognize in the statement of financial position a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term. When measuring assets and liabilities arising from a lease, a lessee (and a lessor) should include payments to be made in optional periods only if the lessee is reasonably certain to exercise an option to extend the lease or not to exercise an option to terminate the lease. Similarly, optional payments to purchase the underlying asset should be included in the measurement of lease assets and lease liabilities only if the lessee is reasonably certain to exercise that purchase option. For leases with a term of 12 months or less, a lessee is permitted to make an accounting policy election by class of underlying asset not to recognize lease assets and

lease liabilities. If a lessee makes this election, it should recognize lease expense for such leases generally on a straight-line basis over the lease term. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018. Lessees and lessors are required to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach. The modified retrospective approach includes a number of optional practical expedients that entities may elect to apply.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 2 - Summary of Significant Accounting Policies (continued)

An entity that elects to apply the practical expedients will, in effect, continue to account for leases that commence before the effective date in accordance with previous GAAP unless the lease is modified, except that lessees are required to recognize a right-of-use asset and a lease liability for all operating leases at each reporting date based on the present value of the remaining minimum rental payments that were tracked and disclosed under previous GAAP. In addition, FASB has amended Topic 842 prior to it becoming effective. The effective date and transition requirements for these amendments to Topic 842 are the same as ASU 2016-02. The Company has substantially completed its evaluation of the impact the adoption of this guidance will have on its consolidated financial statements, results of operations, and disclosures which will include recognizing a lease liability and a right-of-use asset representing its right to use the underlying asset for the lease term which the Company believes will not have a material impact on the financial statements.

We believe there is no additional new accounting guidance adopted, but not yet effective that is relevant to the readers of our financial statements. However, there are numerous new proposals under development which, if and when enacted, may have a significant impact on our financial reporting.

Note 3 – Contracts in Progress

The following table represents a disaggregation of revenue from contracts for the years ended December 31, 2018 and December 31, 2017:

(In thousands)	**2018**	**2017**
Category		
Aerospace	$8,115	$26,787
Industrial	7,043	6,629
Research	4,114	2,617
Point in time	5,062	5,095
Net revenue	$24,334	$41,128

Judgment is required to evaluate assumptions including the amount of net contract revenues and the total estimated costs to determine our progress towards contract completion and to calculate the corresponding amount of revenue to recognize.

Changes in estimates for sales of systems occur for a variety of reasons, including but not limited to (i) build accelerations or delays, (ii) product cost forecast changes, (iii) cost related change orders or add-ons, or (iv) changes in other information used to estimate costs. Changes in estimates may have a material effect on the Company's consolidated statements of operations. The table below outlines the impact on revenue of net changes in estimated transaction prices and input costs for systems related sales contracts (both increases and decreases) for the years ended December 31, 2018 and December 31, 2017 as well as the number of projects that comprise such changes.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 3 – Contracts in Progress (continued)

Also included in the table is the net change in estimate as a percentage of the aggregate revenue for such projects.

(In thousands)	**2018**		**2017**	
Increase in revenue from net changes in transaction prices	$	254	$	148
Decrease in revenue from net changes in input cost estimates		(268)		(126)
Net (decrease) increase in revenue from net changes in estimates	$	(14)	$	22
Number of projects		10		2
Net change in estimate as a percentage of aggregate revenue for associated projects		(0.08%)		0.06%

For the years ended December 31, 2018 and December 31, 2017, revenue (decreased) increased by ($14,000) and $22,000 respectively, from net changes in transaction prices, input cost estimates, product cost overruns and product cost forecast changes related to redesign of certain systems.

Contract Assets and Liabilities

Contract assets consist of (i) retainage which represent the earned, but unbilled, portion for which payment is deferred by the customer until certain contractual milestones are met; and (ii) unbilled receivables which represent revenue that has been recognized in advance of billing the customer, which is common for long-term contracts. Contract liabilities consist of customer advances and billings in excess of revenue recognized.

For the year ended December 31, 2018, the decrease in contract assets of approximately $7 million was primarily driven by additional billed receivables during the period, for those projects that certain milestones had been reached. During the year ended December 31, 2018, the increase in contract liabilities of $70,000 was primarily due to invoicing for those projects.

Contract assets and contract liabilities on input method type contracts in progress are summarized as follows:

	2018	2017
Costs incurred on contracts in progress	$24,913,254	$22,079,680
Estimated earnings	26,040,219	16,499,697
	50,953,473	38,579,377
Billings to date	(50,132,200)	(30,648,666)
	$821,273	$(7,930,711)
Included in accompanying balance sheets Under the following captions:		
Contract assets	$1,357,797	$8,397,024
Contract liabilities	$(536,524)	$(466,313)

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 4 - Inventories

Inventories consist of:

	2018	2017
Raw materials	$2,016,488	$3,156,016
Work-in-process	205,385	389,630
Finished goods	-	26,977
Gross inventories	2,221,873	3,572,623
Less reserve for obsolescence	(360,000)	(607,000)
Inventories, net	$1,861,873	$2,965,623

Note 5 – Property, Plant and Equipment

Major classes of property, plant and equipment consist of the following:

	2018	2017
Land	$6,929,000	$6,929,000
Buildings	15,920,925	15,917,925
Building improvements	6,603,121	5,805,045
Machinery and equipment	3,385,357	3,246,877
Furniture and fixtures	611,190	563,959
Computer equipment	487,007	587,147
Software	441,376	427,441
Transportation equipment	65,995	65,994
Lab equipment	1,985,179	1,979,180
Construction in Progress	946,960	-
Totals at cost	$37,376,110	$35,522,568
Less: Accumulated depreciation and amortization	(6,973,552)	(6,683,111)

Property, plant and equipment, net	$30,402,558	$28,839,457
Depreciation and amortization expense (1)	$1,141,161	$867,277

(1) Includes amortization expense of $115,800 and $45,645 for the year ending December 31, 2018 and the year ended December 31, 2017, respectively. Such amortization expense relates to other capitalized and intangibles assets.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 6 – Intangible Assets

Intangible assets consisted of the following:

2018

Intangible Assets	**Weighted Average Amortization Period**	**Cost**	**Accumulated Amortization**	**Carrying Amount**
Patents, Copyrights and Intellectual Property	14	$796,080	$ 300,528	$495,552
Licensing Agreement	5	10,000	10,000	0
Certifications	4	58,486	58,486	0
Totals		$864,566	$ 369,014	$495,552

2017

Intangible Assets	**Weighted Average Amortization Period**	**Cost**	**Accumulated Amortization**	**Carrying Amount**
Patents, Copyrights and Intellectual Property	18	$839,831	$ 177,669	$662,162
Licensing Agreement	5	10,000	10,000	0
Certifications	3	58,722	58,722	0
Other	5	21,492	21,492	0
Totals		$930,045	$ 267,883	$662,162

The estimated amortization expense related to intangible assets for each of the five succeeding fiscal years and thereafter as of December 31, 2018 is as follows:

Year Ended

2019	$121,613
2020	121,613
2021	121,613
2022	36,613
2023	36,613
Thereafter	57,487
Total	$495,552

Note 7 – Financing Arrangements

The Company had a revolving credit facility with HSBC Bank, USA, N.A. (“HSBC”) providing up to $7 million, although the Company has never utilized this facility. This credit facility expired on September 1, 2018.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 7 – Financing Arrangements (continued)

The Company has a loan agreement with HSBC which is secured by a mortgage against our Central Islip facility. The loan is payable in 120 consecutive equal monthly installments of $25,000 in principal plus interest and a final balloon payment upon maturity in March 2022. The balances as of December 31, 2018 and December 31, 2017 were approximately $2.7 million and $3.0 million respectively. Interest accrues on the Loan, at our option, at the variable rate of LIBOR plus 1.75% or Prime less 0.5%.

On November 30, 2017, we purchased the premises located at 555 North Research Place, Central Islip, NY. The purchase price of the building was $13,850,000 exclusive of closing costs. The Company's newly formed wholly-owned subsidiary, 555 N Research Corporation (the "Assignee") and the Islip IDA, entered into a Fee and Leasehold Mortgage and Security Agreement (the "Loan") with HSBC in the amount of $10,387,500, which was used to finance a portion of the purchase price to acquire the premises located at 555 North Research Place, Central Islip, New York. The Loan was evidenced by the certain Note, dated November 30, 2017 (the "Note"), by and between Assignee and the Bank, and secured by a certain Fee and Leasehold Mortgage and Security Agreement (the "Mortgage"), dated November 30, 2017, as well as a collateral Assignment of Leases and Rents.

The Loan is payable in 60 consecutive equal monthly installments of $62,481 including interest. The Loan shall bear interest for each Interest Period (as defined in the Note), at the fixed rate of 3.9148%. The maturity date for the Note is December 1, 2022. As a condition of the Bank making the Loan, the Company was required to guaranty Assignee's obligations under the Loan pursuant that certain Unlimited Guaranty, dated November 30, 2017 (the "Guaranty").

At December 31, 2018, the Company was not in compliance with the one financial covenant (fixed charge coverage ratio) contained in the Mortgage. On March 26, 2019 the Company received a waiver from HSBC until April 1, 2020.

Note 8 – Long-term Debt

Long-term debt as of December 31 consists of the following:

	2018	2017
HSBC $10,387,500 Mortgage payable secured by real property Buildings and improvements at 555 N Research Drive, Central Islip, NY payable in monthly principle installments of $62,481 including Interest at a rate of 3.9148% maturing on December 1, 2022.	$10,043,802	$10,387,500
MesoScribe Technologies, Inc. $300,000 acquisition related contingent payment	200,000	300,000
HSBC $6,000,000 Mortgage payable secured by building Buildings and improvements at 355 South Technology Drive, Central Islip, NY payable in monthly principle installments of $25,000 plus interest. Interest presently accrues at our option, at the variable rate of LIBOR plus 1.75% or HSBC's Prime rate minus 0.50% The loan matures on March 1, 2022.	2,665,508	2,965,507
Total long-term debt	$12,909,310	$13,653,007
Less: Current maturities	(857,590)	(747,324)
Long-term debt	$12,051,720	$12,905,683

Future maturities of long-term debt as of December 31, 2018 are as follows:

2019	$857,590
2020	674,593
2021	690,813
2022	10,686,314
2023	-
Thereafter	-
Total long-term debt	$12,909,310

Note 9 – Earnings per Share

The calculation of basic and diluted weighted average common shares outstanding is as follows:

	2018	2017
Weighted average common shares outstanding basic earnings per share	6,495,597	6,375,848
Effect of potential common share issuance:		

Stock options	-	11,616
Weighted average common shares outstanding Diluted earnings per share	6,495,597	6,387,464

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 9 – Earnings per Share (continued)

At December 31, 2018, stock options to purchase 407,930 shares of common stock were outstanding and 257,930 were exercisable. Stock options to purchase 387,930 shares of common stock were outstanding and 207,930 were exercisable at December 31, 2017. At December 31, 2017, 22,930 options to purchase shares were included in the diluted earnings per share calculation because their average market price was higher than the exercise price.

Note 10 – Income Taxes

The Tax Cuts and Jobs Act was enacted on December 22, 2017. The Act provides for numerous significant tax law changes and modifications including the reduction of the U.S. federal corporate income tax rate from 35% to 21%.

In accordance with the accounting standard ASC 740 “Income Taxes”, companies are required to recognize the tax law changes in the period of enactment.

As a result of the reduction of the corporate income tax rate to 21%, U.S. GAAP requires companies to remeasure their deferred tax assets and liabilities as of the date of enactment, with resulting tax effects accounted for in the period of enactment. The Company remeasured deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future. The provisional amount recorded for the remeasurement and resulting write-down of the deferred tax balance was $689,000. At December 31, 2018, the Company had approximately $414,000 of federal research and development tax credits. If not utilized, the research and development tax credits expire from 2032-2037. Based on the available objective evidence, including the Company’s history of taxable income and the character of that income, management believes it is more likely than not that these components of the Company’s deferred tax assets will be fully utilized.

The expense/(benefit) for income taxes includes the following:

	2018	2017
Current:		
Federal	$58,304	$1,091,216
State	80,367	11,580
Total current tax provision	138,671	1,102,796
Deferred:		
Federal	(495,233)	831,148
State	---	---
Total deferred tax provision	(495,233)	831,148
Income tax (benefit)/expense	$(356,562)	$1,933,944

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 10 – Income Taxes (continued)

The tax effects of temporary differences giving rise to significant portions of the net deferred taxes are as follows:

	2018	2017
Deferred income tax assets:		
Allowance for doubtful accounts	$5,060	$773
Inventory capitalization	6,197	6,813
Depreciation and amortization	-	70,272
Research & development tax credits	413,680	496,930
Compensation costs	1,035,983	838,643
Vacation accrual	167,644	179,309
Interest expense carryforward	66,149	---
Net operating loss carryforward	832,565	---
Capital loss carryforward	16,446	16,446
Total deferred tax asset	2,543,724	1,609,186
Deferred incomes tax liability:		
Property and equipment - tax over book depreciation	(439,310)	---
Less valuation allowance	---	---
Net long-term deferred tax asset	$2,104,414	$1,609,186

The reconciliation of the federal statutory income tax rate to our effective tax rate is as follows:

	2018	2017
Expected provision at federal statutory tax rate (21% and 34%, respectively)	$ (1,167,092)	$ 2,446,421
Foreign tax loss	99,215	293,589
Adjustment to 2017 tax return	58,304	-
State taxes, net of federal benefit	80,367	11,580
Stock-based compensation expense	185,675	(161,429)

Net operating loss carryforward	-	7,280
Federal research & development credit	(83,245)	(781,760)
Other permanent differences	470,214	118,263
Income tax expense/(benefit)	$ (356,562)	$ 1,933,944

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 10 – Income Taxes (continued)

The Company's foreign subsidiary, CVD Tantaline ApS incurred a loss of approximately $463,000, which would provide a $102,000 deferred tax asset as of December 31, 2018, based on the standard corporate tax rate of 22% in Denmark. For the year ended December 31, 2017 the Company had a loss of $865,000 with a deferred tax asset of $190,000. However, sufficient uncertainty exists as to the realizability of these assets such that a full valuation allowance has been necessary.

Note 11 – Stockholders' equity

2001 Non-Qualified Stock Option Plan

In November 2006, the Company registered a non-qualified stock option plan that the shareholders had approved in July 2001, covering key employees, officers, directors and other persons that may be considered as service providers to the Company. Options were awarded by the Board of Directors or by a committee appointed by the Board. Under the plan, an aggregate of 300,000 shares of Company common stock, $.01 par value, were reserved for issuance or transfer upon the exercise of options which were granted. Unless otherwise provided in the option agreement, options granted under the plan would vest over a four-year period commencing one year from the anniversary date of the grant. The stock option plan expired on July 22, 2011.

2007 Share Incentive Plan

On December 12, 2007, shareholders approved the Company's 2007 Share Incentive Plan ("Incentive Plan"), in connection therewith, 750,000 shares of the Company's common stock are reserved for issuance pursuant to options or restricted stock that may be granted under the Share Incentive Plan through December 12, 2017. In 2017, 75,324 shares of stock were granted and issued to directors and key employees, additionally, options were granted to three key employees for 140,000 shares of the Company's common stock. The Plan expired in December, 2017.

2016 Share Incentive Plan

On December 9, 2016, shareholders approved the Company's 2016 Share Incentive Plan ("2016 Incentive Plan"), in connection therewith 750,000 shares of the Company's common stock are reserved for issuance pursuant to options or restricted stock that may be granted under the 2016 Incentive Plan through December 9, 2026.

The purchase price of the common stock under each option plan shall be determined by the Committee, provided, however, that such purchase price shall not be less than the fair market value of the shares on the date such option is granted. The stock options generally expire seven to ten years after the date of grant. The Company recorded stock-based compensation of $940,000 and $933,000 for the years ended December 31, 2018 and 2017, respectively.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 11 – Stockholders' equity (continued)

A summary of the stock option activity related to the 2001 Stock Option Plans, the 2007 Share Incentive Plan and the 2016 Share Incentive Plan for the period from January 1, 2017 through December 31, 2018 is as follows:

2001 Non-Qualified Stock Option Plan

	Beginning Balance Outstanding	Granted During Period	Exercised During Period	Canceled During Period	Ending Balance Outstanding	Exercisable
Year ended December 31, 2017						
Number of shares	59,730	-	36,800	-	22,930	22,930
Weighted average exercise price per share	$ 4.51	-	$ 3.97	-	$ 5.36	$ 5.36
Year ended December 31, 2018		-				
Number of shares	22,930	-	-	-	22,930	22,930
Weighted average exercise price per share	$ 5.36	-	-	-	$ 5.36	$ 5.36

2007 Share Incentive Plan

	Beginning Balance Outstanding	Granted During Period	Exercised During Period	Canceled During Period	Ending Balance Outstanding	Exercisable
Year ended December 31, 2017						
Number of shares	225,000	140,000	-	-	365,000	185,000
Weighted average exercise price per share	$ 9.43	$10.82	-	-	$ 12.35	$ 13.76
Year ended December 31, 2018						
Number of shares	365,000	-	-	-	365,000	235,000
Weighted average exercise price per share	$ 12.35	-	-	-	$ 12.35	$ 13.15

2016 Share Incentive Plan

	Beginning Balance Outstanding	Granted During Period	Exercised During Period	Canceled During Period	Ending Balance Outstanding	Exercisable
Year ended December 31, 2017						
Number of shares	-	-	-	-	-	-
Weighted average exercise price per share	-	-	-	-	-	-
Year ended December 31, 2018						
Number of shares	-	20,000	-	-	20,000	-
Weighted average exercise price per share	-	$ 8.07	-	-	$ 8.07	-

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 11 – Stockholders' equity (continued)

The Company has 407,930 of outstanding stock options under the three plans at December 31, 2018.

The following table summarizes information about the outstanding and exercisable options at December 31, 2018.

	Options Outstanding				Options Exercisable		
Exercise Price Range	Number Outstanding	Weighted Average Remaining Contractual	Weighted Average Exercise Price	Intrinsic Value	Number Exercisable	Weighted Average Exercise Price	Intrinsic Value
$4.00 - 7.00	15,930	1	$4.25	$0	15,930	$4.25	$0
$7.01 - 10.00	27,000	2	$8.03	$0	7,000	$7.90	$0
$10.01 - 12.00	240,000	7.3	$10.88	$0	110,000	$11.05	$0
$12.01 - 15.00	125,000	3.5	$15.00	$0	125,000	$15.00	$0

No options were exercised for the year ended December 31, 2018. The intrinsic value of the 34,000 options exercised during the year ended December 31, 2017 was $256,000.

Restricted Stock Awards

The following table summarizes restricted stock awards for the years ended December 31, 2018 and 2017:

	Shares of	Weighted Average Grant Date Fair Value

	Restricted Stock	
Unvested outstanding at December 31, 2016	0	$ 0
Granted	9,300	$ 9.70
Vested	(9,300)	$ 9.70
Forfeited/Cancelled		
Unvested outstanding at December 31, 2017	0	$ 0
Granted	11,000	$ 10.53
Vested	(11,000)	$ 10.53
Forfeited/Cancelled		
Unvested outstanding at December 31, 2018	0	$ 0

The total fair value of shares of restricted stock awards vested for the years ended December 31, 2018 and 2017 was approximately $116,000 and $90,000 respectively. The fair value of the outstanding restricted stock awards is recorded as stock compensation expense over the vesting period.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 11 – Stockholders' equity (continued)

Restricted Stock Units

The following table summarizes restricted stock units for the years ended December 31, 2018 and December 31, 2017:

	Shares of Restricted Stock Units	Weighted Average Grant Date Fair Value
Unvested outstanding at December 31, 2016	114,090	$ 10.47
Granted	23,680	$ 9.29
Vested	(63,775)	$ 9.94
Forfeited/Cancelled	(125)	$ 14.61
Unvested outstanding at December 31, 2017	73,870	$ 10.05
Granted	39,260	$ 8.75
Vested	(67,067)	$ 9.26
Forfeited/Cancelled	0	0
Unvested outstanding at December 31, 2018	46,063	$ 8.25

The total fair value of vested restricted stock units was $621,000 and $637,000 respectively for the years ended December 31, 2018 and 2017.

The fair value of the outstanding restricted stock units will be recorded as stock compensation expense over the vesting period. As of December 31, 2018, there was $335,000 of total unrecognized compensation costs related to restricted stock units, which is expected to be recognized over a weighted-average period of 1.49 years.

During the years ended December 31, 2018 and 2017, the Company recorded into selling and general administrative expense approximately $940,000 and $933,000 of stock-based compensation expense for the cost of employee and director services received in exchange for equity instruments based on the grant-date fair value of those instruments in accordance with the provisions of ASC 718.

Note 12 – Defined Contribution Plan

The Company maintains a 401(k) Plan for the benefit of all eligible employees. All employees as of the effective date of the 401(k) Plan became eligible. An employee is eligible to become a participant after three months of continuous service.

Participants may elect to contribute from their compensation any amount up to the maximum deferral allowed by the Internal Revenue Code. Employer contributions are optional. During the years ended December 31, 2018 and 2017, the Company incurred administrative and audit fees totaling $8,425 and $13,325, respectively. No discretionary employer contribution has been made for 2018 and 2017.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 13 – Segment Reporting

The Company adopted ASC 280, "Segment Reporting." The Company operates through three segments, CVD, SDC and CVD Materials. The CVD segment is utilized for silicon, silicon germanium, silicon carbide and gallium arsenide processes. SDC is the Company's ultra-high purity manufacturing division in Saugerties, New York. The accounting policies of CVD and SDC are the same as those described in the summary of significant accounting policies (see Note 2). The Company evaluates performance based on several factors, of which the primary financial measure is earnings before taxes. Included in the CVD Materials segment are our wholly owned subsidiaries, CVD Tantaline Aps and CVD MesoScribe Technologies Corporation.

The following table presents certain information regarding the Company's segments as of December 31, 2018 and December 31, 2017 and for the years then ended:

2018

(In thousands)	CVD	SDC	Materials	Corporate	Eliminations *	Consolidated
Assets	$40,467	$4,870	$ 7,187		$ (9)	$ 52,515
Revenue	$17,860	$5,503	$ 1,993		$ (1,022)	$ 24,334
Operating (loss)/income	(1,754)	958	(1,295)	(3,164)		(5,255)
Pretax (loss)/income	(1,691)	987	(1,690)	(3,164)		(5,558)

2017

(In thousands)	CVD	SDC	Materials	Corporate	Eliminations *	Consolidated
Assets	$42,152	$5,850	$ 9,368	$ 1,609	$ (1)	$ 58,978
Revenue	$34,965	$7,427	$ 733		$ (1,996)	$ 41,129
Operating (loss)/income	9,232	2,008	(1,406)	(2,615)		7,219
Pretax (loss)/income	9,243	2,011	(1,444)	(2,615)		7,195

*All elimination entries represent intersegment transactions eliminated in consolidation for external reporting.

CVD EQUIPMENT CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2018 and 2017

Note 14 – Purchases of assets

On October 31, 2017, CVD Mesoscribe Technologies Corporation, a New York corporation and newly formed and wholly-owned indirect subsidiary of CVD Equipment Corporation (the "Company") and MesoScribe Technologies, Inc., a Delaware corporation ("Seller") entered into an Asset Purchase Agreement (the "Asset Purchase Agreement"). Pursuant to the Asset Purchase Agreement, among other things, Buyer acquired (the "Acquisition") substantially all of the operating assets and business of the Seller (excluding cash, accounts receivable and other specified excluded assets), as more particularly described in the Asset Purchase Agreement.

Pursuant to the Asset Purchase Agreement, the purchase price for the assets acquired in the Acquisition was $800,000, of which $500,000 was paid on the Closing Date and $300,000 may be paid to Seller as additional acquisition related contingent consideration based upon the achievement of certain revenue thresholds and other criteria set forth in the Asset Purchase Agreement with respect to each of the two consecutive twelve month measurement periods following the Closing Date. The additional consideration is classified as Acquisition related contingent payments, of which $200,000 is the current portion. For the initial twelve-month measurement period, the Company did not meet the threshold required and the $100,000 contingent payment was recorded into earnings.

The Company accounted for this acquisition using the acquisition method. The Company allocated the purchase price to the acquired assets based on their estimated fair values at the acquisition date as summarized in the following table.

Inventory	$25,000
Machinery and equipment	350,000
Intellectual property	425,000
Net tangible assets acquired	$800,000