PERMA FIX ENVIRONMENTAL SERVICES INC
Form 10-K
April 01, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

[X] **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2018

or

[ ] **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _____ to _____

Commission File No. 1-11596

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**58-1954497**
State or other jurisdiction	

of incorporation or organization	*(IRS Employer Identification Number)*
8302 Dunwoody Place, #250, Atlanta, GA	**30350**
(Address of principal executive offices)	*(Zip Code)*

(770) 587-9898

(Registrant's telephone number)

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

Title of each class	Name of each exchange on which registered
Common Stock, $.001 Par Value	NASDAQ Capital Markets

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes [ ] No [X]

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 [X]

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

Yes [X] 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 [X] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained to the best of 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. [X]

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 definition of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer [ ] Accelerated Filer [ ] Non-accelerated Filer [ ] Smaller reporting company [X] 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 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 Act).

Yes [ ] No [X]

The aggregate market value of the Registrant's voting and non-voting common equity held by nonaffiliates of the Registrant computed by reference to the closing sale price of such stock as reported by NASDAQ as of the last business day of the most recently completed second fiscal quarter (June 30, 2018), was approximately $49,793,255. For the purposes of this calculation, all directors and executive officers of the Registrant (as indicated in Item 12) have been deemed to be affiliates. Such determination should not be deemed an admission that such directors and executive officers, are, in fact, affiliates of the Registrant. The Company's Common Stock is listed on the NASDAQ Capital Markets.

As of February 15, 2019, there were 11,961,537 shares of the registrant's Common Stock, $.001 par value, outstanding.

Documents incorporated by reference: None

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

INDEX

		Page No.
PART I		
Item 1.	Business	1
Item 1A.	Risk Factors	7
Item 1B.	Unresolved Staff Comments	17
Item 2.	Properties	17
Item 3.	Legal Proceedings	17
Item 4.	Mine Safety Disclosure	17
PART II		
Item 5.	Market for Registrant's Common Equity and Related Stockholder Matters	18
Item 6.	Selected Financial Data	19
Item 7.	Management's Discussion and Analysis of Financial Condition And Results of Operations	19
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	35
	Special Note Regarding Forward-Looking Statements	35
Item 8.	Financial Statements and Supplementary Data	37
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	77
Item 9A.	Controls and Procedures	77
Item 9B.	Other Information	78
PART III		
Item 10.	Directors, Executive Officers and Corporate Governance	78
Item 11.	Executive Compensation	86

Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	105
Item 13.	Certain Relationships and Related Transactions, and Director Independence	108
Item 14.	Principal Accountant Fees and Services	111

PART IV

Item 15.	Exhibits and Financial Statement Schedules	112

PART I

ITEM 1. BUSINESS

Company Overview and Principal Products and Services

Perma-Fix Environmental Services, Inc. (the Company, which may be referred to as we, us, or our), a Delaware corporation incorporated in December, 1990, is an environmental and environmental technology know-how company.

We have grown through acquisitions and internal growth. Our goal is to continue to focus on the safe and efficient operation of our three waste treatment facilities and on-site activities, identify and pursue strategic acquisitions to expand our market base, and conduct research and development ("R&D") of innovative technologies to solve complex waste management challenges providing increased value to our clients. The Company continues to focus on expansion into both commercial and international markets to supplement government spending in the USA, from which a significant portion of the Company's revenue is derived. This includes new services, new customers and increased market share in our current markets.

Additionally, our goal is for our majority-owned subsidiary, Perma-Fix Medical S.A. and its wholly-owned subsidiary, Perma-Fix Medical Corporation ("PFM Corporation" – a Delaware corporation) (together known as "PF Medical" or our "Medical Segment"), to raise the necessary capital or to partner with others willing to finance its activities, to continue its R&D activities in order to pursue commercialization of its medical isotope production technology (see "Medical Segment" below for further information in connection with this segment).

Segment Information and Foreign and Domestic Operations and Sales

The Company has three reportable segments. In accordance with Financial Accounting Standards Board ("FASB") ASC 280, "Segment Reporting", we define an operating segment as:

a business activity from which we may earn revenue and incur expenses;
whose operating results are regularly reviewed by the chief operating decision maker "(CODM") to make decisions about resources to be allocated and assess its performance; and
for which discrete financial information is available.

TREATMENT SEGMENT reporting includes:

- nuclear, low-level radioactive, mixed (waste containing both hazardous and low-level radioactive waste), hazardous and non-hazardous waste treatment, processing and disposal services primarily through three uniquely licensed (Nuclear Regulatory Commission or state equivalent) and permitted (U.S. Environmental Protection Agency ("EPA") or state equivalent) treatment and storage facilities held by the following subsidiaries: Perma-Fix of Florida, Inc. ("PFF"), Diversified Scientific Services, Inc., ("DSSI"), and Perma-Fix Northwest Richland, Inc. ("PFNWR"). The presence of nuclear and low-level radioactive constituents within the waste streams processed by this segment creates different and unique operational, processing and permitting/licensing requirements; and
- R&D activities to identify, develop and implement innovative waste processing techniques for problematic waste streams.

The Company has completed the physical on-site closure and decommissioning activities at its East Tennessee Materials and Energy Corporation ("M&EC") facility (within our Treatment Segment and in closure status) in accordance with M&EC's license and permit requirements, with final closure of the facility subject to completion of final surveys and regulatory approvals. The Company continues to transition operational capabilities to our other Treatment Segment facilities, subject to customer requirements and regulatory approvals.

For 2018, the Treatment Segment accounted for $36,271,000, or 73.2%, of total revenue, as compared to $37,750,000, or 75.9%, of total revenue for 2017. Treatment Segment revenues for 2018 and 2017 included revenues of $155,000 and $6,312,000 for the M&EC subsidiary, which is in closure status as discussed above. See "– Dependence Upon a Single or Few Customers" for further details and a discussion as to our Segments' contracts with domestic government clients or with others as a subcontractor to government clients.

1

SERVICES SEGMENT, which includes:

- Technical services, which include:
  - professional radiological measurement and site survey of large government and commercial installations using advanced methods, technology and engineering;
  - integrated Occupational Safety and Health services including industrial hygiene (“IH”) assessments; hazardous materials surveys, e.g., exposure monitoring; lead and asbestos management/abatement oversight; indoor air quality evaluations; health risk and exposure assessments; health & safety plan/program development, compliance auditing and training services; and Occupational Safety and Health Administration (“OSHA”) citation assistance;
  - global technical services providing consulting, engineering, project management, waste management, environmental, and decontamination and decommissioning field, technical, and management personnel and services to commercial and government customers; and
  - on-site waste management services to commercial and governmental customers.

- Nuclear services, which include:
  - technology-based services including engineering, decontamination and decommissioning (“D&D”), specialty services, logistics, transportation, processing and disposal;
  - remediation of nuclear licensed and federal facilities and the remediation cleanup of nuclear legacy sites. Such services capability includes: project investigation; radiological engineering; partial and total plant D&D; facility decontamination, dismantling, demolition, and planning; site restoration; logistics; transportation; and emergency response; and

- A company owned equipment calibration and maintenance laboratory that services, maintains, calibrates, and sources (i.e., rental) health physics, IH and customized nuclear, environmental, and occupational safety and health (“NEOSH”) instrumentation.
- A company owned gamma spectroscopy laboratory for the analysis of oil and gas industry solids and liquids.

For 2018, the Services Segment accounted for $13,268,000, or 26.8%, of total revenue, as compared to $12,019,000, or 24.1%, of total revenue for 2017. See “ – Dependence Upon a Single or Few Customers” for further details and a discussion as to our Segments’ contracts with domestic government clients or with others as a subcontractor to government clients.

MEDICAL SEGMENT reporting includes: R&D costs for the new medical isotope production technology from our majority-owned Polish subsidiary (of which we own approximately 60.5% at December 31, 2018), PF Medical. The Medical Segment has not generated any revenue as it remains in the R&D stage. R&D costs consist primarily of employee salaries and benefits, laboratory costs, third party fees, and other related costs associated with the development of new technology. As previously disclosed, our Medical Segment ceased a substantial portion of its

R&D activities for the new medical isotope production technology due to the need for substantial capital to fund such activities. We anticipate that our Medical Segment will not restart its full scale R&D activities until it obtains the necessary funding or partners with others willing to provide the necessary funding.

Our Treatment and Services Segments provide services to research institutions, commercial companies, public utilities, and governmental agencies (domestic and foreign), including the U.S. Department of Energy ("DOE") and U.S. Department of Defense ("DOD"). The distribution channels for our services are through direct sales to customers or via intermediaries.

Our corporate office is located at 8302 Dunwoody Place, Suite 250, Atlanta, Georgia 30350.

Foreign Revenue

Our consolidated revenue for 2018 and 2017 included approximately $98,000, or 0.2%, and $84,000, or 0.2%, respectively, from United Kingdom customers (including revenues generated by our United Kingdom subsidiary, Perma-Fix UK Limited ("PF UK Limited")).

2

Our consolidated revenue for 2018 and 2017 included approximately $1,140,000, or 2.3%, and $1,073,000, or 2.2%, respectively, from Canadian customers (including revenues generated by our Perma-Fix of Canada, Inc. ("PF Canada") subsidiary).

Importance of Patents, Trademarks and Proprietary Technology

We do not believe we are dependent on any particular trademark in order to operate our business or any significant segment thereof. We have received registration to May 2022 and December 2020, for the service marks "Perma-Fix Environmental Services" and "Perma-Fix", respectively. We also have registration to April 2024 and April 2032 for two service marks for PF Canada. In addition, we have received registration to January 2027 for a service mark for our Safety and Ecology Corporation" or "SEC".

We are active in the R&D of technologies that allow us to address certain of our customers' environmental needs. To date, we have fifteen active patents and the filing of several applications for which patents are pending. These fifteen active patents have remaining lives ranging from approximately one to seventeen years. These active patents include a U.S and two international patent for new technology for the production of radiological isotopes for certain types of medical applications; and which have been licensed to PFM Corporation. These patents are effective through November 2035.

Permits and Licenses

Waste management service companies are subject to extensive, evolving and increasingly stringent federal, state, and local environmental laws and regulations. Such federal, state and local environmental laws and regulations govern our activities regarding the treatment, storage, processing, disposal and transportation of hazardous, non-hazardous and radioactive wastes, and require us to obtain and maintain permits, licenses and/or approvals in order to conduct our waste activities. We are dependent on our permits and licenses discussed below in order to operate our businesses. Failure to obtain and maintain our permits or approvals would have a material adverse effect on us, our operations, and financial condition. The permits and licenses have terms ranging from one to ten years, and provided that we maintain a reasonable level of compliance, renew with minimal effort, and cost. We believe that these permit and license requirements represent a potential barrier to entry for possible competitors.

PFF, located in Gainesville, Florida, operates its hazardous, mixed and low-level radioactive waste activities under a Resource Conservation and Recovery Act ("RCRA") Part B permit, Toxic Substances Control Act ("TSCA") authorization, Restricted RX Drug Distributor-Destruction license, and a radioactive materials license issued by the State of Florida.

DSSI, located in Kingston, Tennessee, conducts mixed and low-level radioactive waste storage and treatment activities under RCRA Part B permits and a radioactive materials license issued by the State of Tennessee Department of Environment and Conservation. Co-regulated TSCA Polychlorinated Biphenyl (“PCB”) wastes are also managed for PCB destruction under EPA Approval.

PFNWR, located in Richland, Washington, operates a low-level radioactive waste processing facility as well as a mixed waste processing facility. Radioactive material processing is authorized under radioactive materials licenses issued by the State of Washington and mixed waste processing is additionally authorized under a RCRA Part B permit with TSCA authorization issued jointly by the State of Washington and the EPA.

As previously discussed, our M&EC facility, located in Oak Ridge, is in closure status, with final closure of the facility subject to completion of final surveys and regulatory approval. The Company had previously fully impaired the permit value at our M&EC subsidiary. The permits at M&EC will be terminated upon completion of requirements pursuant to M&EC’s closure plan.

The combination of a RCRA Part B hazardous waste permit, TSCA authorization, and a radioactive materials license, as held by our Treatment Segment are very difficult to obtain for a single facility and make these facilities unique.

We believe that the permitting and licensing requirements, and the cost to obtain such permits, are barriers to the entry of hazardous waste and radioactive and mixed waste activities as presently operated by our waste treatment subsidiaries. If the permit requirements for hazardous waste treatment, storage, and disposal ("TSD") activities and/or the licensing requirements for the handling of low level radioactive matters are eliminated or if such licenses or permits were made less rigorous to obtain, we believe such would allow companies to enter into these markets and provide greater competition.

Backlog

The Treatment Segment of our Company maintains a backlog of stored waste, which represents waste that has not been processed. The backlog is principally a result of the timing and complexity of the waste being brought into the facilities and the selling price per container. At December 31, 2018, our Treatment Segment had a backlog of approximately $11,104,000, as compared to approximately $7,666,000 at December 31, 2017. Additionally, the time it takes to process waste from the time it arrives may increase due to the types and complexities of the waste we are currently receiving. We typically process our backlog during periods of low waste receipts, which historically has been in the first or fourth quarters.

Dependence Upon a Single or Few Customers

Our Treatment and Services Segments have significant relationships with the federal government, and continue to enter into contracts, directly as the prime contractor or indirectly for others as a subcontractor, with the federal government. The contracts that we are a party to with the federal government or with others as a subcontractor to the federal government generally provide that the government may terminate or renegotiate the contracts on 30 days notice, at the government's election. Our inability to continue under existing contracts that we have with the federal government (directly or indirectly as a subcontractor) could have a material adverse effect on our operations and financial condition.

We performed services relating to waste generated by domestic government clients (includes U.S federal, state and local), either directly as a prime contractor or indirectly as a subcontractor to government entities, representing approximately $34,811,000, or 70.3%, of our total revenue during 2018, as compared to $37,019,000, or 74.4%, of our total revenue during 2017.

As our revenues are project/event based where the completion of one contract with a specific customer may be replaced by another contract with a different customer from year to year, we do not believe the loss of one specific customer from one year to the next will generally have a material adverse effect on our operations and financial condition.

Competitive Conditions

The Treatment Segment's largest competitor is EnergySolutions ("ES") which operates treatment facilities in Oak Ridge, TN and Erwin, TN and a disposal facility for low level radioactive waste in Clive, UT. Waste Control Specialists ("WCS"), which has licensed disposal capabilities for low level radioactive waste in Andrews, TX, is also a competitor in the treatment market with increasing market share. We now have two options for disposal of treated nuclear waste and thus mitigate prior risk of ES providing the only outlet for disposal. The Treatment Segment treats and disposes of DOE generated wastes largely at DOE owned sites. Smaller competitors are also present in the market place; however, we believe they do not present a significant challenge at this time. Our Treatment Segment currently solicits business primarily on a North America basis with both government and commercial clients; however, we continue to focus on emerging international markets for additional work.

Our Services Segment is engaged in highly competitive businesses in which a number of our government contracts and some of our commercial contracts are awarded through competitive bidding processes. The extent of such competition varies according to the industries and markets in which our customers operate as well as the geographic areas in which we operate. The degree and type of competition we face is also often influenced by the project specification being bid on and the different specialty skill sets of each bidder for which our Services Segment competes, especially projects subject to the governmental bid process. We also have the ability to prime federal government small business procurements (small business set asides). Based on past experience, we believe that large businesses are more willing to team with small businesses in order to be part of these often substantial procurements. There are a number of qualified small businesses in our market that will provide intense competition that may provide a challenge to our ability to maintain strong growth rates and acceptable profit margins. For international business there are additional competitors, many from within the country the work is to be performed, making winning work in foreign countries more challenging. If our Services Segment is unable to meet these competitive challenges, it could lose market share and experience an overall reduction in its profits.

Certain Environmental Expenditures and Potential Environmental Liabilities

Environmental Liabilities

We have three remediation projects, which are currently in progress at our Perma-Fix of Dayton, Inc. (“PFD”), Perma-Fix of Memphis, Inc. (“PFM”), and Perma-Fix South Georgia, Inc. (“PFSG”) subsidiaries, which are all included within our discontinued operations. These remediation projects principally entail the removal/remediation of contaminated soil and, in most cases, the remediation of surrounding ground water. These remediation activities are closely reviewed and monitored by the applicable state regulators.

At December 31, 2018, we had total accrued environmental remediation liabilities of $887,000, of which $50,000 are recorded as a current liability, an increase of $16,000 from the December 31, 2017 balance of $871,000. The net increase presents an increase of approximately $50,000 made to the reserve at our PFD subsidiary due to reassessment of the remediation reserve and payments of approximately $34,000 on remediation projects for our PFD and PFSG subsidiaries.

No insurance or third party recovery was taken into account in determining our cost estimates or reserves.

The nature of our business exposes us to significant cost to comply with governmental environmental laws, rules and regulations and risk of liability for damages. Such potential liability could involve, for example, claims for cleanup costs, personal injury or damage to the environment in cases where we are held responsible for the release of hazardous materials; claims of employees, customers or third parties for personal injury or property damage occurring in the course of our operations; and claims alleging negligence or professional errors or omissions in the planning or performance of our services. In addition, we could be deemed a responsible party for the costs of required cleanup of properties, which may be contaminated by hazardous substances generated or transported by us to a site we selected, including properties owned or leased by us. We could also be subject to fines and civil penalties in connection with violations of regulatory requirements.

Research and Development (“R&D”)

Innovation and technical know-how by our operations is very important to the success of our business. Our goal is to discover, develop and bring to market innovative ways to process waste that address unmet environmental needs. We conduct research internally, and also through collaborations with other third parties. The majority of our research activities are performed as we receive new and unique waste to treat. Our competitors also devote resources to R&D

and many such competitors have greater resources at their disposal than we do. As previously discussed, our Medical Segment has ceased a substantial portion of its R&D activities due to the need for substantial capital to fund such activities. We continue to explore ways to raise this capital. We anticipate that our Medical Segment will not restart its full scale R&D activities until it obtains the necessary funding or find a partner willing to fund its R&D activities. During 2018 and 2017, we incurred approximately $1,370,000 and $1,595,000, respectively, in R&D activities, of which approximately $811,000 and $1,141,000, respectively, were spent by our Medical Segment for the R&D of its medical isotope production technology.

Number of Employees

In our service-driven business, our employees are vital to our success. We believe we have good relationships with our employees. At December 31, 2018, we employed approximately 258 employees, of whom 249 are full-time employees and 9 are part-time/temporary employees.

Governmental Regulation

Environmental companies, such as us, and their customers are subject to extensive and evolving environmental laws and regulations by a number of federal, state and local environmental, safety and health agencies, the principal of which being the EPA. These laws and regulations largely contribute to the demand for our services. Although our customers remain responsible by law for their environmental problems, we must also comply with the requirements of those laws applicable to our services. We cannot predict the extent to which our operations may be affected by future enforcement policies as applied to existing laws or by the enactment of new environmental laws and regulations. Moreover, any predictions regarding possible liability are further complicated by the fact that under current environmental laws we could be jointly and severally liable for certain activities of third parties over whom we have little or no control. Although we believe that we are currently in substantial compliance with applicable laws and regulations, we could be subject to fines, penalties or other liabilities or could be adversely affected by existing or subsequently enacted laws or regulations. The principal environmental laws affecting our customers and us are briefly discussed below.

The Resource Conservation and Recovery Act of 1976, as amended ("RCRA")

RCRA and its associated regulations establish a strict and comprehensive permitting and regulatory program applicable to companies, such as us, that treat, store or dispose of hazardous waste. The EPA has promulgated regulations under RCRA for new and existing treatment, storage and disposal facilities including incinerators, storage and treatment tanks, storage containers, storage and treatment surface impoundments, waste piles and landfills. Every facility that treats, stores or disposes of hazardous waste must obtain a RCRA permit or must obtain interim status from the EPA, or a state agency, which has been authorized by the EPA to administer its program, and must comply with certain operating, financial responsibility and closure requirements.

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA," also referred to as the "Superfund Act")

CERCLA governs the cleanup of sites at which hazardous substances are located or at which hazardous substances have been released or are threatened to be released into the environment. CERCLA authorizes the EPA to compel responsible parties to clean up sites and provides for punitive damages for noncompliance. CERCLA imposes joint and several liabilities for the costs of clean up and damages to natural resources.

Health and Safety Regulations

The operation of our environmental activities is subject to the requirements of the OSHA and comparable state laws. Regulations promulgated under OSHA by the Department of Labor require employers of persons in the transportation and environmental industries, including independent contractors, to implement hazard communications, work practices and personnel protection programs in order to protect employees from equipment safety hazards and exposure to hazardous chemicals.

Atomic Energy Act

The Atomic Energy Act of 1954 governs the safe handling and use of Source, Special Nuclear and Byproduct materials in the U.S. and its territories. This act authorized the Atomic Energy Commission (now the Nuclear Regulatory Commission "USNRC") to enter into "Agreements with states to carry out those regulatory functions in those respective states except for Nuclear Power Plants and federal facilities like the VA hospitals and the DOE operations." The State of Florida (with the USNRC oversight), Office of Radiation Control, regulates the permitting and radiological program of the PFF facility, and the State of Tennessee (with the USNRC oversight), Tennessee Department of Radiological Health, regulates permitting and the radiological program of the DSSI and M&EC facilities. The State of Washington (with the USNRC oversight) Department of Health, regulates permitting and the radiological operations of the PFNWR facility.

Other Laws

Our activities are subject to other federal environmental protection and similar laws, including, without limitation, the Clean Water Act, the Clean Air Act, the Hazardous Materials Transportation Act and the TSCA. Many states have also adopted laws for the protection of the environment which may affect us, including laws governing the generation, handling, transportation and disposition of hazardous substances and laws governing the investigation and cleanup of, and liability for, contaminated sites. Some of these state provisions are broader and more stringent than existing federal law and regulations. Our failure to conform our services to the requirements of any of these other applicable federal or state laws could subject us to substantial liabilities which could have a material adverse effect on us, our operations and financial condition. In addition to various federal, state and local environmental regulations, our hazardous waste transportation activities are regulated by the U.S. Department of Transportation, the Interstate Commerce Commission and transportation regulatory bodies in the states in which we operate. We cannot predict the extent to which we may be affected by any law or rule that may be enacted or enforced in the future, or any new or different interpretations of existing laws or rules.

ITEM 1A. RISK FACTORS

The following are certain risk factors that could affect our business, financial performance, and results of operations. These risk factors should be considered in connection with evaluating the forward-looking statements contained in this Form 10-K, as the forward-looking statements are based on current expectations, and actual results and conditions could differ materially from the current expectations. Investing in our securities involves a high degree of risk, and before making an investment decision, you should carefully consider these risk factors as well as other information we include or incorporate by reference in the other reports we file with the Securities and Exchange Commission (the "Commission").

Risks Relating to our Operations

Failure to maintain our financial assurance coverage that we are required to have in order to operate our permitted treatment, storage and disposal facilities could have a material adverse effect on us.

We maintain finite risk insurance policies and bonding mechanisms which provide financial assurance to the applicable states for our permitted facilities in the event of unforeseen closure of those facilities. We are required to provide and to maintain financial assurance that guarantees to the state that in the event of closure, our permitted facilities will be closed in accordance with the regulations. In the event that we are unable to obtain or maintain our financial assurance coverage for any reason, this could materially impact our operations and our permits which we are required to have in order to operate our treatment, storage, and disposal facilities.

If we cannot maintain adequate insurance coverage, we will be unable to continue certain operations.

Our business exposes us to various risks, including claims for causing damage to property and injuries to persons that may involve allegations of negligence or professional errors or omissions in the performance of our services. Such claims could be substantial. We believe that our insurance coverage is presently adequate and similar to, or greater than, the coverage maintained by other companies in the industry of our size. If we are unable to obtain adequate or required insurance coverage in the future, or if our insurance is not available at affordable rates, we would violate our permit conditions and other requirements of the environmental laws, rules, and regulations under which we operate. Such violations would render us unable to continue certain of our operations. These events would have a material adverse effect on our financial condition.

The inability to maintain existing government contracts or win new government contracts over an extended period could have a material adverse effect on our operations and adversely affect our future revenues.

A material amount of our Treatment and Services Segments' revenues are generated through various government contracts or subcontracts involving specifically the U.S. government. Our revenues from governmental contracts and subcontracts relating to domestic governmental facilities within our segments were approximately $34,811,000, or 70.3%, and $37,019,000, or 74.4%, of our consolidated operating revenues for 2018 and 2017, respectively. Most of our government contracts or our subcontracts granted under government contracts are awarded through a regulated competitive bidding process. Some government contracts are awarded to multiple competitors, which increase overall competition and pricing pressure and may require us to make sustained post-award efforts to realize revenues under these government contracts. All contracts with, or subcontracts involving, the federal government are terminable, or subject to renegotiation, by the applicable governmental agency on 30 days notice, at the option of the governmental agency. If we fail to maintain or replace these relationships, or if a material contract is terminated or renegotiated in a manner that is materially adverse to us, our revenues and future operations could be materially adversely affected.

Our existing and future customers may reduce or halt their spending on hazardous waste and nuclear services with outside vendors, including us.

A variety of factors may cause our existing or future customers (including the federal government) to reduce or halt their spending on hazardous waste and nuclear services from outside vendors, including us. These factors include, but are not limited to:

- accidents, terrorism, natural disasters or other incidents occurring at nuclear facilities or involving shipments of nuclear materials;
- failure of the federal government to approve necessary budgets, or to reduce the amount of the budget necessary, to fund remediation of DOE and DOD sites;
- civic opposition to or changes in government policies regarding nuclear operations;
- a reduction in demand for nuclear generating capacity; or
- failure to perform under existing contracts, directly or indirectly, with the federal government.

These events could result in or cause the federal government to terminate or cancel its existing contracts involving us to treat, store or dispose of contaminated waste and/or to perform remediation projects, at one or more of the federal sites since all contracts with, or subcontracts involving, the federal government are terminable upon or subject to renegotiation at the option of the government on 30 days notice. These events also could adversely affect us to the extent that they result in the reduction or elimination of contractual requirements, lower demand for nuclear services, burdensome regulation, disruptions of shipments or production, increased operational costs or difficulties or increased liability for actual or threatened property damage or personal injury.

Economic downturns and/or reductions in government funding could have a material negative impact on our businesses.

Demand for our services has been, and we expect that demand will continue to be, subject to significant fluctuations due to a variety of factors beyond our control, including economic conditions, reductions in the budget for spending to remediate federal sites due to numerous reasons, including, without limitation, the substantial deficits that the federal government has and is continuing to incur. During economic downturns and large budget deficits that the federal government and many states are experiencing, the ability of private and government entities to spend on waste services, including nuclear services, may decline significantly. Our operations depend, in large part, upon governmental funding, particularly funding levels at the DOE. Significant reductions in the level of governmental funding (for example, the annual budget of the DOE) or specifically mandated levels for different programs that are important to our business could have a material adverse impact on our business, financial position, results of operations and cash flows.

The loss of one or a few customers could have an adverse effect on us.

One or a few governmental customers or governmental related customers have in the past, and may in the future, account for a significant portion of our revenue in any one year or over a period of several consecutive years. Because customers generally contract with us for specific projects, we may lose these significant customers from year to year as their projects with us are completed. Our inability to replace the business with other similar significant projects could have an adverse effect on our business and results of operations.

As a government contractor, we are subject to extensive government regulation, and our failure to comply with applicable regulations could subject us to penalties that may restrict our ability to conduct our business.

Our governmental contracts, which are primarily with the DOE or subcontracts relating to DOE sites, are a significant part of our business. Allowable costs under U.S. government contracts are subject to audit by the U.S. government. If these audits result in determinations that costs claimed as reimbursable are not allowed costs or were not allocated in accordance with applicable regulations, we could be required to reimburse the U.S. government for amounts previously received.

Governmental contracts or subcontracts involving governmental facilities are often subject to specific procurement regulations, contract provisions and a variety of other requirements relating to the formation, administration, performance and accounting of these contracts. Many of these contracts include express or implied certifications of compliance with applicable regulations and contractual provisions. If we fail to comply with any regulations, requirements or statutes, our existing governmental contracts or subcontracts involving governmental facilities could be terminated or we could be suspended from government contracting or subcontracting. If one or more of our governmental contracts or subcontracts are terminated for any reason, or if we are suspended or debarred from government work, we could suffer a significant reduction in expected revenues and profits. Furthermore, as a result of our governmental contracts or subcontracts involving governmental facilities, claims for civil or criminal fraud may be brought by the government or violations of these regulations, requirements or statutes.

We are a holding company and depend, in large part, on receiving funds from our subsidiaries to fund our indebtedness.

Because we are a holding company and operations are conducted through our subsidiaries, our ability to meet our obligations depends, in large part, on the operating performance and cash flows of our subsidiaries.

Loss of certain key personnel could have a material adverse effect on us.

Our success depends on the contributions of our key management, environmental and engineering personnel. Our future success depends on our ability to retain and expand our staff of qualified personnel, including environmental specialists and technicians, sales personnel, and engineers. Without qualified personnel, we may incur delays in rendering our services or be unable to render certain services. We cannot be certain that we will be successful in our efforts to attract and retain qualified personnel as their availability is limited due to the demand for hazardous waste management services and the highly competitive nature of the hazardous waste management industry. We do not maintain key person insurance on any of our employees, officers, or directors.

Changes in environmental regulations and enforcement policies could subject us to additional liability and adversely affect our ability to continue certain operations.

We cannot predict the extent to which our operations may be affected by future governmental enforcement policies as applied to existing laws, by changes to current environmental laws and regulations, or by the enactment of new environmental laws and regulations. Any predictions regarding possible liability under such laws are complicated further by current environmental laws which provide that we could be liable, jointly and severally, for certain activities of third parties over whom we have limited or no control.

Our Treatment Segment has limited end disposal sites to utilize to dispose of its waste which could significantly impact our results of operations.

Our Treatment Segment has limited options available for disposal of its nuclear waste. Currently, there are only two disposal sites, each site having different owners, for our low level radioactive waste we receive from non-governmental sites, allowing us to take advantage of the pricing competition between the two sites. If either of these disposal sites ceases to accept waste or closes for any reason or refuses to accept the waste of our Treatment Segment, for any reason, we would be limited to only the one remaining site to dispose of our nuclear waste. With only one end disposal site to dispose of our waste, we could be subject to significantly increased costs which could negatively impact our results of operations.

Our businesses subject us to substantial potential environmental liability.

Our business of rendering services in connection with management of waste, including certain types of hazardous waste, low-level radioactive waste, and mixed waste (waste containing both hazardous and low-level radioactive waste), subjects us to risks of liability for damages. Such liability could involve, without limitation:

claims for clean-up costs, personal injury or damage to the environment in cases in which we are held responsible for the release of hazardous or radioactive materials;

9

claims of employees, customers, or third parties for personal injury or property damage occurring in the course of our operations; and

claims alleging negligence or professional errors or omissions in the planning or performance of our services.

Our operations are subject to numerous environmental laws and regulations. We have in the past, and could in the future, be subject to substantial fines, penalties, and sanctions for violations of environmental laws and substantial expenditures as a responsible party for the cost of remediating any property which may be contaminated by hazardous substances generated by us and disposed at such property, or transported by us to a site selected by us, including properties we own or lease.

As our operations expand, we may be subject to increased litigation, which could have a negative impact on our future financial results.

Our operations are highly regulated and we are subject to numerous laws and regulations regarding procedures for waste treatment, storage, recycling, transportation, and disposal activities, all of which may provide the basis for litigation against us. In recent years, the waste treatment industry has experienced a significant increase in so-called “toxic-tort” litigation as those injured by contamination seek to recover for personal injuries or property damage. We believe that, as our operations and activities expand, there will be a similar increase in the potential for litigation alleging that we have violated environmental laws or regulations or are responsible for contamination or pollution caused by our normal operations, negligence or other misconduct, or for accidents, which occur in the course of our business activities. Such litigation, if significant and not adequately insured against, could adversely affect our financial condition and our ability to fund our operations. Protracted litigation would likely cause us to spend significant amounts of our time, effort, and money. This could prevent our management from focusing on our operations and expansion.

Our operations are subject to seasonal factors, which cause our revenues to fluctuate.

We have historically experienced reduced revenues and losses during the first and fourth quarters of our fiscal years due to a seasonal slowdown in operations from poor weather conditions, overall reduced activities during these periods resulting from holiday periods, and finalization of government budgets during the fourth quarter of each year. During our second and third fiscal quarters there has historically been an increase in revenues and operating profits. If we do not continue to have increased revenues and profitability during the second and third fiscal quarters, this could have a material adverse effect on our results of operations and liquidity.

If environmental regulation or enforcement is relaxed, the demand for our services will decrease.

The demand for our services is substantially dependent upon the public's concern with, and the continuation and proliferation of, the laws and regulations governing the treatment, storage, recycling, and disposal of hazardous, non-hazardous, and low-level radioactive waste. A decrease in the level of public concern, the repeal or modification of these laws, or any significant relaxation of regulations relating to the treatment, storage, recycling, and disposal of hazardous waste and low-level radioactive waste would significantly reduce the demand for our services and could have a material adverse effect on our operations and financial condition. We are not aware of any current federal or state government or agency efforts in which a moratorium or limitation has been, or will be, placed upon the creation of new hazardous or radioactive waste regulations that would have a material adverse effect on us; however, no assurance can be made that such a moratorium or limitation will not be implemented in the future.

We and our customers operate in a politically sensitive environment, and the public perception of nuclear power and radioactive materials can affect our customers and us.

We and our customers operate in a politically sensitive environment. Opposition by third parties to particular projects can limit the handling and disposal of radioactive materials. Adverse public reaction to developments in the disposal of radioactive materials, including any high profile incident involving the discharge of radioactive materials, could directly affect our customers and indirectly affect our business. Adverse public reaction also could lead to increased regulation or outright prohibition, limitations on the activities of our customers, more onerous operating requirements or other conditions that could have a material adverse impact on our customers' and our business.

We may be exposed to certain regulatory and financial risks related to climate change.

Climate change is receiving ever increasing attention from scientists and legislators alike. The debate is ongoing as to the extent to which our climate is changing, the potential causes of this change and its potential impacts. Some attribute global warming to increased levels of greenhouse gases, including carbon dioxide, which has led to significant legislative and regulatory efforts to limit greenhouse gas emissions.

Presently there are no federally mandated greenhouse gas reduction requirements in the United States. However, there are a number of legislative and regulatory proposals to address greenhouse gas emissions, which are in various phases of discussion or implementation. The outcome of federal and state actions to address global climate change could result in a variety of regulatory programs including potential new regulations. Any adoption by federal or state governments mandating a substantial reduction in greenhouse gas emissions could increase costs associated with our operations. Until the timing, scope and extent of any future regulation becomes known, we cannot predict the effect on our financial position, operating results and cash flows.

We may not be successful in winning new business mandates from our government and commercial customers or international customers.

We must be successful in winning mandates from our government, commercial customers and international customers to replace revenues from projects that we have completed or that are nearing completion and to increase our revenues. Our business and operating results can be adversely affected by the size and timing of a single material contract.

The elimination or any modification of the Price-Anderson Acts indemnification authority could have adverse consequences for our business.

The Atomic Energy Act of 1954, as amended, or the AEA, comprehensively regulates the manufacture, use, and storage of radioactive materials. The Price-Anderson Act ("PAA") supports the nuclear services industry by offering broad indemnification to DOE contractors for liabilities arising out of nuclear incidents at DOE nuclear facilities. That indemnification protects DOE prime contractor, but also similar companies that work under contract or subcontract for a DOE prime contract or transporting radioactive material to or from a site. The indemnification authority of the DOE under the PAA was extended through 2025 by the Energy Policy Act of 2005.

Under certain conditions, the PAA's indemnification provisions may not apply to our processing of radioactive waste at governmental facilities, and may not apply to liabilities that we might incur while performing services as a contractor for the DOE and the nuclear energy industry. If an incident or evacuation is not covered under PAA indemnification, we could be held liable for damages, regardless of fault, which could have an adverse effect on our results of operations and financial condition. If such indemnification authority is not applicable in the future, our business could be adversely affected if the owners and operators of new facilities fail to retain our services in the absence of commercial adequate insurance and indemnification.

We are engaged in highly competitive businesses and typically must bid against other competitors to obtain major contracts.

We are engaged in highly competitive business in which most of our government contracts and some of our commercial contracts are awarded through competitive bidding processes. We compete with national and regional firms with nuclear and/or hazardous waste services practices, as well as small or local contractors. Some of our competitors have greater financial and other resources than we do, which can give them a competitive advantage. In addition, even if we are qualified to work on a new government contract, we might not be awarded the contract because of existing government policies designed to protect certain types of businesses and under-represented minority contractors. Although we believe we have the ability to certify and bid government contract as a small business, there are a number of qualified small businesses in our market that will provide intense competition. For international business, which we continue to focus on, there are additional competitors, many from within the country the work is to be performed, making winning work in foreign countries more challenging. Competition places downward pressure on our contract prices and profit margins. If we are unable to meet these competitive challenges, we could lose market share and experience on overall reduction in our profits.

Our failure to maintain our safety record could have an adverse effect on our business.

Our safety record is critical to our reputation. In addition, many of our government and commercial customers require that we maintain certain specified safety record guidelines to be eligible to bid for contracts with these customers. Furthermore, contract terms may provide for automatic termination in the event that our safety record fails to adhere to agreed-upon guidelines during performance of the contract. As a result, our failure to maintain our safety record could have a material adverse effect on our business, financial condition and results of operations.

We may be unable to utilize loss carryforwards in the future.

We have approximately $21,277,000 and $76,312,000 in net operating loss carryforwards for federal and state income tax purposes, respectively, which will expire in various amounts starting in 2021 if not used against future federal and state income tax liabilities, respectively. Our net loss carryforwards are subject to various limitations. Our ability to use the net loss carryforwards depends on whether we are able to generate sufficient income in the future years. Further, our net loss carryforwards have not been audited or approved by the Internal Revenue Service.

If any of our permits, other intangible assets, and tangible assets becomes impaired, we may be required to record significant charges to earnings.

Under accounting principles generally accepted in the United States ("U.S. GAAP"), we review our intangible and tangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Our permits are tested for impairment at least annually. Factors that may be considered a change in circumstances, indicating that the carrying value of our permit, other intangible assets, and tangible assets may not be recoverable, include a decline in stock price and market capitalization, reduced future cash flow estimates, and slower growth rates in our industry. We may be required, in the future, to record impairment charges in our financial statements, in which any impairment of our permit, other intangible assets, and tangible assets is determined. Such impairment charges could negatively impact our results of operations.

We bear the risk of cost overruns in fixed-price contracts. We may experience reduced profits or, in some cases, losses under these contracts if costs increase above our estimates.

Our revenues may be earned under contracts that are fixed-price in nature. Fixed-price contracts expose us to a number of risks not inherent in cost-reimbursable contracts. Under fixed price and guaranteed maximum-price contracts, contract prices are established in part on cost and scheduling estimates which are based on a number of assumptions, including assumptions about future economic conditions, prices and availability of labor, equipment and materials, and other exigencies. If these estimates prove inaccurate, or if circumstances change such as unanticipated technical problems, difficulties in obtaining permits or approvals, changes in laws or labor conditions, weather delays, cost of raw materials or our suppliers' or subcontractors' inability to perform, cost overruns may occur and we could experience reduced profits or, in some cases, a loss for that project. Errors or ambiguities as to contract specifications can also lead to cost-overruns.

Adequate bonding is necessary for us to win certain types of new work and support facility closure requirements.

We are often required to provide performance bonds to customers under fixed-price contracts, primarily within our Services Segment. These surety instruments indemnify the customer if we fail to perform our obligations under the contract. If a bond is required for a particular project and we are unable to obtain it due to insufficient liquidity or other reasons, we may not be able to pursue that project. In addition, we provide bonds to support financial assurance in the event of facility closure pursuant to state requirements. We currently have a bonding facility but, the issuance of bonds under that facility is at the surety's sole discretion. Moreover, due to events that affect the insurance and bonding markets generally, bonding may be more difficult to obtain in the future or may only be available at significant additional cost. There can be no assurance that bonds will continue to be available to us on reasonable terms. Our inability to obtain adequate bonding and, as a result, to bid on new work could have a material adverse effect on our business, financial condition and results of operations.

Failure to maintain effective internal control over financial reporting or failure to remediate a material weakness in internal control over financial reporting could have a material adverse effect on our business, operating results, and stock price.

Maintaining effective internal control over financial reporting is necessary for us to produce reliable financial reports and is important in helping to prevent financial fraud. If we are unable to maintain adequate internal controls, our business and operating results could be harmed. We are required to satisfy the requirements of Section 404(a) of Sarbanes Oxley and the related rules of the Commission, which require, among other things, management to assess annually the effectiveness of our internal control over financial reporting. If we are unable to maintain adequate internal control over financial reporting or effectively remediate any material weakness identified in internal control over financial reporting, there is a reasonable possibility that a misstatement of our annual or interim financial statements will not be prevented or detected in a timely manner. If we cannot produce reliable financial reports, investors could lose confidence in our reported financial information, the market price of our common stock could decline significantly, and our business, financial condition, and reputation could be harmed.

Systems failures, interruptions or breaches of security and other cyber security risks could have an adverse effect on our financial condition and results of operations.

We are subject to certain operational risks to our information systems. Because of efforts on the part of computer hackers and cyberterrorists to breach data security of companies, we face risk associated with potential failures to adequately protect critical corporate, customer and employee data. As part of our business, we develop and retain confidential data about us and our customers, including the U.S. government. We also rely on the services of a variety of vendors to meet our data processing and communications needs.

Despite our implemented security measures and established policies, we cannot be certain that all of our systems are entirely free from vulnerability to attack or other technological difficulties or failures or failures on the part of our employees to follow our established security measures and policies. Information security risks have increased significantly. Our technologies, systems, and networks may become the target of cyber-attacks, computer viruses, malicious code, or information security breaches that could result in the unauthorized release, gathering, monitoring, misuse, loss or destruction of our or our customers' confidential, proprietary and other information and the disruption of our business operations. A security breach could adversely impact our customer relationships, reputation and operation and result in violations of applicable privacy and other laws, financial loss to us or to our customers or to our employees, and litigation exposure. While we maintain a system of internal controls and procedures, any breach, attack, or failure as discussed above could have a material adverse impact on our business, financial condition, and results of operations or liquidity.

There is also an increasing attention on the importance of cybersecurity relating to infrastructure. This creates the potential for future developments in regulations relating to cybersecurity that may adversely impact us, our customers and how we offer our services to our customers.

Risks Relating to our Intellectual Property

If we cannot maintain our governmental permits or cannot obtain required permits, we may not be able to continue or expand our operations.

We are a nuclear services and waste management company. Our business is subject to extensive, evolving, and increasingly stringent federal, state, and local environmental laws and regulations. Such federal, state, and local environmental laws and regulations govern our activities regarding the treatment, storage, recycling, disposal, and transportation of hazardous and non-hazardous waste and low-level radioactive waste. We must obtain and maintain permits or licenses to conduct these activities in compliance with such laws and regulations. Failure to obtain and maintain the required permits or licenses would have a material adverse effect on our operations and financial condition. If any of our facilities are unable to maintain currently held permits or licenses or obtain any additional permits or licenses which may be required to conduct its operations, we may not be able to continue those operations at these facilities, which could have a material adverse effect on us.

We believe our proprietary technology is important to us.

We believe that it is important that we maintain our proprietary technologies. There can be no assurance that the steps taken by us to protect our proprietary technologies will be adequate to prevent misappropriation of these technologies by third parties. Misappropriation of our proprietary technology could have an adverse effect on our operations and financial condition. Changes to current environmental laws and regulations also could limit the use of our proprietary technology.

Risks Relating to our Financial Position and Need for Financing

Breach of any of the covenants in our credit facility could result in a default, triggering repayment of outstanding debt under the credit facility.

Our credit facility with our bank contains financial covenants. A breach of any of these covenants could result in a default under our credit facility triggering our lender to immediately require the repayment of all outstanding debt under our credit facility and terminate all commitments to extend further credit. Our fixed charge coverage ratio fell below the minimum quarterly requirement under our credit facility in the fourth quarter of 2018; however, we have obtained a waiver for this non-compliance from our lender. Additionally, our lender also has provided certain amendments to our fixed charge coverage ratio requirements for 2019 which will enable us to meet our quarterly fixed charge coverage ratio requirements. If we fail to meet any of our financial covenants going forward, including the minimum quarterly fixed charge coverage ratio requirement, and our lender does not further waive the non-compliance or further revise our covenant requirement so that we are in compliance, our lender could accelerates the payment of our borrowings under our credit facility. In such event, we may not have sufficient liquidity to repay our debt under our credit facility and other indebtedness.

Our debt and borrowing availability under our credit facility could adversely affect our operations.

At December 31, 2018, our aggregate consolidated debt was approximately $3,302,000. Our Amended and Restated Revolving Credit, Term Loan and Security Agreement, dated October 31, 2011, as subsequently amended ("Revised Loan Agreement") provides for a total credit facility commitment of approximately $18,100,000, consisting of a $12,000,000 revolving line of credit and a term loan of $6,100,000. The maximum we can borrow under the revolving part of the credit facility is based on a percentage of the amount of our eligible receivables outstanding at any one time reduced by outstanding standby letters of credit and any borrowing reduction that our lender may impose from time to time. At December 31, 2018, we had borrowings under the revolving part of our credit facility of approximately $639,000 and borrowing availability of up to an additional $2,368,000. A lack of positive operating results could have material adverse consequences on our ability to operate our business. Our ability to make principal and interest payments, to refinance indebtedness, and borrow under our credit facility will depend on both our and our subsidiaries' future operating performance and cash flow. Prevailing economic conditions, interest rate levels, and financial, competitive, business, and other factors affect us. Many of these factors are beyond our control.

Our indebtedness could limit our financial and operating activities, and adversely affect our ability to incur additional debt to fund future needs.

As a result of our indebtedness, we could, among other things, be:

- required to dedicate a substantial portion of our cash flow to the payment of principal and interest, thereby reducing the funds available for operations and future business opportunities;
- make it more difficult for us to satisfy our obligations;
- limit our ability to borrow additional money if needed for other purposes, including working capital, capital expenditures, debt service requirements, acquisitions and general corporate or other purposes, on satisfactory terms or at all;
- limit our ability to adjust to changing economic, business and competitive conditions;
- place us at a competitive disadvantage with competitors who may have less indebtedness or greater access to financing;
- make us more vulnerable to an increase in interest rates, a downturn in our operating performance or a decline in general economic conditions; and

make us more susceptible to changes in credit ratings, which could impact our ability to obtain financing in the future and increase the cost of such financing.

Any of the foregoing could adversely impact our operating results, financial condition, and liquidity. Our ability to continue our operations depends on our ability to generate profitable operations or complete equity or debt financings to increase our capital.

Risks Relating to our Common Stock

Issuance of substantial amounts of our Common Stock could depress our stock price.

Any sales of substantial amounts of our Common Stock in the public market could cause an adverse effect on the market price of our Common Stock and could impair our ability to raise capital through the sale of additional equity securities. The issuance of our Common Stock will result in the dilution in the percentage membership interest of our stockholders and the dilution in ownership value. At December 31, 2018, we had 11,936,573 shares of Common Stock outstanding.

In addition, at December 31, 2018, we had outstanding options to purchase 616,000 shares of our Common Stock at exercise prices ranging from $2.79 to $13.35 per share. Further, our preferred share rights plan, if triggered, could result in the issuance of a substantial amount of our Common Stock. The existence of this quantity of rights to purchase our Common Stock under the preferred share rights plan could result in a significant dilution in the percentage ownership interest of our stockholders and the dilution in ownership value. Future sales of the shares issuable could also depress the market price of our Common Stock.

We do not intend to pay dividends on our Common Stock in the foreseeable future.

Since our inception, we have not paid cash dividends on our Common Stock, and we do not anticipate paying any cash dividends in the foreseeable future. Our credit facility prohibits us from paying cash dividends on our Common Stock without prior approval from our lender.

The price of our Common Stock may fluctuate significantly, which may make it difficult for our stockholders to resell our Common Stock when a stockholder wants or at prices a stockholder finds attractive.

The price of our Common Stock on the NASDAQ Capital Markets constantly changes. We expect that the market price of our Common Stock will continue to fluctuate. This may make it difficult for our stockholders to resell the Common Stock when a stockholder wants or at prices a stockholder finds attractive.

Future issuance of our Common Stock could adversely affect the price of our Common Stock, our ability to raise funds in new stock offerings and could dilute the percentage ownership of our common stockholders.

Future sales of substantial amounts of our Common Stock or equity-related securities in the public market, or the perception that such sales or conversions could occur, could adversely affect prevailing trading prices of our Common Stock and could dilute the value of Common Stock held by our existing stockholders. No prediction can be made as to the effect, if any, that future sales of shares of our Common Stock or the availability of shares of our Common Stock for future sale will have on the trading price of our Common Stock. Such future sales or conversions could also significantly reduce the percentage ownership of our common stockholders.

Delaware law, certain of our charter provisions, our stock option plans, outstanding warrants and our Preferred Stock may inhibit a change of control under circumstances that could give you an opportunity to realize a premium over prevailing market prices.

We are a Delaware corporation governed, in part, by the provisions of Section 203 of the General Corporation Law of Delaware, an anti-takeover law. In general, Section 203 prohibits a Delaware public corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. As a result of Section 203, potential acquirers may be discouraged from attempting to effect acquisition transactions with us, thereby possibly depriving our security holders of certain opportunities to sell, or otherwise dispose of, such securities at above-market prices pursuant to such transactions. Further, certain of our option plans provide for the immediate acceleration of, and removal of restrictions from, options and other awards under such plans upon a “change of control” (as defined in the respective plans). Such provisions may also have the result of discouraging acquisition of us.

We have authorized and unissued 17,439,785 (which include shares issuable under outstanding options to purchase 616,000 shares of our Common Stock) shares of our Common Stock and 2,000,000 shares of our Preferred Stock as of December 31, 2018 (which includes 50,000 shares of our Preferred Stock reserved for issuance under our new preferred share rights plan discussed below). These unissued shares could be used by our management to make it more difficult for, and thereby discourage an attempt to acquire control of us.

Our Preferred Share Rights Plan may adversely affect our stockholders.

In May 2018, the Company adopted a new Preferred Share Purchase Rights Plan ("Rights Plan") to replace a 2008 rights plan which expired on May 2, 2018 ("Expiring Rights Plan"). As part of the Rights Plan, the Company's Board of Directors ("Board") declared a dividend distribution of one Preferred Share Purchase Right ("Right") on each outstanding share of the Company's Common Stock to stockholders of record on May 12, 2018. The new Rights Plan is designed to assure that all of the Company's shareholders receive fair and equal treatment in the event of any proposed takeover of the Company and to guard against partial tender abusive tactics to gain control of the Company.

In general, the Rights under the Rights Plan will be exercisable only if a person or group acquires beneficial ownership of 15% or more of the Company's Common Stock or announces a tender or exchange offer, the consummation of which would result in ownership by a person or group of 15% or more of the Common Stock (with certain exceptions). Each Right under the Rights Plan (other than the Rights owned by such acquiring person or members of such group which are void) will entitle shareholders to buy one one-thousandth of a share of a new series of participating preferred stock at an exercise price of $20.00. Each one one-thousandth of a share of such new preferred stock purchasable upon exercise of a Right has economic terms designed to approximate the value of one share of Common Stock. Shareholders who have beneficial ownership of 15% or more at the adoption of the new Rights Plan are grandfathered in, but may not acquire additional shares without triggering the new Rights Plan.

If the Company is acquired in a merger or other business combination transaction, each Right will entitle its holder (other than Rights owned by such acquiring person or members of such group which are void) to purchase, at the Right's then current exercise price, a number of the acquiring company's common shares having a market value at the time of twice the Right's exercise price.

In addition, if a person or group (with certain exceptions) acquires 15% or more of the Company's outstanding Common Stock, each Right will entitle its holder (other than the Rights owned by such acquiring person or members of such group which are void) to purchase, in lieu of preferred stock, at the Right's then current exercise price, a number of shares of the Company's Common Stock having a market value of twice the Right's exercise price.

Following the acquisition by a person or group of beneficial ownership of 15% or more of the Company's outstanding Common Stock (with certain exceptions), and prior to an acquisition of 50% or more of the Company's Common Stock by such person or group, the Company's Board may, at its option, exchange the Rights (other than Rights owned by such acquiring person or members of such group) in whole or in part, for shares of the Company's Common Stock at an exchange ratio of one share of Common Stock (or one one-thousandth of a share of the new series of participating preferred stock) per Right.

Prior to the acquisition by a person or group of beneficial ownership of 15% or more of the Company's Common Stock (with certain exceptions), the Rights are redeemable for $0.001 per Right at the option of the Board of Directors.

The Rights Plan is to terminate the earliest of (1) close of business on May 2, 2019, (2) the time at which the Rights are redeemed, (3) the time at which the Rights are exchange, or (4) closing of any merger or acquisition of the Company which has been approved by the Board of Directors prior to any person becoming such an acquiring person.

The Rights will cause substantial dilution to a person or group that attempts to acquire us on terms not approved by our Board. The Rights should not interfere with any merger or other business combination approved by our Board.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not Applicable.

ITEM 2. PROPERTIES

Our principal executive office is in Atlanta, Georgia. Our Business Center is located in Oak Ridge, Tennessee. Our Treatment Segment facilities are located in Gainesville, Florida; Kingston, Tennessee; and Richland, Washington. Our Services Segment maintains offices as noted below, which are all leased properties. We maintain properties in Valdosta, Georgia and Memphis, Tennessee, which are all non-operational and are included within our discontinued operations.

The properties where three of our facilities operate on (Kingston, Tennessee; Gainesville, Florida; and Richland, Washington) are held by our senior lender as collateral for our credit facility. The Company currently leases properties in the following locations:

Location	Square Footage	Expiration of Lease
Oak Ridge, TN (Business Center)	14,932	May 1, 2022
Oak Ridge, TN (SEC)	5,000	September 30, 2019
Blaydon On Tyne, England (PF UK Limited)	1,000	Monthly
New Brighton, PA (SEC)	3,558	June 30, 2022
Newport, KY (SEC)	1,566	Monthly
Friendly, WV (SEC)	320	Monthly
Pembroke, Ontario, Canada (SEC)	800	Monthly
Atlanta, GA (Corporate)	6,499	February 28, 2021

We believe that the above facilities currently provide adequate capacity for our operations and that additional facilities are readily available in the regions in which we operate, which could support and supplement our existing facilities.

Our M&EC facility (within our Treatment Segment), located in Oak Ridge, TN, is currently in closure status. The lease for the facility expired on March 31, 2019.

ITEM 3. LEGAL PROCEEDINGS

In the normal course of conducting our business, we may become involved in litigation or be subject to local, state and federal agency (government) proceedings. We are not a party to any litigation or governmental proceeding, which our management believes could result in any judgments or fines that would have a material adverse effect on our financial position, liquidity or results of future operations.

ITEM 4. MINE SAFETY DISCLOSURE

Not Applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

Our Common Stock is traded on the NASDAQ Capital Markets ("NASDAQ") under the symbol "PESI." The following table sets forth the high and low market trade prices quoted for the Common Stock during the periods shown. The source of such quotations and information is the NASDAQ online trading history reports.

		2018		2017	
		Low	High	Low	High
Common Stock	1st Quarter	$3.29	$4.26	$2.85	$4.00
	2nd Quarter	4.10	5.15	2.95	3.85
	3rd Quarter	4.05	5.00	3.25	4.30
	4th Quarter	1.90	4.57	3.40	4.05

At February 15, 2019, there were approximately 191 stockholders of record of our Common Stock, including brokerage firms and/or clearing houses holding shares of our Common Stock for their clientele (with each brokerage house and/or clearing house being considered as one holder). However, we have been advised that the total number of beneficial stockholders at February 15, 2019 was approximately 2,045.

Since our inception, we have not paid any cash dividends on our Common Stock and have no dividend policy. Our Revised Loan Agreement prohibits us from paying any cash dividends on our Common Stock without prior approval from our lender. We do not anticipate paying cash dividends on our outstanding Common Stock in the foreseeable future.

There were no purchases made by us or on behalf of us or any of our affiliated members of shares of our Common Stock during 2018.

On May 30, 2018, the Company completed an exchange offer of the Series B Preferred Stock of its wholly-owned subsidiary, M&EC, resulting in the issuance of 134,994 unregistered shares of the Company's Common Stock in a private placement pursuant to an exemption from registration under the Securities Act of 1933, as amended (the "Act"). See Note 8 "Series B Preferred Stock" in Part II, Item 8, "Financial Statements and Supplementary Data" for the issuance of the 134,994 shares which is incorporated herein by reference.

In May 2018, we adopted a new preferred share rights plan (the "Rights Plan"), which is designed to protect us against certain creeping acquisitions, open market purchases, and certain mergers and other combinations with acquiring companies. The Rights Plan terminates at the earliest of (1) close of business on May 2, 2019, (2) the time at which the Rights are redeemed, (3) the time at which the Rights are exchange, or (4) closing of any merger or acquisition of the Company approved by the Board prior to any person becoming acquiring person.

See Item 1A. - Risk Factors – "Our Preferred Share Rights Plan may adversely affect our stockholders" as to further discussion relating to the terms of our new Rights Plan in addition to its termination date.

See Note 6 "Capital Stock, Stock Plans, Warrants, and Stock Based Compensation" in Part II, Item 8, "Financial Statements and Supplementary Data" and "Equity Compensation Plan" in Part III, Item 12, "Security Ownership of Certain Beneficial Owners and Management and Related Stockholders Matter" for securities authorized for issuance under equity compensation plans which are incorporated herein by reference.

ITEM 6. SELECTED FINANCIAL DATA

Not required under Regulation S-K for smaller reporting companies.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Certain statements contained within this "Management's Discussion and Analysis of Financial Condition and Results of Operations" ("MD&A") may be deemed "forward-looking statements" within the meaning of Section 27A of the Act, and Section 21E of the Securities Exchange Act of 1934, as amended (collectively, the "Private Securities Litigation Reform Act of 1995"). See "Special Note regarding Forward-Looking Statements" contained in this report.

Management's discussion and analysis is based, among other things, upon our audited consolidated financial statements and includes our accounts, the accounts of our wholly-owned subsidiaries and the accounts of our majority-owned Polish subsidiary, after elimination of all significant intercompany balances and transactions.

The following discussion and analysis should be read in conjunction with our consolidated financial statements and the notes thereto included in Item 8 of this report.

Review

Revenue decreased $230,000, or 0.5%, to $49,539,000 for the twelve months ended December 31, 2018 from $49,769,000 for the corresponding period of 2017. Treatment Segment revenue decreased approximately $1,479,000, or 3.9%, to $36,271,000 from $37,750,000. Our East Tennessee Materials and Energy Corporation ("M&EC") facility, which is currently in closure status, had revenues of approximately $155,000 in 2018 as compared to $6,312,000 in the corresponding period of 2017; however, revenues from our remaining Treatment Segment facilities increased by approximately $4,678,000 as we continue to transition operational capabilities from our M&EC facility to our other Treatment Segment facilities, subject to customer requirements and regulatory approvals. Our Treatment Segment revenues were also negatively impacted by delays in waste shipments which were not received until late in the fourth quarter of 2018, which we believe should have a positive effect for us in the first half of 2019. Treatment Segment backlog increased approximately $3,438,000, or 44.8%, to $11,104,000 at December 31, 2018 from $7,666,000 at December 31, 2017. Services Segment revenue increased approximately $1,249,000, or 10.4%, to $13,268,000 for the twelve months ended December 31, 2018 from $12,019,000 for the corresponding period of 2017.

Total gross profit decreased $159,000, or 1.8%, for the year ended December 31, 2018 as compared to the corresponding period of 2017. Our gross profit for the years ended December 31, 2018 and 2017 included an additional $3,323,000 and $1,400,000, respectively, in closure costs recorded in our Treatment Segment in connection with the closure of our M&EC facility. Total SG&A expenses decreased by $360,000, or 3.2%, for the year ended 2018 as compared to the year ended 2017.

Net losses from continuing operations for the year ended December 31, 2018 and 2017 included tax benefits of $1,235,000 and $1,695,000, respectively, recorded resulting from the Tax Cuts and Jobs Act of 2017 (the "TCJA") enacted into law on December 22, 2017 (see "Income Taxes" in this MD&A for a discussion of the tax benefits recorded). During the second quarter of 2018, we recorded a net gain of $1,596,000 in connection with the exchange offer of our Common Stock for M&EC's outstanding Series B Preferred Stock as discussed in this MD&**A** (see "M&EC Series B Preferred Stock").

We had a working capital deficit of approximately $6,753,000 at December 31, 2018, as compared to working capital deficit of $2,268,000 at December 31, 2017 (see "Liquidity and Capital Resources –Operating Activities" within this Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") for a discussion as to our working capital deficit and improvement made to our working capital deficit subsequent to December 31, 2018 and further improvements we expect to our working capital deficit subsequent to the filing of this report).

Business Environment and Outlook

Our Treatment and Services Segments' business continues to be heavily dependent on services that we provide to governmental clients directly as the contractor or indirectly as a subcontractor. We believe demand for our services will continue to be subject to fluctuations due to a variety of factors beyond our control, including the current economic conditions and the manner in which the government will be required to spend funding to remediate federal sites. In addition, our governmental contracts and subcontracts relating to activities at governmental sites are generally subject to termination or renegotiation on 30 days notice at the government's option. Significant reductions in the level of governmental funding or specifically mandated levels for different programs that are important to our business could have a material adverse impact on our business, financial position, results of operations and cash flows. As previously disclosed, our Medical Segment (which has not generated any revenues to date) substantially reduced its research and development ("R&D") activities due to the need for capital to fund such activities. Our Medical Segment continues to seek various sources in order to raise this capital or partners willing to provide the funding for its R&D activities. We anticipate that our Medical Segment R&D activities will be limited until the necessary capital is obtained through its own credit facility or additional equity raise or obtaining partners willing to provide funding for its R&D activities. If the Medical Segment is unable to raise the necessary capital, the Medical Segment could be required to further reduce, delay or eliminate its R&D program.

We are continually reviewing operating costs and are committed to further reducing operating costs to bring them in line with revenue levels, when needed. We continue to focus on expansion into both commercial and international markets to increase revenues in our Treatment and Services Segments to offset the uncertainties of government spending in the United States of America. See "Liquidity and Capital Resources" below for further discussion of our liquidity.

Results of Operations

The reporting of financial results and pertinent discussions are tailored to our three reportable segments: The Treatment Segment ("Treatment"), the Services Segment ("Services"), and the Medical Segment ("Medical"). Our Medical Segment has not generated any revenue and all costs incurred are included within R&D:

Summary - Years Ended December 31, 2018 and 2017

Below are the results of continuing operations for years ended December 31, 2018 and 2017 (amounts in thousands):

(Consolidated)	2018	%	2017	%
Net revenues	$49,539	100.0	$49,769	100.0
Cost of goods sold	41,078	82.9	41,149	82.7
Gross profit	8,461	17.1	8,620	17.3
Selling, general and administrative	10,741	21.7	11,101	22.3
Research and development	1,370	2.8	1,595	3.2
Gain on disposal of property and equipment	(46)	(.1)	(12)	—
Impairment loss on tangible assets	—	—	672	1.3
Loss from operations	(3,604)	(7.3)	(4,736)	(9.5)
Interest income	295	.6	140	.3
Interest expense	(251)	(.5)	(315)	(.6)
Interest expense – financing fees	(38)	(.1)	(35)	(.1)
Net gain on exchange offer of Series B Preferred Stock	1,596	3.2	—	—
Other	(8)	—	123	.2
Loss from continuing operations before taxes	(2,010)	(4.1)	(4,823)	(9.7)
Income tax benefit	(936)	(1.9)	(1,285)	(2.6)
Loss from continuing operations	$(1,074)	(2.2)	$(3,538)	(7.1)

Revenue

Consolidated revenues decreased $230,000 for the year ended December 31, 2018 compared to the year ended December 31, 2017, as follows:

(In thousands)	2018	% Revenue	2017	% Revenue	Change	% Change
Treatment						
Government waste	$23,701	47.8	$27,925	56.1	$(4,224)	(15.1)
Hazardous/non-hazardous [1]	5,656	11.4	4,855	9.8	801	16.5
Other nuclear waste	6,914	14.0	4,970	10.0	1,944	39.1
Total	36,271	73.2	37,750	75.9	(1,479)	(3.9)
Services						
Nuclear	10,424	21.1	9,186	18.4	1,238	13.5
Technical	2,844	5.7	2,833	5.7	11	0.4
Total	13,268	26.8	12,019	24.1	1,249	10.4
Total	$49,539	100.0	$49,769	100.0	$(230)	(0.5)

1) Includes wastes generated by government clients of $1,594,000 and $31,000 for the twelve months ended December 31, 2018 and the corresponding period of 2017, respectively.

Treatment Segment revenue decreased $1,479,000, or 3.9 %, for the year ended December 31, 2018 over the same period in 2017. The revenue decrease was primarily due to lower revenue generated from government clients due to lower volume and lower averaged price waste resulting from waste mix. Other nuclear waste increased by approximately $1,944,000, or 39.1%, primarily due to higher waste volume and higher averaged price waste. Revenue for our M&EC subsidiary (in closure status) decreased approximately $6,157,000 for the twelve months ended December 31, 2018 as compared to the corresponding period of 2017 ($155,000 in the twelve months of 2018 as compared to $6,312,000 in the twelve months of 2017); however, our remaining Treatment Segment facilities had a total increase in revenue of approximately $4,678,000 in the twelve months of 2018, as compared to the corresponding period of 2017 as we continue to transition operational capabilities from our M&EC subsidiary to our other Treatment Segment facilities, subject to customer requirements and regulatory approvals. Services Segment revenue increased by $1,249,000, or 10.4%, for year ended December 31, 2018 over the same period in 2017. Our Services Segment revenues are project based; as such, the scope, duration and completion of each project vary. As a result, our Services Segment revenues are subject to differences relating to timing and project value.

Cost of Goods Sold

Cost of goods sold decreased $71,000 for the year ended December 31, 2018, as compared to the year ended December 31, 2017, as follows:

(In thousands)	2018	% Revenue	2017	% Revenue	Change
Treatment	$29,074	80.2	$29,834	79.0	$ (760)
Services	12,004	90.5	11,315	94.1	689
Total	$41,078	82.9	$41,149	82.7	$ (71)

Cost of goods sold for the Treatment Segment decreased by $760,000, or approximately 2.5%. Treatment Segment costs of goods sold for the year ended December 31, 2018 and 2017 included additional closure costs recorded in the amount of approximately $3,323,000 and $1,400,000, respectively, for our M&EC facility due to changes in estimated future closure costs in connection with the closure of the facility. Excluding the closure costs in both periods, Treatment Segment costs decreased $2,683,000, or 9.4%. Total Treatment Segment's variable costs decreased by approximately $1,214,000 primarily in disposal, transportation and material and supplies costs. Treatment Segment overall fixed costs were lower by approximately $1,469,000 resulting from the following: depreciation expense was lower by approximately $2,281,000 as the tangible assets at our M&EC facility became fully depreciated by the end of the third quarter of 2017 resulting from the pending closure of the facility; regulatory costs were lower by approximately $63,000; maintenance expense was higher by $21,000; salaries/payroll related/healthcare expenses were higher by $658,000; travel expenses were higher by $91,000; and general expenses were higher by $105,000 in various categories. Services Segment cost of goods sold increased $689,000, or 6.1%, primarily due to the increase in revenue as discussed above. The increase in Services Segment's cost of goods sold was primarily due to higher salaries and payroll related expenses, travel, and outside services expenses totaling approximately $1,311,000 and higher material and supplies cost of approximately $176,000. This overall higher cost in Services Segment's cost of goods sold was offset by lower disposal/transportation costs totaling approximately $585,000 with the remaining lower costs in general expenses in various categories and lower depreciation expenses totaling approximately $213,000. Included within cost of goods sold is depreciation and amortization expense of $1,378,000 and $3,720,000 for the twelve months ended December 31, 2018, and 2017, respectively.

Gross Profit

Gross profit for the year ended December 31, 2018 was $159,000 lower than 2017 as follows:

(In thousands)	2018	% Revenue	2017	% Revenue	Change
Treatment	$7,197	19.8	$7,916	21.0	$ (719)
Services	1,264	9.5	704	5.9	560
Total	$8,461	17.1	$8,620	17.3	$ (159)

Excluding the $3,323,000 and $1,400,000 in closure costs recorded in the twelve months ended December 31, 2018 and 2017, respectively, within Treatment Segment's costs of goods sold discussed above in connection with the closure of the M&EC facility, our Treatment Segment had a gross profit increase of $1,204,000, or 12.9%, and gross margin increased to 29.0% from 24.7% primarily due to the reduction in our fixed costs (as discussed above in costs of goods sold) and revenue mix. In the Services Segment, the increases in gross profit of $560,000, or 79.5%, and gross margin to 9.5% from 5.9% was primarily due to the increase in revenue as discussed above. Additionally, our overall Services Segment gross margin is impacted by our current projects which are competitively bid on and will therefore, have varying margin structures.

SG&A

SG&A expenses decreased $360,000 for the year ended December 31, 2018 as compared to the corresponding period for 2017 as follows:

(In thousands)	2018	% Revenue	2017	% Revenue	Change
Administrative	$4,947	—	$4,788	—	$ 159
Treatment	3,740	10.3	3,316	8.8	424
Services	2,054	15.5	2,997	24.9	(943)
Total	$10,741	21.7	$11,101	22.3	$ (360)

The decrease in total SG&A was primarily due to lower SG&A costs in the Services Segment. The decrease in Services Segment SG&A of $943,000 was primarily due to the following: outside services expenses were lower by approximately $120,000 resulting from fewer consulting/legal/subcontract matters; bad debt expense was lower by approximately $394,000 as we recorded an additional $364,000 in bad debt expense during the fourth quarter of 2017 as certain accounts receivables were determined not to be collectible at December 31, 2017; general expenses were lower by approximately $385,000 in various categories which included a reduction in rent expense resulting from the end of our lease term for our business center office in Knoxville, Tennessee (which was not renewed with the same lessor) in the second quarter of 2018; and salaries and payroll related expense were lower by approximately $44,000. The increase in Administrative SG&A was primarily due to the following: stock-based compensation expenses were higher by approximately $68,000 resulting from options granted to our executive officers in July 2017 and options granted to certain of our employees in October 2017; salary/payroll related/healthcare costs were higher by approximately $152,000; general expenses were lower by $48,000 in various categories; and outside services expenses were lower by $13,000 resulting from fewer consulting/business matters. Treatment SG&A expenses were higher primarily due to the following: general expenses were higher by approximately $237,000 in various categories; travel expenses were higher by approximately $48,000; outside services expenses were higher by $88,000 resulting from more business/consulting matters; and bad debt expenses were higher by $51,000. Included in SG&A expenses is depreciation and amortization expense of $77,000 and $83,000 for the twelve months ended December 31, 2018 and 2017, respectively.

R&D

R&D expenses decreased $225,000 for the year ended December 31, 2018 as compared to the corresponding period of 2017 as follows:

(In thousands)	2018	2017	Change
Administrative	$76	$15	$ 61
Treatment	483	439	44
Services	—	—	—
PF Medical	811	1,141	(330)
Total	$1,370	$1,595	$ (225)

Research and development costs consist primarily of employee salaries and benefits, laboratory costs, third party fees, and other related costs associated with the development of new technologies and technological enhancement of new potential waste treatment processes. The decrease in R&D costs for 2018 as compared to 2017 was primarily due to reduced R&D performed by our PF Medical Segment as discussed above.

Interest Income

Interest income increased $155,000 for the year ended December 31, 2018 as compared to the corresponding period of 2017 primarily due to higher interest earned on the finite risk sinking funds resulting from higher interest rates.

Interest Expense

The decrease in interest expense of approximately $64,000 for the twelve months ended December 31, 2018 as compared to the corresponding period of 2017 was primarily due to lower interest expense from our declining term loan balance and lower average revolver loan balance outstanding.

Income Taxes

We had income tax benefits of $936,000 and $1,285,000 for continuing operations for the years ended December 31, 2018 and 2017, respectively. The Company’s effective tax rates were approximately 46.6% and 26.6% for the twelve months ended December 31, 2018 and 2017, respectively. Our tax benefit for 2018 included a tax benefit of approximately $1,235,000 recorded in 2018 resulting from the release of a portion of the valuation allowance on deferred tax assets related to indefinite-lived net operating losses generated due to the closure of our M&EC facility. Our tax benefit for 2017 included a tax benefit of approximately $1,695,000 recorded in the fourth quarter of 2017 resulting primarily from the required re-measurement of our deferred assets and liabilities and the reversal of valuation allowance and refunding of alternative minimum tax ("AMT") credit carryforward. These tax benefits were recorded as a result of the TCJA enacted into law in December 22, 2017 (see "Critical Accounting Policies" in this section for a further discussion of the Tax Act and the tax benefits recorded).

Discontinued Operations

Our discontinued operations consist of all our subsidiaries included in our Industrial Segment which were divested in 2011 and prior, previously closed locations, and our Perma-Fix of South Georgia, Inc. ("PFSG") facility which is undergoing final closure, subject to regulatory approval of necessary plans and permits.

Our discontinued operations had no revenue for the twelve months ended December 31, 2018 and 2017. We incurred net losses of $667,000 and $592,000 for our discontinued operations for the twelve months ended December 31, 2018 and 2017, respectively (net of taxes of $0 for each period). Our net loss for the year ended December 31, 2018 included an increase of approximately $50,000 in remediation reserve recorded in the second quarter of 2018 for our Perma-Fix of Dayton ("PFD") subsidiary due to reassessment of the remediation reserve, with the remaining loss incurred primarily due to costs incurred in the administration and continued monitoring of our discontinued operations. The loss incurred for 2017 was primarily due to costs incurred in the administration and continued monitoring of our discontinued operations.

Liquidity and Capital Resources

Our cash flow requirements during 2018 were primarily financed by our operations and credit facility availability. We generated positive cash flow from our operations of approximately $1,960,000, which included cash outlays of approximately $5,400,000 in operating and closure spending for our M&EC facility, which is in closure status. Our cash flow requirements for the next twelve months will consist primarily of general working capital needs, scheduled principal payments on our debt obligations, remediation projects, planned capital expenditures, and remaining spending requirements in connection with the closure of our M&EC facility. We plan to fund these requirements from our operations, credit facility availability and proceeds of approximately $2,500,000 from a loan that was consummated on April 1, 2019 (see "Financing Activities" below for further information of the agreement and note). Additionally, as a result of the M&EC facility closure, we expect to receive, by the end of the second quarter of 2019, a release of approximately $5,000,000 of the $15,971,000 restricted finite risk sinking funds held by American International Group ("AIG") as collateral under the financial assurance policy dated June 2003 that we currently have with AIG. The release of this finite risk sinking fund is subject to approval from AIG and the appropriate regulators, and, when released, we expect will further enhance our liquidity and improve our working capital deficit. We continue to explore all sources of increasing revenue. We are continually reviewing operating costs and are committed to further reducing operating costs to bring them in line with revenue levels, when necessary. Although there are no assurances, we believe that our cash flows from operations, our available liquidity from our credit facility and loan proceeds of $2,500,000 received from the loan described below should be sufficient to fund our operations for the next twelve months. Additionally, the finite risk sinking funds that we expect to receive as a result of the M&EC facility closure as discussed above will provide additional funding for our operations as needed and improve our working capital. As previously disclosed, our Medical Segment substantially reduced its R&D activities due to the need for capital to fund such activities. We continue to seek various sources of potential funding for our Medical Segment. We anticipate that our Medical Segment will not resume full R&D activities until it obtains the necessary funding through obtaining its own credit facility or additional equity raise or obtaining new partners willing to fund its R&D activities. If the Medical Segment is unable to raise the necessary capital, the Medical Segment could be required to further reduce, delay or eliminate its R&D program.

The following table reflects the cash flow activity for the year ended December 31, 2018 and the corresponding period of 2017:

(In thousands)	2018	2017
Cash provided by operating activities of continuing operations	$2,578	$1,089
Cash used in operating activities of discontinued operations	(618)	(647)
Cash used in investing activities of continuing operations	(1,385)	(409)
Cash provided by investing activities of discontinued operations	67	69
Cash used in financing activities of continuing operations	(580)	(5,022)
Effect of exchange rate changes on cash	(20)	9
Increase (decrease) in cash and finite risk sinking fund (restricted cash)	$42	$(4,911)

At December 31, 2018, we were in a net borrowing position (revolving credit) of approximately $639,000. At December 31, 2018, we had cash on hand of approximately $810,000, which reflects primarily account balances of our foreign subsidiaries totaling approximately $806,000.

Operating Activities

Accounts receivable, net of allowances for doubtful accounts, totaled $7,735,000 at December 31, 2018, a decrease of $205,000 from the December 31, 2017 balance of $7,940,000. The decrease was primarily due to timing of invoicing and timing of accounts receivable collection. We provide a variety of payment terms to our customers; therefore, our accounts receivable are impacted by these terms and the related timing of accounts receivable collections.

Accounts payable, totaled $5,497,000 at December 31, 2018, an increase of $1,960,000 from the December 31, 2017 balance of $3,537,000. The increase in accounts payable was attributed to closure related expenses for our M&EC facility which are pending payment. Additionally, our accounts payable are impacted by the timing of payments as we are continually managing payment terms with our vendors to maximize our cash position throughout all segments.

Disposal/transportation accrual at December 31, 2018, totaled $1,542,000, a decrease of $529,000 over the December 31, 2017 balance of $2,071,000. Our disposal accrual can vary based on revenue mix and the timing of waste shipments for final disposal. During 2018, we shipped more waste for disposal than 2017.

We had a working capital deficit of $6,753,000 (which included working capital of our discontinued operations) at December 31, 2018 as compared to a working capital deficit of $2,268,000 at December 31, 2017. The additional accrual of $3,323,000 in closure costs we recorded in 2018 in connection with the closure of our M&EC facility negatively impacted our working capital. Additionally, our working capital was also negatively impacted by the increase of our unearned revenue. The loan proceeds of $2,500,000 that we received from a loan agreement consummated on April 1, 2019 as discussed below has improved our working capital deficit. Additionally, we anticipate that cash flows to be generated from our operations and the release of the restricted finite sinking funds by AIG of $5,000,000 which we anticipate to receive upon the closure of our M&EC facility as discussed above, will provide further improvement to our working capital deficit.

Investing Activities

During 2018, our purchases of capital equipment totaled approximately $1,977,000, of which $545,000 was financed, with the remaining funded from cash from operations and our credit facility. These expenditures were made primarily for our Treatment Segment. We have budgeted approximately $1,500,000 for 2019 capital expenditures for our Treatment and Services Segments to maintain operations and regulatory compliance requirements and continued footprint expansion for one of our Treatment Segment facilities. Certain of these budgeted projects may either be delayed until later years or deferred altogether. We have traditionally incurred actual capital spending totals for a given year at less than the initial budgeted amount. We plan to fund our capital expenditures from cash from operations and/or financing. The initiation and timing of projects are also determined by financing alternatives or funds available for such capital projects.

Financing Activities

We entered into an Amended and Restated Revolving Credit, Term Loan and Security Agreement, dated October 31, 2011 (“Amended Loan Agreement”), with PNC National Association (“PNC”), acting as agent and lender. The Amended Loan Agreement, as subsequently amended (“Revised Loan Agreement”), provides us with the following credit facility with a maturity date of March 24, 2021: (a) up to $12,000,000 revolving credit ("revolving credit") and (b) a term loan ("term loan") of approximately $6,100,000, which requires monthly installments of approximately $101,600 (based on a seven-year amortization). The maximum that we can borrow under the revolving credit is based on a percentage of eligible receivables (as defined) at any one time reduced by outstanding standby letters of credit and borrowing reductions that our lender may impose from time to time.

Under the Revised Loan Agreement, we have the option of paying an annual rate of interest due on the revolving credit at prime (5.50% at December 31, 2018) plus 2% or London Inter Bank Offer Rate ("LIBOR") plus 3% and the term loan at prime plus 2.5% or LIBOR plus 3.5%.

Pursuant to the Revised Loan Agreement, we may terminate the Revised Loan Agreement, upon 90 days' prior written notice upon payment in full of our obligations under the Revised Loan Agreement. We agree to pay PNC 0.25% of the total financing if we pay off our obligations after March 23, 2018 but prior to or on March 23, 2019. No early termination fee shall apply if we pay off our obligations after March 23, 2019.

At December 31, 2018, the borrowing availability under our revolving credit was $2,368,000, based on our eligible receivables and includes an indefinite reduction of borrowing availability of $1,000,000 that our lender has imposed. Our borrowing availability under our revolving credit was also reduced by outstanding standby letters of credit totaling approximately $2,648,000. Previously, our lender had imposed an indefinite reduction of borrowing availability of $2,000,000; however, on July 26, 2018, we entered into an amendment to our Revised Loan Agreement with our lender which provided, among other things, for the release of $1,000,000 of the $2,000,000 reduction in borrowing availability by our lender. The release of this $1,000,000 in borrowing availability reduction was used for working capital purposes.

On March 29, 2019, we entered into another amendment to our Revised Loan Agreement with our lender under the credit facility which provided the following:

waived our failure to meet the minimum quarterly fixed charge coverage ratio ("FCCR") requirement for the fourth quarter of 2018 as discussed below;
waived the quarterly FCCR testing requirement for the first quarter of 2019;
revised the methodology to be used in calculating the FCCR in each of the second and third quarters of 2019 (with continued requirement to maintain a minimum 1.15:1 ratio in each of the quarters);
revised the minimum Tangible Adjusted Net Worth requirement (as defined in the Revised Loan Agreement) from $26,000,000 to $25,000,000;
eliminated the LIBOR interest payment option of paying annual rate of interest due on our term loan and revolving credit until we become compliant with our FCCR requirement again. As a result of this amendment, our payment of annual rate of interest due on our term loan will be at prime plus 2.5% and prime plus 2.0% for our revolving credit;
provided consent for the $2,500,000 loan that we entered into with Robert Ferguson as discussed below. We are not allowed to make any principal prepayment on this loan until we receive the restricted finite risk sinking funds held as collateral by AIG under our financial assurance policy. We expect to receive this restricted funds resulting from the closure of our M&EC facility (see "Liquidity and Capital Resources" for a discussion of this expected receipt); and
revised the annual rate used to calculate the Facility Fee (as defined in the Revised Loan Agreement) ("unused revolving credit line fee") from 0.250% to 0.375%.

Most of the other terms of the Revised Loan Agreement remain principally unchanged. In connection with this amendment, we paid our lender a fee of $20,000.

Our credit facility with our lender contains certain financial covenants, along with customary representations and warranties. A breach of any of these financial covenants, unless waived by our lender, could result in a default under our credit facility allowing our lender to immediately require the repayment of all outstanding debt under our credit facility and terminate all commitments to extend further credit. The following table illustrates the most significant quarterly financial covenant requirements under our credit facility at December 31, 2018.

(Dollars in thousands)	Quarterly Requirement	1st Quarter Actual	2nd Quarter Actual	3rd Quarter Actual	4th Quarter Actual
Senior Credit Facility					
Fixed charge coverage ratio	1.15:1	1.22:1	1.72:1	1.39:1	1.13:1
Minimum tangible adjusted net worth	$ 26,000	$27,038	$28,364	$28,686	$26,133

We met our financial covenant requirements in 2018 with the exception of our minimum quarterly FCCR requirement for the fourth quarter of 2018; however, our lender waived this non-compliance as discussed above. As a result of the amendment discussed above which provides for further amendments to our quarterly FCCR requirements, we expect to meet our financial covenant requirements in the next twelve months; however, if we fail to meet any of our financial covenant requirements and our lender does not further waive the non-compliance or revise our covenant so that we are in compliance, our lender could accelerate the repayment of borrowings under our credit facility. In the event that our lender accelerates the payment of our borrowings, we may not have sufficient liquidity to repay our debt under our credit facility and other indebtedness.

On April 1, 2019, we completed a lending transaction with Robert Ferguson (the “Lender”), whereby we borrowed from the Lender the sum of $2,500,000 pursuant to the terms of a Loan and Security Purchase Agreement and promissory note (the “Loan”). The Lender is a shareholder of the Company. The Lender also currently serves as a consultant to the Company’s PFNWR subsidiary (see “Related Party Transactions – Robert Ferguson” for further information). The proceeds from the Loan will be used for general working capital purposes. The Loan is unsecured, with a term of two years with interest payable at a fixed interest rate of 4.00% per annum. The Loan provides for monthly payments of accrued interest only during the first year of the Loan, with the first interest payment due May 1, 2019 and monthly payments of approximately $208,333 in principal plus accrued interest starting in the second year of the Loan. The Loan also provides for prepayment of principal payments over the term of the Loan without penalty. In connection with the above Loan, the Lender entered into a Subordination Agreement with our credit facility lender, whereby the Lender agreed to subordinate payment under the Loan, and agreed that the Loan will be junior in right of payment to the credit facility in the event of default or bankruptcy or other insolvency proceeding by us. As consideration for us receiving the Loan, we issued a Warrant to the Lender to purchase up to 60,000 shares of our Common Stock at an exercise price of $3.51, which was the closing bid price for a share of our Common Stock on NASDAQ.com immediately preceding the execution of the Loan and Warrant. The Warrant is exercisable six months from April 1, 2019 and expires on April 1, 2024. As further consideration for the Loan, we also will issue 75,000 shares of our Common Stock, to the Lender. The 75,000 shares of Common Stock and 60,000 Common Stock purchase warrant will be and was issued in a private placement that was exempt from registration under the Securities Act of 1933, as amended (the “Securities Act”) and bear a restrictive legend against resale except in a transaction registered under the Securities Act or in a transaction exempt from registration thereunder.

Upon default, the Lender will have the right to elect to receive in full and complete satisfaction of our obligations under the Loan either: (a) the cash amount equal to the sum of the unpaid principal balance owing under the loan and all accrued and unpaid interest thereon (the "Payoff Amount") or (b) upon meeting certain conditions, the number of whole shares of our Common Stock (the "Payoff Shares") determined by dividing the Payoff Amount by the dollar amount equal to the closing bid price of our Common Stock on the date immediately prior to the date of default, as reported or quoted on the primary nationally recognized exchange or automated quotation system on which our Common Stock is listed; provided however, that the dollar amount of such closing bid price shall not be less than $3.51, the closing bid price for our Common Stock as disclosed on NASDAQ.com immediately preceding the signing of this loan agreement.

If issued, the Payoff Shares will not be registered and the Lender will not be entitled to registration rights with respect to the Payoff Shares. The aggregate number of shares, warrant shares, and Payoff Shares that are or will be issued to the Lender pursuant to the Loan, together with the aggregate shares of our Common Stock and other voting securities owned by the Lender as of the date of issuance of the Payoff Shares, shall not exceed the number of shares of our Common Stock equal to 14.9% of the number of shares of our Common Stock issued and outstanding as of the date immediately prior to the default, less the number of shares of our Common Stock owned by the Lender immediately prior to the date of such default plus the number of shares of our Common Stock that may be acquired by the Lender under warrants and/or options outstanding immediately prior to the date of such default.

We are currently evaluating the accounting treatment of this transaction and the impact to our financial statements.

M&EC Series B Preferred Stock

The 1,284,730 shares of the non-voting Series B Preferred Stock (the "Series B Preferred Stock") of our consolidated wholly-owned subsidiary, M&EC, were exchanged by us for our Common Stock in a private exchange offer exempt from registration (the "Exchange Offer"). Holders of shares of M&EC Series B Preferred Stock were entitled to receive, when, as and if declared by M&EC's Board of Directors ("Board") out of funds legally available for payment, cumulative dividends at the rate per annum of 5% per share on the liquidation preference of $1.00 per share of Series B Preferred Stock. Dividends on the Series B Preferred Stock accrued without interest beginning one year from the date of original issuance (June 25, 2001), and was payable in cash, if, when, and as declared by M&EC Board, quarterly each year commencing on the first dividend due date following the expiration of one year from the date of original issuance. The Exchange Offer, to all 13 holders of the M&EC Series B Preferred Stock, was to exchange, in a private placement exempt from registration, for every share of Series B Preferred Stock tendered, (a) 0.1050805 shares of our newly issued common stock, par value $.001 per share ("Common Stock"), and (b) cash in lieu of fractional shares of Common Stock that would otherwise be issuable to the tendering holder of Series B Preferred Stock, in an amount equal to such fractional share of Common Stock multiplied by the closing price per share of the Common Stock on the last trading day immediately preceding the expiration date of the Exchange Offer. The Exchange Offer for all 1,284,730 shares of Series B Preferred Stock outstanding and had an expiration date of May 30, 2018. We own 100% of the voting capital stock of M&EC. On May 30, 2018, the Exchange Offer was consummated resulting in the issuance of an aggregate 134,994 shares of our Common Stock in exchange for the

1,284,730 shares of Series B Preferred Stock and the payment of an aggregate of approximately $29.00 in cash in lieu of the fractional shares of our Common Stock that would otherwise have been issuable to the tendering holders of the Series B Preferred Stock. The fair value of the 134,994 unregistered shares of our Common Stock issued was determined to be approximately $648,000 which was based on the closing price of our Common Stock on May 30, 2018 of $4.80 per share. Upon the consummation of the Exchange Offer, the previous holders of the M&EC Series B Preferred Stock forfeited all rights of a holder of Series B Preferred Shares, including the right to receive quarterly cash dividends, and the rights to the cumulative accrued and unpaid dividends with M&EC Series B Preferred Stock in the amount of approximately $1,022,000 at May 30, 2018. The M&EC Board never declared dividends on the Series B Preferred Stock and our credit facility prohibits the payment of cash dividends without the lender’s consent. After the Exchange Offer, the 1,284,730 shares of the Series B Preferred Stock acquired by us were contributed by us to M&EC and the Series B Preferred Stock is no longer outstanding. We recorded a gain of approximately $1,596,000 in the second quarter of 2018, which was net of approximately $63,000 in legal expenses incurred for the completion of the transaction.

The shares of our Common Stock issued in exchange for shares of M&EC's Series B Preferred Stock were issued pursuant to an exemption from registration under the Securities Act, and, as a result, were considered restricted securities when issued.

Off Balance Sheet Arrangements

We have a number of routine non-cancelable operating leases, primarily related to office space rental, office equipment rental and equipment rental for contract projects and operations at December 31, 2018, which total approximately $1,392,000, payable as follows: $575,000 in 2019; $406,000 in 2020; $308,000 in 2021; with the remaining $103,000 in 2022.

From time to time, we are required to post standby letters of credit and various bonds to support contractual obligations to customers and other obligations, including facility closures. At December 31, 2018, the total amount of standby letters of credit outstanding totaled approximately $2,648,000 and the total amount of bonds outstanding totaled approximately $11,284,000. We also provide closure and post-closure requirements through a financial assurance policy for certain of our Treatment Segment facilities through AIG. At December 31, 2018, the closure and post-closure requirements for these facilities were approximately $29,977,000.

Critical Accounting Policies

In preparing the consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("US GAAP"), management makes estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, as well as, the reported amounts of revenues and expenses during the reporting period. We believe the following critical accounting policies affect the more significant estimates used in preparation of the consolidated financial statements:

Revenue Recognition Estimates. In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, "Revenue from Contracts with Customers" followed by a series of related accounting standard updates (collectively referred to as "Topic 606"). Topic 606 provides a single, comprehensive revenue recognition model for all contracts with customers. Under the new standard, a five-step process is utilized in order to determine revenue recognition, depicting the transfer of goods or services to a customer at an amount that reflects the consideration it expects to receive in exchange for those goods or services. We adopted Topic 606 effective January 1, 2018. The adoption of Topic 606 did not result in significant changes to our revenues within our segments. Under Topic 606, a performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of account. A contract transaction price is allocated to each distinct performance obligation and recognized as revenues as the performance obligation is satisfied.

Treatment Segment Revenues:

Contracts in our Treatment Segment have a single performance obligation as the promise to receive, treat and dispose of waste is not separately identifiable in the contract and, therefore, not distinct. Performance obligations are generally satisfied over time using the input method. Under the input method, the Company uses a measure of progress divided into major phases which include receipt (generally ranging from 9.0% to 33%), treatment/processing and shipment/final disposal. As major processing phases are completed and the costs are incurred, the proportional percentage of revenue is recognized. Transaction price for Treatment Segment contracts are determined by the stated fixed rate per unit price as stipulated in the contract.

Services Segment Revenues:

Revenues for our Services Segment are generated from time and materials, cost reimbursement or fixed price arrangements:

Our primary obligation to customers in time and materials contracts relate to the provision of services to the customer at the direction of the customer. This provision of services at the request of the customer is the performance obligation, which is satisfied over time. Revenue earned from time and materials contracts is determined using the input method and is based on contractually defined billing rates applied to services performed and materials delivered.

Our primary performance obligation to customers in cost reimbursement contracts is to complete certain tasks and work streams. Each specified work stream or task within the contract is considered to be a separate performance obligation. The transaction price is calculated using an estimated cost to complete the various scope items to achieve the performance obligation as stipulated in the contract. An estimate is prepared for each individual scope item in the contract and the transaction price is allocated on a time and materials basis as services are provided. Revenue from cost reimbursement contracts is recognized over time using the input method based on costs incurred, plus a proportionate amount of fee earned.

Under fixed price contracts, the objective of the project is not attained unless all scope items within the contract are completed and all of the services promised within fixed fee contracts constitute a single performance obligation. Transaction price is estimated based upon the estimated cost to complete the overall project. Revenue from fixed price contracts is recognized over time using the output or input method. For the output method, revenue is recognized based on milestone attained on the project. For the input method, revenue is recognized based on costs incurred on the project relative to the total estimated costs of the project.

Allowance for Doubtful Accounts. The carrying amount of accounts receivable is reduced by an allowance for doubtful accounts, which is a valuation allowance that reflects management’s best estimate of the amounts that are uncollectible. We regularly review all accounts receivable balances that exceed 60 days from the invoice date and, based on an assessment of current credit worthiness, estimate the portion, if any, of the balances that are uncollectible. Specific accounts that are deemed to be uncollectible are reserved at 100% of their outstanding balance. The remaining balances aged over 60 days have a percentage applied by aging category (5% for balances 61-90 days, 20% for balances 91-120 days and 40% for balances over 120 days aged), based on a historical collections patterns, that allows us to calculate the total allowance required. This analysis excludes government related receivables due to our past successful experience in their collectability. Our allowance was approximately 0.2% of revenue for 2018 and 1.3% of accounts receivable at December 31, 2018. Additionally, this allowance was approximately 1.4% of revenue for 2017 and 8.3% of accounts receivable at December 31, 2017.

Intangible Assets. Intangible assets consist primarily of the recognized value of the permits required to operate our business. We continually monitor the propriety of the carrying amount of our permits to determine whether current events and circumstances warrant adjustments to the carrying value.

Indefinite-lived intangible assets are not amortized but are reviewed for impairment annually as of October 1, or when events or changes in the business environment indicate that the carrying value may be impaired. If the fair value of the asset is less than the carrying amount, we perform a quantitative test to determine the fair value. The impairment loss, if any, is measured as the excess of the carrying value of the asset over its fair value. Significant judgments are inherent in these analyses and include assumptions for, among other factors, forecasted revenue, gross margin, growth rate, operating income, timing of expected future cash flows, and the determination of appropriate long term discount rates.

Impairment testing of our permits related to our Treatment reporting unit as of October 1, 2018 and 2017 resulted in no impairment charges.

Intangible assets that have definite useful lives are amortized using the straight-line method over the estimated useful lives (with the exception of customer relationships which are amortized using an accelerated method) and are excluded from our annual intangible asset valuation review as of October 1. We have one definite-lived permit which was excluded from our annual impairment review as noted above. The net carrying value of this one definite-lived permit at December 31, 2018 and 2017 was approximately $7,000 and $62,000, respectively. Intangible assets with definite useful lives are also tested for impairment whenever events or changes in circumstances indicate that the asset’s carrying value may not be recoverable.

Accrued Closure Costs and Asset Retirement Obligations ("ARO"). Accrued closure costs represent our estimated environmental liability to clean up our facilities as required by our permits, in the event of closure. ASC 410, "Asset Retirement and Environmental Obligations" requires that the discounted fair value of a liability for an ARO be recognized in the period in which it is incurred with the associated ARO capitalized as part of the carrying cost of the asset. The recognition of an ARO requires that management make numerous estimates, assumptions and judgments regarding such factors as estimated probabilities, timing of settlements, material and service costs, current technology, laws and regulations, and credit adjusted risk-free rate to be used. This estimate is inflated, using an inflation rate, to the expected time at which the closure will occur, and then discounted back, using a credit adjusted risk free rate, to the present value. ARO's are included within buildings as part of property and equipment and are depreciated over the estimated useful life of the property. In periods subsequent to initial measurement of the ARO, we must recognize period-to-period changes in the liability resulting from the passage of time and revisions to either the timing or the amount of the original estimate of undiscounted cash flow. Increases in the ARO liability due to passage of time impact net income as accretion expense and are included in cost of goods sold in the Consolidated Statements of Operations. Changes in the estimated future cash flows costs underlying the obligations (resulting from changes or expansion at the facilities) require adjustment to the ARO liability calculated and are capitalized and charged as depreciation expense, in accordance with our depreciation policy.

Accrued Environmental Liabilities. We have three remediation projects in progress (all within discontinued operations). The current and long-term accrual amounts for the projects are our best estimates based on proposed or approved processes for clean-up. The circumstances that could affect the outcome range from new technologies that are being developed every day to reduce our overall costs, to increased contamination levels that could arise as we complete remediation which could increase our costs, neither of which we anticipate at this time. In addition, significant changes in regulations could adversely or favorably affect our costs to remediate existing sites or potential future sites, which cannot be reasonably quantified (See "Environmental Contingencies" below for further information of these liabilities).

Disposal/Transportation Costs. We accrue for waste disposal based upon a physical count of the waste at each facility at the end of each accounting period. Current market prices for transportation and disposal costs are applied to the end of period waste inventories to calculate the disposal accrual. Costs are calculated using current costs for disposal, but economic trends could materially affect our actual costs for disposal. As there are limited disposal sites available to us, a change in the number of available sites or an increase or decrease in demand for the existing disposal areas could significantly affect the actual disposal costs either positively or negatively.

Stock-Based Compensation. We account for stock-based compensation in accordance with ASC 718, "Compensation – Stock Compensation." ASC 718 requires all stock-based payments to employees, including grant of options, to be recognized in the income statement based on their fair values. We account for stock-based compensation issued to consultants in accordance with the provisions of ASC 505-50, "Equity-Based Payments to Non-Employees." We use the Black-Scholes option-pricing model to determine the fair-value of stock-based awards which requires subjective assumptions. Assumptions used to estimate the fair value of stock-based awards include the exercise price of the award, the expected term, the expected volatility of our stock over the stock-based award's expected term, the risk-free interest rate over the award's expected term, and the expected annual dividend yield. We account for forfeitures when they occur.

Income Taxes. The provision for income tax is determined in accordance with ASC 740, "Income Taxes." We are required to estimate our income taxes in each of the jurisdictions in which we operate. We record this amount as a provision or benefit for taxes. This process involves estimating our actual current tax exposure, including assessing the risks associated with tax audits, and assessing temporary differences resulting from different treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities. We assess the likelihood that our deferred tax assets will be recovered from future taxable income and, to the extent that we believe recovery is not likely, we establish a valuation allowance.

On December 22, 2017, the TCJA was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, the transition of U.S international taxation from a worldwide tax system to a territorial system, the elimination of AMT for corporations and a one-time transition tax on the mandatory deemed repatriation of foreign earnings.

As of December 31, 2018, we have completed our accounting for the tax effects of the enactment of the TCJA under the guidance of Staff Accounting Bulletin No. 118 (“SAB 118”) (issued December 22, 2017), which provides registrants an one-year measurement period to report the impact of the TCJA.

Specific to the enactment of the TCJA, we recognized a tax benefit of $1,695,000 in the fourth quarter of 2017 which consisted of $916,000 related to the re-measurement of deferred tax assets and liabilities, based on the rates at which they are expected to reverse in the future and $779,000 related to the reversal of valuation allowance and refunding of AMT credit carryforwards.

An additional provision of the TJCA was to provide an indefinite carryforward period for net operating losses (“NOLs”) generated starting in 2018. Also, the law limits the utilization of these NOLs to 80% of taxable income in the year in which the NOL is utilized. We have been carrying on our balance sheet a deferred tax liability related to indefinite-lived intangible assets. A common accounting interpretation of the Tax Act provisions is that deferred tax assets related to indefinite-lived NOLs may now be used to offset indefinite-lived deferred tax liabilities, up to 80% of the amount of the liability. During 2018, we forecasted a substantial tax loss for the full year due to the closure of the M&EC facility. As a result, we released a portion of the valuation allowance against deferred tax assets equal to 80% of the deferred tax liability related to indefinite-lived intangible assets and recorded a tax benefit in the amount of approximately $1,235,000 in accordance to the provisions of the TCJA.

The global intangible low-taxed income (“GILTI”) provisions under the TCJA require us to include in our U.S. income tax return foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary’s tangible assets. We have elected to account for GILTI tax in the period in which it is incurred, and therefore have not provided any deferred tax impacts of GILTI in our consolidated financial statements for the years ended December 31, 2017 and 2018. As our foreign subsidiaries are all in loss positions for 2018, there is no GILTI inclusion for the current year.

The base-erosion and anti-abuse tax provisions (“BEAT”) in the TCJA eliminates the deduction of certain base-erosion payments made to related foreign corporations, and imposes a minimum tax if greater than regular tax. We do not expect we will be subject to this tax due to the immaterial amounts of outbound U.S. payments and therefore have not included any tax impacts of BEAT in our consolidated financial statements for the years ended December 31, 2017 and 2018.

The TCJA imposes a one-time transition tax on previously untaxed earnings and profits of foreign subsidiaries. As of December 31, 2018, we have current and accumulated deficits in earnings and profits for all of our foreign subsidiaries. As such, we do not expect any exposure to the one-time transition tax.

As of December 31, 2018, we had net deferred tax assets of approximately $10,479,000 (which excludes a deferred tax liability relating to goodwill and indefinite lived intangible assets) which were primarily related to federal and state net NOL carryforwards, impairment charges, and closure costs. As of December 31, 2018, we concluded that it was more likely than not that $10,479,000 of our deferred income tax assets would not be realized, and as such, a full valuation allowance was applied against those deferred income tax assets. Our net operating losses are subject to audit by the Internal Revenue Services, and, as a result, the amounts could be reduced.

As of December 31, 2018, we have approximately $21,277,000 and $76,312,000 in NOL carryforwards for federal and state income tax purposes, respectively, which will expire in various amounts starting in 2021 if not used against future federal and state income tax liabilities, respectively. Our net loss carryforwards are subject to various limitations. Our ability to use the net loss carryforwards depends on whether we are able to generate sufficient income in the future years.

Known Trends and Uncertainties

Economic Conditions. Our business continues to be heavily dependent on services that we provide to governmental clients (including the U.S. Department of Energy ("DOE") and U.S. Department of Defense ("DOD")) directly as the prime contractor or indirectly for others as a subcontractor. We believe demand for our services will continue to be subject to fluctuations due to a variety of factors beyond our control, including the current economic conditions, the large budget deficit that the government is facing, and the manner in which the government will be required to spend funding to remediate federal sites. In addition, our governmental contracts and subcontracts relating to activities at governmental sites are generally subject to termination or renegotiation on 30 days notice at the government's option. Significant reductions in the level of governmental funding or specifically mandated levels for different programs that are important to our business could have a material adverse impact on our business, financial position, results of operations and cash flows.

Significant Customers. Our Treatment and Services Segments have significant relationships with the federal government, and continue to enter into contracts, directly as the prime contractor or indirectly for others as a subcontractor, with the federal government. The contracts that we are a party to with the federal government or with others as a subcontractor to the federal government generally provide that the government may terminate or renegotiate the contracts on 30 days notice, at the government's election. Our inability to continue under existing contracts that we have with the federal government (directly or indirectly as a subcontractor) could have a material adverse effect on our operations and financial condition.

We performed services relating to waste generated by domestic government clients (includes U.S federal, state and local), either directly as a prime contractor or indirectly as a subcontractor to government entities, representing approximately $34,811,000 or 70.3% of our total revenue during 2018, as compared to $37,019,000 or 74.4% of our total revenue during 2017.

As our revenues are project/event based where the completion of one contract with a specific customer may be replaced by another contract with a different customer from year to year, we do not believe the loss of one specific customer from one year to the next will generally have a material adverse effect on our operations and financial condition.

Contract Awards. During the latter part of March 2019, we were awarded several contracts within our Services Segment which includes remediation work for DOE locations throughout the United States. Additionally, our Services Segment has received a notice of contract award with a value of approximately $9,000,000, which includes remediation work in Canada with an expected effective date of April 1, 2019. The contract for the Canadian remediation project has not yet been executed by the parties, and we expect that this contract will be finalized during the early part of the second quarter of 2019. The total contract value of these awards is expected to be approximately $17,000,000 through 2019.

Environmental Contingencies

We are engaged in the waste management services segment of the pollution control industry. As a participant in the on-site treatment, storage and disposal market and the off-site treatment and services market, we are subject to rigorous federal, state and local regulations. These regulations mandate strict compliance and therefore are a cost and concern to us. Because of their integral role in providing quality environmental services, we make every reasonable attempt to maintain complete compliance with these regulations; however, even with a diligent commitment, we, along with many of our competitors, may be required to pay fines for violations or investigate and potentially remediate our waste management facilities.

We routinely use third party disposal companies, who ultimately destroy or secure landfill residual materials generated at our facilities or at a client's site. In the past, numerous third party disposal sites have improperly managed waste and consequently require remedial action; consequently, any party utilizing these sites may be liable for some or all of the remedial costs. Despite our aggressive compliance and auditing procedures for disposal of wastes, we could further be notified, in the future, that we are a potentially responsible party ("PRP") at a remedial action site, which could have a material adverse effect.

We have three remediation projects, which are currently in progress at our PFD, Perma-Fix of Memphis, Inc. ("PFM" – closed location), and PFSG (in closure status) subsidiaries. We divested PFD in 2008; however, the environmental liability of PFD was retained by us upon the divestiture of PFD. These remediation projects principally entail the removal/remediation of contaminated soil and, in most cases, the remediation of surrounding ground water. The remediation activities are closely reviewed and monitored by the applicable state regulators. While no assurances can be made that we will be able to do so, we expect to fund the expenses to remediate these sites from funds generated internally.

At December 31, 2018, we had total accrued environmental remediation liabilities of $887,000, of which $50,000 are recorded as a current liability, an increase of $16,000 from the December 31, 2017 balance of $871,000. The net increase presents an increase of approximately $50,000 made to the reserve at our PFD subsidiary due to reassessment of the remediation reserve and payments of approximately $34,000 on remediation projects for our PFD and PFSG subsidiaries.

Related Party Transactions

David Centofanti

David Centofanti serves as our Vice President of Information Systems. For such position, he received annual compensation of $173,000 and $168,000 for 2018 and 2017, respectively. David Centofanti is the son of Dr. Louis Centofanti, our Executive Vice President ("EVP") of Strategic Initiatives and a Board of Director ("Board") member. Dr. Louis Centofanti previously held the position of President and Chief Executive Office ("CEO") until September 8, 2017. We believe the compensation received by David Centofanti for his technical expertise which he provides to us is competitive and comparable to compensation we would have to pay to an unaffiliated third party with the same technical expertise.

Robert Ferguson

Robert Ferguson serves as an advisor to our Board and was also a member of the Supervisory Board of PF Medical (until May 11, 2018), a majority-owned Polish subsidiary of the Company. Robert Ferguson previously served as a Board member of the Company from June 2007 to February 2010 and again from August 2011 to September 2012. Robert Ferguson is also a consultant for us in connection with our Test Bed Initiative ("TBI") at our Perma-Fix Northwest Richland, Inc. ("PFNWR") facility. As an advisor to our Board, Robert Ferguson is paid $4,000 monthly plus reasonable expenses. For such services, Robert Ferguson received compensation of approximately $50,000 and $51,000 for the year ended December 31, 2018 and 2017, respectively. For Robert Ferguson's consulting work in connection with our TBI, on July 27, 2017 ("grant date"), we granted Robert Ferguson a non-qualified stock option from our 2017 Stock Option Plan for the purchase of up to 100,000 shares of the Company's Common Stock at an exercise price of $3.65 a share, which was the fair market value of our Common Stock on the date of grant ("Ferguson Stock Option"). The vesting of the Ferguson Stock Option is subject to the achievement of the following milestones ("waste" as noted below is defined as liquid LAW ("low activity waste") and/or liquid TRU ("transuranic waste")):

Upon treatment and disposal of three gallons of waste at the PFNWR facility by January 27, 2018, 10,000 shares of the Ferguson Stock Option shall become exercisable;

Upon treatment and disposal of 2,000 gallons of waste at the PFNWR facility by January 27, 2019, 30,000 shares of the Ferguson Stock Option shall become exercisable; and

Upon treatment and disposal of 50,000 gallons of waste at the PFNWR facility and assistance, on terms satisfactory to the Company, in preparing certain justifications of cost and pricing data for the waste and obtaining a long-term commercial contract relating to the treatment, storage and disposal of waste by January 27, 2021, 60,000 shares of the Ferguson Stock Option shall become exercisable.

The term of the Ferguson Stock Option is seven (7) years from the grant date. Each of the milestones is exclusive of each other; therefore, achievement of any of the milestones above by Robert Ferguson by the designated date will provide Robert Ferguson the right to exercise the number of options in accordance with the milestone attained. The 10,000 options as noted above became vested by Robert Ferguson on December 19, 2017. The fair value of the 10,000 options was determined to be approximately $20,000. On May 1, 2018, Robert Ferguson exercised the 10,000 options for the purchase of 10,000 shares of our Common Stock, resulting in total proceeds paid to us of approximately $36,500.

On January 17, 2019, the Ferguson Stock Option was amended whereby the vesting date of the Ferguson Stock Option for the second milestone as discussed above was amended from "by January 27, 2019" to "by March 31, 2020." All other terms of the Ferguson Stock Option remain unchanged.

On April 1, 2019, we executed a loan and securities purchase agreement and promissory note with Robert Ferguson for a $2,500,000 loan (see "Liquidity and Capital Resources - Financing Activities" of this MD&A for further information of the loan agreement).

Employment Agreements

We entered into employment agreements with each of Mark Duff (President and CEO), Ben Naccarato (Chief Financial Officer ("CFO")), and Dr. Louis Centofanti, (EVP of Strategic Initiatives), with each employment dated September 8, 2017. Each of the employment agreements is effective for three years from September 8, 2017 (the "Initial Term") unless earlier terminated by us or by the executive officer. At the end of the Initial Term of each employment agreement, each employment agreement will automatically be extended for one additional year, unless at least six months prior to the expiration of the Initial Term, we or the executive officer provides written notice not to extend the terms of the employment agreement. Each employment agreement provides for annual base salaries, performance bonuses (as provided in the Management Incentive Plan ("MIP") as approved by our Board, and other benefits commonly found in such agreements. In addition, each employment agreement provides that in the event the executive officer terminates his employment for "good reason" (as defined in the agreements) or is terminated by us without cause (including the executive officer terminating his employment for "good reason" or is terminated by us without cause within 24 months after a Change in Control (as defined in the agreement)), we will pay the executive officer the following: (a) a sum equal to any unpaid base salary; (b) accrued unused vacation time and any employee benefits accrued as of termination but not yet been paid ("Accrued Amounts"); (c) two years of full base salary; (d) performance compensation under the MIP earned with respect to the fiscal year immediately preceding the date of termination; and (e) an additional year of performance compensation as provided under the MIP earned, if not already paid, with respect to the fiscal year immediately preceding the date of termination. If the executive terminates his employment for a reason other than for good reason, we will pay to the executive the amount equal to the Accrued Amounts plus any performance compensation payable pursuant to the MIP.

If there is a Change in Control (as defined in the agreements), all outstanding stock options to purchase our Common Stock held by the executive officer will immediately become exercisable in full commencing on the date of termination through the original term of the options. In the event of the death of an executive officer, all outstanding stock options to purchase our Common Stock held by the executive officer will immediately become exercisable in full commencing on the date of death, with such options exercisable for the lesser of the original option term or twelve months from the date of the executive officer's death. In the event of an executive officer terminating his employment for "good reason" or is terminated by us without cause, all outstanding stock options to purchase our Common Stock held by the executive officer will immediately become exercisable in full commencing on the date of termination, with such options exercisable for the lesser of the original option term or within 60 days from the date of the executive's date of termination.

We had previously entered into an employment agreement with each of Dr. Louis Centofanti and Ben Naccarato on July 10, 2014 which both employment agreements were to expire on July 10, 2018, as amended (the "July 10, 2014 Employment Agreements"). We also had previously entered into an employment agreement dated January 19, 2017 (which was effective June 11, 2016) with Mark Duff which is due to expire on June 11, 2019 (the "January 19, 2017 Employment Agreement"). The July 10, 2014 Employment Agreements and the January 19, 2017 Employment Agreement were terminated effective September 8, 2017.

MIPs

On January 18, 2018, our Board and the Compensation and Stock Option Committee (the "Compensation Committee") approved individual MIP for each Mark Duff, CEO and President, Ben Naccarato, CFO, and Dr. Louis Centofanti, EVP of Strategic Initiatives. The MIPs are effective January 1, 2018 and applicable for year ended December 31, 2018. Each MIP provides guidelines for the calculation of annual cash incentive based compensation, subject to Compensation Committee oversight and modification. Each MIP awards cash compensation based on achievement of performance thresholds, with the amount of such compensation established as a percentage of the executive's 2018 annual base salary on the approval date of the MIP. The potential target performance compensation ranges from 5% to 100% ($13,350 to $267,000) of the base salary for the CEO and President; 5% to 100% ($11,475 to $229,494) of the base salary for the CFO; and 5% to 100% ($11,170 to $223,400) of the base salary for the EVP of Strategic Initiatives. Pursuant to the MIPs, the Compensation Committee has the right to modify, change or terminate the MIPs at any time and for any reason. No performance compensation was earned or payable under each of the 2018 MIPs as discussed above.

On January 17, 2019, our Board and the Compensation Committee approved individual MIP for the CEO, CFO, and EVP of Strategic Initiatives. Each MIP is effective January 1, 2019 and applicable for the year ended December 31, 2019. Each MIP provides guidelines for the calculation of annual cash incentive based compensation, subject to Compensation Committee oversight and modification. Each MIP awards cash compensation based on achievement of performance thresholds, with the amount of such compensation established as a percentage of the executive's annual 2019 base salary on the approval date of the MIP. The potential target performance compensation ranges from 5% to 150% of the 2019 base salary for the CEO ($14,350 to $430,500), 5% to 100% of the 2019 base salary for the CFO ($11,762 to $235,231), and 5% to 100% of the 2019 base salary for the EVP of Strategic Initiatives ($11,449 to $228,985).

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not required under Regulation S-K for smaller reporting companies.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Forward-looking Statements

Certain statements contained within this report may be deemed "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 (collectively, the "Private Securities Litigation Reform Act of 1995"). All statements in this report other than a statement of historical fact are forward-looking statements that are subject to known and unknown risks, uncertainties and other factors, which could cause actual results and performance of the Company to differ materially from such statements. The words "believe," "expect," "anticipate," "intend," "will," and similar expressions identify forward-looking statements. Forward-looking statements contained herein relate to, among other things,

- demand for our services;
- continue to focus on expansion into both commercial and international markets to increase revenues;
- closure of M&EC facility;
- improvement to working capital;
- reductions in the level of government funding in future years;
- R&D activity of our Medical Segment;
- reducing operating costs;
- expect to meet our financial covenant requirements in the next twelve months;
- cash flow requirements;
- government funding for our services;
- may not have liquidity to repay debt if our lender accelerates payment of our borrowings;

our cash flows from operations, our available liquidity from our credit facility, loan proceeds of $2,500,000, and finite sinking funds that we expect to receive are sufficient to service our operations;
release of restricted finite risk sinking funds;
manner in which the government will be required to spend funding to remediate federal sites;
audit by the Internal Revenue Services of our net operating losses;

35

funding operations;
fund capital expenditures from cash from operations and/or financing;
fund remediation expenditures for sites from funds generated internally;
compliance with environmental regulations;
future environmental policies affecting operations;
potential effect of being a PRP;
subject to fines and civil penalties in connection with violations of regulatory requirements;
large business are more willing to team with small businesses;
permit and license requirements represent a potential barrier to entry for possible competitors;
process backlog during periods of low waste receipts,which historically has been in the first and fourth quarters;
potential sites for violations of environmental laws and remediation of our facilities;
delay in waste shipment should have positive effect for us in first half of 2019;
continuation of contracts with federal government;
loss of contracts;
necessary capital for Medical Segment;
disposal of our waste;
exposure to one-time transition tax; and
contract awards and estimated value of these contracts.

While the Company believes the expectations reflected in such forward-looking statements are reasonable, it can give no assurance such expectations will prove to be correct. There are a variety of factors, which could cause future outcomes to differ materially from those described in this report, including, but not limited to:

general economic conditions;
material reduction in revenues;
ability to meet PNC covenant requirements;
inability to collect in a timely manner a material amount of receivables;
increased competitive pressures;
inability to maintain and obtain required permits and approvals to conduct operations;
public not accepting our new technology;
inability to develop new and existing technologies in the conduct of operations;
inability to maintain and obtain closure and operating insurance requirements;
inability to retain or renew certain required permits;
discovery of additional contamination or expanded contamination at any of the sites or facilities leased or owned by us or our subsidiaries which would result in a material increase in remediation expenditures;
delays at our third party disposal site can extend collection of our receivables greater than twelve months;
refusal of third party disposal sites to accept our waste;
changes in federal, state and local laws and regulations, especially environmental laws and regulations, or in interpretation of such;
requirements to obtain permits for TSD activities or licensing requirements to handle low level radioactive materials are limited or lessened;
potential increases in equipment, maintenance, operating or labor costs;
management retention and development;
financial valuation of intangible assets is substantially more/less than expected;
the requirement to use internally generated funds for purposes not presently anticipated;

inability to continue to be profitable on an annualized basis;
inability of the Company to maintain the listing of its Common Stock on the NASDAQ;
terminations of contracts with federal agencies or subcontracts involving federal agencies, or reduction in amount of waste delivered to the Company under the contracts or subcontracts;
renegotiation of contracts involving the federal government;
federal government's inability or failure to provide necessary funding to remediate contaminated federal sites;
disposal expense accrual could prove to be inadequate in the event the waste requires re-treatment;
inability to raise capital on commercially reasonable terms;
inability to increase profitable revenue;
lender refuses to waive non-compliance or revise our covenant so that we are in compliance; and
risk factors contained in Item 1A of this report.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Index to Consolidated Financial Statements

Consolidated Financial Statements	Page No.
Report of Independent Registered Public Accounting Firm	38
Consolidated Balance Sheets as of December 31, 2018 and 2017	39
Consolidated Statements of Operations for the years ended December 31, 2018 and 2017	41
Consolidated Statements of Comprehensive Loss for the years ended December 31, 2018 and 2017	42
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2018 and 2017	43
Consolidated Statements of Cash Flows for the years ended December 31, 2018 and 2017	44
Notes to Consolidated Financial Statements	45

Financial Statement Schedules

In accordance with the rules of Regulation S-X, schedules are not submitted because they are not applicable to or required by the Company.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders

Perma-Fix Environmental Services, Inc.

We have audited the accompanying consolidated balance sheets of Perma-Fix Environmental Services, Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders’ equity, and cash flows for each of the two years in the period ended December 31, 2018, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits 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 supporting the amounts and disclosures in the 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2014.

Atlanta, Georgia

April 1, 2019

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

CONSOLIDATED BALANCE SHEETS

As of December 31,

(Amounts in Thousands, Except for Share and Per Share Amounts)	2018	2017
ASSETS		
Current assets:		
Cash	$810	$1,063
Accounts receivable, net of allowance for doubtful accounts of $105 and $720, respectively	7,735	7,940
Unbilled receivables - current	3,105	4,547
Inventories	449	393
Prepaid and other assets	2,552	3,281
Current assets related to discontinued operations	107	89
Total current assets	14,758	17,313
Property and equipment:		
Buildings and land	19,782	23,806
Equipment	19,157	33,182
Vehicles	369	393
Leasehold improvements	23	11,549
Office furniture and equipment	1,551	1,670
Construction-in-progress	1,389	653
Total property and equipment	42,271	71,253
Less accumulated depreciation	(26,532)	(56,383)
Net property and equipment	15,739	14,870
Property and equipment related to discontinued operations	81	81
Intangibles and other long term assets:		
Permits	8,443	8,419
Other intangible assets - net	1,278	1,487
Unbilled receivables - non-current	—	184
Finite risk sinking fund (restricted cash)	15,971	15,676
Other assets	1,054	1,313
Other assets related to discontinued operations	118	195
Total assets	$57,442	$59,538

The accompanying notes are an integral part of these consolidated financial statements.

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

CONSOLIDATED BALANCE SHEETS, CONTINUED

As of December 31,

(Amounts in Thousands, Except for Share and per Share Amounts)	2018	2017
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$5,497	$3,537
Accrued expenses	5,014	4,782
Disposal/transportation accrual	1,542	2,071
Deferred revenue	6,595	4,311
Accrued closure costs - current	1,142	2,791
Current portion of long-term debt	1,184	1,184
Current portion of capital lease obligations	181	—
Current liabilities related to discontinued operations	356	905
Total current liabilities	21,511	19,581
Accrued closure costs	5,608	5,604
Other long-term liabilities	255	1,191
Deferred tax liabilities	586	1,694
Long-term debt, less current portion	2,118	2,663
Long-term capital lease obligations, less current portion	268	—
Long-term liabilities related to discontinued operations	963	359
Total long-term liabilities	9,798	11,511
Total liabilities	31,309	31,092
Commitments and Contingencies (Note 15)		
Series B Preferred Stock of subsidiary, $0 par value; 1,467,396 shares authorized; 0 and 1,284,730 shares issued, respectively; 0 and 1,284,730 shares outstanding, respectively; liquidation value of $1.00 per share plus accrued and unpaid dividends of $0 and $995, respectively (Note 8)	—	1,285
Stockholders' Equity:		
Preferred Stock, $.001 par value; 2,000,000 shares authorized, no shares issued and outstanding	—	—
Common Stock, $.001 par value; 30,000,000 shares authorized; 11,944,215 and 11,738,623 shares issued, respectively; 11,936,573 and 11,730,981 shares outstanding, respectively	12	12
Additional paid-in capital	107,548	106,417
Accumulated deficit	(79,630)	(77,893)
Accumulated other comprehensive loss	(214)	(112)

Less Common Stock in treasury, at cost; 7,642 shares	(88)	(88)
Total Perma-Fix Environmental Services, Inc. stockholders' equity	27,628	28,336
Non-controlling interest	(1,495)	(1,175)
Total stockholders' equity	26,133	27,161
Total liabilities and stockholders' equity	$57,442	$59,538

The accompanying notes are an integral part of these consolidated financial statements.