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

FORM 10-K

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

For the fiscal year ended December 31, 2023

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	Trading Symbol	Name of each exchange on which registered
Common Stock, $.001 Par Value	PESI	Nasdaq Capital Market

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

☐ Yes ☒ No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

☐ Yes ☒ No

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

☒ Yes ☐ No

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

☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See 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 ☒ 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). . ☐

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Act). ☐ Yes ☒ No

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, 2023), was approximately $136,122,310). 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 Market.

As of February 12, 2024, there were 13,671,022 shares of the registrant's Common Stock, $.001 par value, outstanding.

Documents incorporated by reference: None

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

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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.

The principal element of our business strategy consists of upgrading our facilities within our Treatment Segment to increase efficiency and modernize and expand treatment capabilities to meet the changing markets associated with the waste management industry. Within our Services Segment, we continue to increase competitive procurement effectiveness and broaden the market penetration within both the commercial and government sectors. We continue to increase our focus on expansion into both commercial and international markets (see "Foreign Revenue and Initiatives" below for further discussion of a recently won foreign contract) to supplement government spending in the United States of America ("USA"), from which a significant portion of our revenue is derived. This includes new services, new customers and increased market share in our current markets.

We experienced significant improvement in our 2023 financial results as the lingering effects of COVID-19 began to subside starting in the early part of 2022. Our Treatment Segment continued to see steady improvements in waste receipts from certain customers who had previously delayed waste shipments due, in part, from the impact of COVID-19. Within our Services Segment, certain projects which were delayed/curtailed in the first part of 2022 due, in part, from the lingering effects of the COVID-19, achieved full operational status and improved productivity in 2023 which positively impacted revenue. Revenues from both of our Segments were also positively impacted from contracts won in 2023 as procurement and planning on behalf of our government clients continued to progress as the lingering effects of COVID-19 pandemic subsided.

Heading into 2024, we expect to see overall continue steady improvements in waste receipts and increases in project work from certain existing contracts, contracts won in 2023, and bids submitted in both segments that are awaiting awards. However, due to our operations which is subject to seasonal factor, we generally experience lower revenue in the first quarter due to overall reduced activities by our customers from the usual slowdown in operations due, in part, from returning from the holiday periods and poorer weather conditions. Additionally, due to Congress's inability to timely approve FY 2024 budget and the extension of the continuing resolution, certain of our government related customers have informed us that waste shipments will likely be delayed. Although we expect to see overall improvements in revenue in 2024 as disclosed above, if Congress is unable to enact the full FY 2024 appropriation bills or further extend the continuing resolutions to fund government spending by the late March deadline, the U.S. government will enter into a partial shutdown. The full impact of any additional continued resolution beyond March or a partial government shutdown is uncertain. If a partial government shutdown were to occur and were to continue an extended period, our financial results of operations could be negatively impacted by delays in procurement actions, waste shipments and project delays on newly awarded projects (See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations – for a full discussion of the Company's results of operations for 2023).

Segment Information and Foreign and Domestic Operations and Sales

For 2023, we have two reportable segments. In accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("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 four uniquely licensed (Nuclear Regulatory Commission or state equivalent) and permitted (U.S. Environmental Protection Agency ("EPA") or state equivalent) treatment and storage facilities as follow: Perma-Fix of Florida, Inc. ("PFF"), Diversified Scientific Services, Inc., ("DSSI"), Perma-Fix Northwest Richland, Inc. ("PFNWR") and Oak Ridge Environmental Waste Operations Center ("EWOC"); and

- Research & Development ("R&D") activities to identify, develop and implement innovative waste processing techniques for problematic waste streams.

For 2023, the Treatment Segment accounted for $43,477,000, or 48.5%, of total revenue, as compared to $33,358,000, or 47.2%, of total revenue for 2022. See "Dependence Upon a Single or Few Customers" for further details and a discussion as to our Segments' contracts with government clients (domestic) or with others as a subcontractor to government clients.

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;
  - health physics services including health physicists, radiological engineers, nuclear engineers and health physics technicians support to government and private radioactive materials licensees;
  - 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 (civil, nuclear, mechanical, chemical, radiological and environmental), project management, waste management, environmental, and decontamination and decommissioning ("D&D") field, technical, and management personnel and services to commercial and government customers; and
  - waste management services to commercial and governmental customers.

- Nuclear services, which include:
  - D&D of government and commercial facilities impacted with radioactive material and hazardous constituents including engineering, technology applications, specialty services, logistics, transportation, processing and disposal; and
  - license termination support of radioactive material licensed and federal facilities over the entire cycle of the termination process: project management, planning, characterization, waste stream identification and delineation, remediation/demolition, final status survey, compliance demonstration, reporting, transportation, disposal and emergency response.

- 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.

For 2023, the Services Segment accounted for $46,258,000, or 51.5%, of total revenue, as compared to $37,241,000, or 52.8%, of total revenue for 2022. See "Dependence Upon a Single or Few Customers" for further details and a discussion as to our Segments' contracts with government clients (domestic) or with others as a subcontractor to government clients.

Our Treatment and Services Segments provide services primarily to research institutions, commercial companies, public utilities, and governmental entities, 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 and Initiative

As noted previously, we continue to increase our focus on expansion into international markets.

On December 18, 2023, the joint venture ("JV") where we and Campoverde Srl ("JV partner") each owns 50% of the partnership, was awarded a multi-year contract valued up to approximately EUR 50 million by the European Commission (the "Contracting Authority") for the treatment of radioactive waste from the Joint Research Center in Ispra, Italy. Work under this JV has not started as of December 31, 2023. The scope of work to be performed in the initial phases of this contract will be performed predominately by our JV partner. Revenue generated by us under the initial phases will be limited to project management support through 2025. We expect to generate an increase in revenue under this contract starting in 2026 when the waste treatment phases begin. The Contracting Authority may terminate the contract under certain conditions as set forth in the contract.

During March 2022, we signed a non-binding joint venture term sheet addressing plans to partner with Springfields Fuels Limited ("SFL"), an affiliate of Westinghouse Electric Company LLC, to develop and manage a nuclear waste-materials treatment facility (the "Facility") in the United Kingdom. The Facility is for the purpose of expanding the partners' waste treatment capabilities for the European nuclear market. It is expected that upon finalization of a partnership agreement, SFL will have an ownership interest of fifty-five (55) percent and our interest will be forty-five (45) percent. The finalization, form and capitalization of this unpopulated partnership is subject to numerous conditions, including but not limited to, completion and execution of a definitive agreement and facility design, granting of required regulatory, lender or permitting approvals and updated cost and profitability analysis based on current and forecast future economic conditions. Upon finalization of this venture, we will be required to make an investment in this venture. The amount of our investment, the period of which it is to be made and the method of funding are to be determined.

Our consolidated revenue for 2023 and 2022 included approximately $2,066,000, or 2.3%, and $1,226,000, or 1.7%, respectively, from foreign customers.

Seasonal Factors of our Business

Our operations are generally subject to seasonal factors. See "Risk Factors – Risks Related to our Business and Operations – Our operations are subject to seasonal factors, which causes our revenues to fluctuate" for a discussion of our seasonal factors.

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 provide 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, biomedical, and a radioactive materials license issued by the State of Florida. Co-regulated TSCA Polychlorinated Biphenyl ("PCB") wastes are also managed for PCB under EPA Approval.

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, Division of radiological health. Co-regulated TSCA 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. Co-regulated TSCA PCB wastes are also managed for PCB under EPA Approval.

EWOC, located in Oak Ridge, Tennessee, operates a low-level radioactive waste material processing facility. Radioactive material processing is authorized under radioactive material licenses issued by the State of Tennessee Department of Environmental and Conservation, Division of radiological health.

The combination of RCRA Part B hazardous waste permits, TSCA authorizations, and radioactive material licenses held by us and our subsidiaries comprising our Treatment Segment is very difficult to obtain for a single facility and make this Segment 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.

Number of Employees

At December 31, 2023, we employed approximately 297 employees, of whom 288 are full-time employees and 9 are part-time/temporary employees. None of our current employees are unionized.

The Company entered into a Project Labor Agreement ("PLA") dated June 21, 2023, with UA Plumbers & Steamfitters Local 598. The goal of this partnership is to supply our PFNWR facility with the organized labor force needed to take on the challenges of providing a supplement treatment alternative to include concrete-like grout for Hanford's Low Activity Tank Waste if and when the DOE grants a contract to PFNWR to treat the Low Activity Tank Waste. This supplemental capability would support DOE's glassifying process provided by the Hanford Vitrification Plant for safe transport and disposal off-site.

Environmental, Social and Governance ("ESG")

We have a ESG subcommittee under our Corporate Governance and Nominating Committee to provide guidance on ESG management. Our executive team is responsible for the continuing development of our ESG strategic roadmap with support from management from key functional areas. The key areas of focus under our ESG initiatives continue to be health and safety, environmental performance, DEI (diversity, equality and inclusion), talent retention and development, corporate governance and climate-forward service development that support our customers' transition to low carbon economy. Our executive team is involved in policy planning and coordination of corporate-wide ESG efforts. See our website at https://www.perma-fix.com/esg.aspx for some highlights of our ESG initiatives as well as our policies under our ESG as we continue to improve our ESG initiatives. The information on our website is not part of, or incorporated by reference in this Form 10-K.

Dependence Upon a Single or Few Customers

Our Treatment and Services Segments have significant relationships with the U.S. governmental authorities. A significant amount of our revenues from our Treatment and Services Segments are generated indirectly as subcontractors for others who are prime contractors to government authorities, particularly the DOE and DOD, or directly as the prime contractor to government authorities. The contracts that we are a party to with others as subcontractors to the U.S federal government or directly with the U.S federal government generally provide that the government may terminate the contract at any time for convenience at the government's option. Our inability to continue under existing contracts that we have with U.S government authorities (directly or indirectly as a subcontractor) or significant reductions in the level of governmental funding in any given year could have a material adverse impact on our operations and financial condition.

We performed services relating to waste generated by government clients (domestic), either indirectly for others as a subcontractor to government entities or directly as a prime contractor to government entities, representing approximately $70,642,000 or 78.7%, of our total revenue during 2023, as compared to $59,658,000, or 84.5%, of our total revenue during 2022.

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.

Competitive Conditions

The Treatment Segment's largest competitor is EnergySolutions which operates treatment facilities in Oak Ridge, TN and Erwin, TN and treatment/disposal facilities for low level radioactive waste in Clive, UT and Barnwell, SC. Waste Control Specialists, which has licensed treatment/disposal capabilities for low level radioactive waste in Andrews, TX, is also a competitor in the treatment market with increasing market share. These two competitors also provide us with options for disposal of our treated nuclear waste. The Treatment Segment treats and disposes of DOE generated waste largely at DOE owned sites. 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 relating to 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.

As of December 31, 2023, we had total accrued environmental remediation liabilities of $845,000, a decrease of $16,000 from the December 31, 2022, balance of $861,000. The decrease represents payments for remediation projects. As of December 31, 2023, $61,000 of the total accrued environmental liabilities was recorded as current.

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 potentially responsible party ("PRP") 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.

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. R&D totaled $561,000 and $336,000 for 2023 and 2022, respectively.

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 Department of Health (with the USNRC oversight), Office of Radiation Control, regulates the licensing and radiological program of the PFF facility; the State of Tennessee (with the USNRC oversight), Tennessee Division of Radiological Health, regulates licensing and the radiological program of the DSSI facility and the EWOC facility; and the State of Washington (with the USNRC oversight) Department of Health, regulates licensing 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 Business and 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. 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. Contracts with, or subcontracts involving, the U.S federal government are generally terminable for convenience at any time at the option of the governmental agency. The multi-year contract that was awarded to us and our JV partner, Campoverde Srl, by the European Commission (the "Contracting Authority") on December 18, 2023, for the treatment of radioactive waste from the Joint Research Center in Ispra, Italy as discussed previously may be terminated by the Contracting Authority under certain conditions as set forth in the contract. 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 government clients) 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 government to approve necessary budgets, or to reduce the amount of the budget necessary, to fund remediation sites, including DOE and DOD sites;
- government shut-downs;
- 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 government.

These events could result in or cause government clients to terminate or cancel existing contracts involving us to treat, store or dispose of contaminated waste and/or to perform remediation projects, at one or more of government sites. 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, reductions in government funding or other events beyond our control 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, without limitation, 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, large budget deficits that the federal government and many states are experiencing, and other events beyond our control, including, but not limited to the impact from public health events (such as COVID-19), 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 (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 flow.

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.

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.

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 our nuclear waste. Currently, there are only four commercial disposal sites for our low-level radioactive waste and six commercial disposal sites for our very low-level activity waste we receive from non-governmental sites, allowing us to take advantage of the pricing competition between these sites. If one or more of these commercial 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 have limited remaining site to dispose of our nuclear waste. With limited end disposal site to dispose of our waste, we could be subject to significantly increased costs which could negatively impact our results of operations.

Direct and indirect macroeconomic impacts resulting from natural disasters, public health events and/or world conflicts in various regions could continue to and may in the future negatively impact our business and results of operations.

Public health threats and outbreaks such as COVID-19 and natural disasters such as hurricanes and severe weather conditions have previously negatively impacted our results of operations. The direct impacts of these such events resulted in delayed waste shipments from certain of our customers and delays in procurement, contract awards and planning on behalf of our government clients which negatively impacted our revenue. Residual and lingering macroeconomic effects from these such events could again in the future impact supply chain, workforce availability, and/or increased costs which could have a downward effect on our business, financial condition and results of operations. Additionally, world conflicts currently occurring in various regions may lead to similar macroeconomic effects which could have a downward effect on our business, financial conditions and results of operations. We may attempt to increase our sales prices in order to maintain satisfactory margin; however, competitive pressures in our industry may have the effect of inhibiting our ability to reflect these increased costs in the prices of our services that we provide to our customers and therefore reduce our profitability.

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.

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, regional firms and some international 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.

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 or maximum 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, supply chain interruptions, weather delays, cost of raw materials, our suppliers' or subcontractors' inability to perform, and/or other events beyond our control, such as the impact of public health events, 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 certain of our 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.

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.

Risks Related to Laws and Regulations

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 or subcontracts relating to DOE and DOD 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.

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 environmental 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 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;
- 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.

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

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.

Risks Relating to our Financial Performance and Position and Need for Financing

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.

Breach of any of the covenants in our credit facility could result in a default, triggering repayment of outstanding debt under the credit facility and the termination of our 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. We were not required to perform testing of our fixed charge coverage ratio ("FCCR") in the first quarter of 2023 but otherwise met all of our other financial covenant requirements. We met all of our covenant requirements in each of the remaining quarters of 2023. In the past, when we failed to meet our minimum FCCR requirement in certain instances, our lender has either waived these instances of non-compliance or provided certain amendments to our FCCR requirements which enabled us to meet our quarterly FCCR requirements. Also, our lender has in the past waived our FCCR testing requirement in certain quarters. If we fail to meet any of our financial covenants going forward, including the minimum quarterly FCCR requirement, and our lender does not waive the non-compliance or revise our covenant requirement so that we are in compliance, our lender could accelerate the payment of our borrowings under our credit facility and terminate our credit facility. In such event, we may not have sufficient liquidity to repay our debt under our credit facility and other indebtedness and/or operate our business.

Inability to borrow under our credit facility could adversely affect our operations.

The maximum we can borrow under the revolving part of our 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 has or may impose from time to time. As of December 31, 2023, we had no borrowing under the revolving part of our credit facility and borrowing availability of up to an additional $10,622,000, which included our cash (deposited with our lender) and was based on our eligible receivables and was net of approximately $3,950,000 in outstanding standby letters of credit and a $750,000 indefinite reduction in borrowing availability that our lender imposed. 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.

If our financial and operating activities are limited, it could adversely affect our ability to incur additional debt to fund future needs.

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.

We may be unable to utilize loss carryforwards in future.

We have approximately $19,450,000 and $72,859,000 in net operating loss carryforwards for federal and state income tax purposes, respectively and expires in various amounts starting in 2023 if not used against future federal and state income tax liabilities, respectively. All of our federal net operating loss carryforwards were generated after December 31, 2017 and thus do not expire. 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.

Risks Relating to our Common Stock

Issuance of substantial amounts of our common stock, par value $0.001 per share (the "Common Stock") could depress our stock price or dilute the percentage ownership of our Common Stockholders.

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. As of December 31, 2023, we had 13,646,559 shares of Common Stock outstanding. In addition, as of December 31, 2023, we had outstanding options to purchase 994,500 shares of our Common Stock at exercise prices ranging from $3.15 to $9.81 per share and an outstanding warrant to purchase 30,000 shares of our Common Stock at exercise price of $3.51 per share. 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 Market constantly fluctuates. 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.

General Risk Factors

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.

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

We must be successful in winning mandates from our government, commercial 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.

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.

Systems failures, interruptions or breaches of security and other cybersecurity 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 operations, result in violations of applicable privacy and other laws and/or financial loss to us or to our customers or to our employees, and similar 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.

Climate change could negatively impact the Company's operations and financial condition.

Climate change may present both immediate and long-term risks to the Company and our customers and these risks may increase over time. Climate risks can arise from both physical risks (those risks related to the physical effects of climate change) and transition risks (risks related to governmental regulatory requirements, legal technology, market and reputational changes from a transition to a low carbon economy). Climate change could have a material, adverse effect on environmental companies like ours that are involved in the treatment, disposal and other services related to hazardous waste, radioactive waste and/or mixed (waste that contain both hazardous and radioactive) waste by changing or restricting how we perform our services or what services we can perform or taking action that materially increases our costs to do business in order to regulate or reduce climate change.

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 our steps to protect our proprietary technologies will be adequate to prevent misappropriation of these technologies by third parties. Such misappropriation could adversely effect our operations and financial condition. Changes to current environmental laws and regulations also could limit the use of our proprietary technology.

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 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, 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.

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 by 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.

At December 31, 2023, out of 30,000,000 shares of our Common Stock authorized, we had 13,646,559 shares of common stock outstanding and 7,642 shares of treasury stock. In addition, at December 31, 2023, we had outstanding options to purchase 994,500 shares of our common stock at exercise prices ranging from $3.15 to $9.81 per share, and an outstanding warrant to purchase 30,000 shares of our Common Stock at an exercise price of $3.51 per share. Assuming the issuance of the Common Stock underlying such options and warrant, at December 31, 2023, we had available for future issuance 15,321,299 shares of authorized and unissued Common Stock, and 2,000,000 shares of our preferred stock. Future sales of authorized and unissued shares could be used by our management to make it more difficult for, and thereby discourage, an attempt to acquire control of us.

Third party expectations relating to ESG factors may impose additional costs and expose us and our clients to new risks.

There is an increasing focus from certain investors and certain of our customers, and other stakeholders concerning corporate responsibility, specifically related to ESG factors. Some investors may use these factors to guide their investment strategies and, in some cases, may choose not to invest in us, or otherwise do business with us, if they believe our policies relating to corporate responsibility are inadequate or do not align with theirs. Third party providers of corporate responsibility ratings and reports on companies have increased in number, resulting in varied standards. In addition, the criteria by which companies' corporate responsibility practices are assessed are evolving, which could result in greater expectations of us and cause us to undertake costly initiatives to satisfy such new criteria. Alternatively, if we elect not to or are unable to satisfy such new criteria or do not meet the criteria of a specific third-party provider, some investors may conclude that our policies with respect to corporate responsibility are inadequate. We may face reputational damage in the event that our corporate responsibility procedures or standards do not meet the standards set by various constituencies. If we fail to satisfy the expectations of investors, our customers and other stakeholders or our initiatives are not executed as planned, our reputation and financial results could be adversely affected and our revenues, results of operations and ability to grow our business may be negatively impacted. Additionally, new legislative or regulatory initiatives related to ESG could adversely affect our business.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not Applicable.

ITEM 1C. CYBERSECURITY

Cybersecurity Risk Management and Strategy

The Company recognizes the importance of identifying, assessing, and managing risks associated with cybersecurity threats. The Company's cybersecurity program utilizes components of the National Institute of Standards and Technology ("NIST") Cybersecurity Framework. Key components of our cybersecurity program include governance, risk management, access and authentication controls, change management, audit and assessment, awareness and training, contingency planning, recovery, media handling, incident response, personnel and physical security, and communication integrity.

Our program is embedded into Information Technology ("IT") and Information System ("IS") operations across the business with a focus on awareness, transparency, minimizing business impacts, and reducing enterprise risk, including strategic, compliance, legal and financial risk. The Company has policies and procedures in place to ensure compliance with its cybersecurity program and cybersecurity controls. Our program relies on a philosophy of continuous improvement by using periodic self-assessments, 3rd party assessments, and customer/agency audits to determine cyber control presence, applicability, and effectiveness. Our program is customized with additional controls that address financial systems risk, nuclear quality assurance, Sarbanes Oxley, European Union cyber and data protection requirements, and supply chain risks.

Our risk management process addresses confidentiality, availability, and integrity and includes evaluating information systems specific threats, vulnerabilities, likelihood, and potential impact. Impact thresholds, which are reviewed and approved by the Board of Directors (the "Board") and senior management, are used to define incident escalation paths from IT operations to management, the Audit Committee and the Board. This process is used to identify, manage, and communicate material risks to the business. Additional cyber incident reporting requirements are in place to comply with customers and regulatory agency requirements.

Automated threat and vulnerability management systems are in place and updated per industry standards and best practices. Our IT team further manages risk by evaluating external providers of threat, vulnerability, and risk mitigation information. This information is used to proactively implement new methods or controls for reducing risk associated with a particular emerging threat or vulnerability.

The Company's cybersecurity program is managed by the Vice President ("VP") of IS, who has been employed by the Company for 20 years and has over 35 years of total experience in information systems. The VP of IS has an extensive career in software development and infrastructure management including working with Fortune 500 companies in his prior positions. The VP of information system is a participant in the overall Company strategic process and has aligned the program to best service the strategic objectives of the business.

Cybersecurity Governance

The Company's Audit Committee has oversight responsibility for risks and incidents relating to cybersecurity threats. Our senior management is responsible for the day-to-day management of the material risks we face. Our VP Of Information System is scheduled to report to the CFO on a weekly basis and the Audit Committee on a quarterly basis on cybersecurity matters to include updates on cybersecurity threat management, strategy processes, system updates and cybersecurity risks activities, including but not limited to any recent cybersecurity incidents and related responses. Our Board is also engaged in discussion with senior management and the Audit Committee at least on a quarterly basis on cybersecurity matters to discuss any updates to our cybersecurity risk management and strategy program. Each member of our Board has a working knowledge and/or experience with cybersecurity, IT strategy and IT risk assessment.

In the past 2 years, the Company does not believe that it has experienced any material cybersecurity incidents, nor any material costs related to immaterial cyber incidents. Although we have a comprehensive process for the prevention of material cybersecurity incidents as discussed, we cannot provide assurance that our results of operations and financial condition and business strategy will not be materially impacted from cybersecurity risks in the future. For more information on our cybersecurity related risk and potential effects on the Company of a material cybersecurity breach, see under "General Risk Factors" in "Item 1A. Risk Factors"

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; Richland, Washington; and Oak Ridge, Tennessee. All of the properties where these facilities operate on are pledged to our senior lender as collateral for our credit facility with the exception of the property at Oak Ridge, Tennessee which is leased. Our Services Segment maintains offices, 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 Company currently leases properties in the following locations for operations and administrative functions within our Treatment and Services Segments, including our corporate office and Business Center:

Location	Square Footage (SF)/ Acreage (AC)	Expiration of Lease
Oak Ridge, TN (Business Center)	16,319 SF	April 30, 2026
Oak Ridge, TN (Services)	5,000 SF	September 30, 2024
Blaydon On Tyne, England (Services)	1,000 SF	Monthly
New Brighton, PA (Services)	3,558 SF	June 30, 2024
Newport, KY (Services)	1,566 SF	Monthly
Atlanta, GA (Corporate)	6,499 SF	July 31, 2024
Oak Ridge, TN (Treatment)	8.7 AC, including 17,400 SF	September 30, 2028

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.

ITEM 3. LEGAL PROCEEDINGS

See "Part II – Item 8 - Financial Statements and Supplementary Data – Notes to Consolidated Financial Statements – Note 14 – Commitments and Contingencies – Legal Matters" for a discussion of our legal proceedings.

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 Market ("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.

		2023		2022	
		Low	High	Low	High
Common Stock	1st Quarter	$ 3.56	$ 12.00	$ 4.89	$ 6.52
	2nd Quarter	7.52	12.60	4.91	6.09
	3rd Quarter	8.73	13.87	4.26	5.93
	4th Quarter	6.50	10.72	3.20	4.57

At February 12, 2024, there were approximately 121 stockholders of record of our Common Stock. The actual number of our stockholders is greater than this number, and includes beneficial owners whose shares are held in "street name" by banks, brokers, and other nominees.

Since our inception, we have not paid any cash dividends on our Common Stock and have no dividend policy. Our Loan Agreement dated May 8, 2020, as amended, 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.

No sales of unregistered securities occurred during the first three quarters of 2023. On December 12, 2023, the Company issued 30,000 shares of its Common Stock resulting from the exercise of a Warrant for the purchase of up to 30,000 shares of the Company's Common Stock at an exercise price of $3.51 per share, resulting in proceeds received by the Company of approximately $105,000. See "Warrant" in "Note 6 - Capital Stock, Stock Plans, Warrants, and Stock Based Compensation" in "Part II, Item 8, Financial Statements and Supplementary Data" for further discussion of this warrant exercise.

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 2023.

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 Plans" 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. [Reserved]

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, our audited consolidated financial statements and includes our accounts and the accounts of our wholly-owned subsidiaries. Our 2022 consolidated financial statements also included the accounts of a variable interest entity ("VIE") for which we were the primary beneficiary. During the fourth quarter of 2022, project work under this VIE was completed.

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.

Overview

We experienced significant improvement in our 2023 financial results as the lingering effects of COVID-19 began to subside starting in the early part of 2022. Our Treatment Segment continued to see steady improvements in waste receipts from certain customers who had previously delayed waste shipments due, in part, from the impact of COVID-19. Within our Services Segment, certain projects which were delayed/curtailed in first part of 2022 due, in part, from the lingering effects of the COVID-19, achieved full operational status and improved productivity in 2023 which positively impacted revenue. Revenue from both of our Segments were also positively impacted from contracts won in 2023 as procurement and planning on behalf of our government clients continued to progress as the lingering effects of COVID-19 pandemic subsided.

Revenue increased by $19,136,000 or 27.1% to $89,735,000 for the twelve-months ended December 31, 2023, from $70,599,000 for the corresponding period of 2022. We saw increases in both Segments where Treatment Segment revenue increased by $10,119,000 or 30.3% to $43,477,000 from $33,358,000 and Services Segment revenue increased by $9,017,000 or 24.2% to $46,258,000 from $37,241,000. The increase in revenue in the Treatment Segment was primarily due to overall higher waste volume which was offset by lower averaged price from waste mix. The increase in revenue in the Services Segment was primarily due to achievement of full operational status and improved productivity on certain projects which had been delayed/curtailed in 2022 due, in part, from the lingering effects of the COVID-19 pandemic. Total gross profit for 2023 increased $6,760,000 or 70.4% due to increased revenue. Selling, General, and Administrative ("SG&A") expenses increased $323,000 or 2.2% for the twelve-months ended December 31, 2023, as compared to the corresponding period of 2022.

In March 2023, we received the Employee Retention Credit ("ERC") of $1,975,000 that we applied for during the third quarter of 2022 as permitted under the Coronavirus Aid, Relief and Economic Securities Act, as amended (the "CARES Act"). In addition to the $1,975,000, we also received approximately $60,000 in interest (recorded within "Interest Income" on our Consolidated Statements of Operations).

We believe we have sufficient liquidity on hand to continue business operations during the next twelve months. See a discussion of our liquidity overview within this MD&A – "Liquidity and Capital Resources."

Heading into 2024, we expect to see overall continue steady improvements in waste receipts and increases in project work from certain existing contracts, contracts won in 2023, and bids submitted in both segments that are awaiting awards. However, due to our operations which is subject to seasonal factor, we generally experience lower revenue in the first quarter due to overall reduced activities by our customers from the usual slowdown in operations due, in part, from returning from the holiday periods and poorer weather conditions. Additionally, due to Congress's inability to timely approve FY 2024 budget and the extension of the continuing resolution, certain of our government related customers have informed us that waste shipments will likely be delayed. Although we expect to see overall improvements in revenue in 2024 as disclosed above, if Congress is unable to enact the full FY 2024 appropriation bills or further extend the continuing resolutions to fund government spending by the late March deadline, the U.S. government will enter into a partial shutdown. The full impact of any additional continued resolution beyond March or a partial government shutdown is uncertain. If a partial government shutdown were to occur and were to continue an extended period, our financial results of operations could be negatively impacted by delays in procurement actions, waste shipments and project delays on newly awarded projects.

Business Environment

Our Treatment and Services Segments' business continues to be heavily dependent on services that we provide to governmental clients, primarily as subcontractors for others who are prime contractors to government entities or directly as the prime contractor. We believe demand for our services will continue to be subject to fluctuations due to a variety of factors beyond our control, including, without limitation, the economic conditions and the manner in which the applicable government will be required to spend funding to remediate various sites and a potential partial government shutdown. In addition, our governmental contracts and subcontracts relating to activities at governmental sites in the United States are generally subject to termination for convenience at any time 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.

We are continually reviewing methods to raise additional capital to supplement our liquidity requirements, when needed, and reducing our operating costs. We continue to aggressively bid on various contracts, including potential contracts within the international markets. On December 18, 2023, the JV where we and Campoverde Srl ("JV partner") each owns 50% of the partnership, was awarded a multi-year contract valued up to approximately EUR 50 million by the European Commission (the "Contracting Authority") for the treatment of radioactive waste from the Joint Research Center in Ispra, Italy. Work under this JV has not started as of December 31, 2023. The scope of work to be performed in the initial phases of this contract will be performed predominately by our JV partner. Revenue generated by us under the initial phases will be limited to project management support through 2025. We expect to generate an increase in revenue under this contract starting in 2026 when the waste treatment phases begin. The Contracting Authority may terminate the contract under certain conditions as set forth in the contract. Once activities commence under this JV, we will consolidate the operations of this JV into our financial statements.

Results of Operations

The reporting of financial results and pertinent discussions are tailored to our two reportable segments: The Treatment Segment and Services Segment.

Summary - Years Ended December 31, 2023 and 2022

Below are the results of continuing operations for years ended December 31, 2023, and 2022 (amounts in thousands):

(Consolidated)	2023	%	2022	%
Net revenues	$ 89,735	100.0	$ 70,599	100.0
Cost of goods sold	73,366	81.8	60,990	86.4
Gross profit	16,369	18.2	9,609	13.6
Selling, general and administrative	14,975	16.7	14,652	20.8
Research and development	561	.6	336	.4
Loss on disposal of property and equipment	77	.1	18	—
Income (loss) from operations	756	.8	(5,397)	(7.6)
Interest income	606	.7	99	.1
Interest expense	(323)	(.4)	(175)	(.3)
Interest expense – financing fees	(93)	(.1)	(61)	(.1)
Other (expense) income	(11)	—	1,945	2.8
Income (loss) from continuing operations before taxes	935	1.0	(3,589)	(5.1)
Income tax expense (benefit)	17	—	(378)	(.6)
Income (loss) from continuing operations	$ 918	1.0	$ (3,211)	(4.5)

Revenue

Consolidated revenues increased $19,136,000 for the year ended December 31, 2023, compared to the year ended December 31, 2022, as follows:

(In thousands)	2023	% Revenue	2022	% Revenue	Change	% Change
Treatment						
Government waste	$ 29,506	32.9	$ 21,946	31.1	$ 7,560	34.4
Hazardous/non-hazardous [1]	6,260	7.0	5,062	7.1	1,198	23.7
Other nuclear waste	7,711	8.6	6,350	9.0	1,361	21.4
Total	43,477	48.5	33,358	47.2	10,119	30.3
Services						
Nuclear	43,121	48.0	35,952	50.9	7,169	19.9
Technical	3,137	3.5	1,289	1.9	1,848	143.4
Total	46,258	51.5	37,241	52.8	9,017	24.2
Total	$ 89,735	100.0	$ 70,599	100.0	$ 19,136	27.1

1) Includes wastes generated by government clients of $2,943,000 and $2,380,000 for the twelve months ended December 31, 2023, and 2022, respectively.

Treatment Segment revenue increased by $10,119,000 or 30.3% for the twelve-months ended December 31, 2023 over the same period in 2022. The overall increase was primarily due to higher waste volume offset by lower averaged price from waste mix. As previously disclosed, starting in the latter part of the second quarter of 2022, our Treatment Segment began to see steady improvements in waste receipts from certain customers who had previously delayed waste shipments due, in part, from the lingering effects of COVID-19. Services Segment revenue increased by approximately $9,017,000 or 24.2%. primarily due to achievement of full operational status and improved productivity on certain projects which had been delayed/curtailed in the early part of 2022 due, in part, from the lingering effects of the COVID-19 pandemic. 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. Revenues from both of our segments were also positively impacted from contracts won in 2023.

Cost of Goods Sold

Cost of goods sold increased $12,376,000 for the year ended December 31, 2023, as compared to the year ended December 31, 2022, as follows:

(In thousands)	2023	% Revenue	2022	% Revenue	Change
Treatment	$ 36,601	84.2	$ 28,115	84.3	$ 8,486
Services	36,765	79.5	32,875	88.3	$ 3,890
Total	$ 73,366	81.8	$ 60,990	86.4	$ 12,376

Cost of goods sold for the Treatment Segment increased by approximately $8,486,000 or 30.2%. Treatment Segment's variable costs increased by approximately $6,189,000 primarily due to higher material and supplies, disposal, lab, outside services costs and higher employee incentives. Treatment Segment's overall fixed costs were higher by approximately $2,297,000 resulting from the following: salaries and payroll related expenses were higher by approximately $1,483,000 due to higher headcount; depreciation expenses were higher by approximately $393,000 due to depreciation for asset retirement obligations in connection with our EWOC facility; general expenses were higher by approximately $279,000 primarily due to higher utility costs; maintenance costs were higher by approximately $235,000; travel expenses were higher by approximately $90,000; and regulatory expenses were lower by approximately $183,000. Services Segment cost of goods sold increased $3,890,000 or 11.8% due to higher revenue. The overall increase in cost of goods sold was primarily due to the following: aggregated higher salaries/payroll related, outside services, and travel costs totaling approximately $4,356,000; higher depreciation expenses of $63,000; lower material and supplies, lab, regulatory and disposal expenses totaling approximately $444,000; and lower general expenses by approximately $85,000 in various categories. Included within cost of goods sold is depreciation and amortization expense of $2,484,000 and $2,027,000 for the twelve months ended December 31, 2022, and 2021, respectively.

Gross Profit

Gross profit for the year ended December 31, 2023, was $6,760,000 higher than 2022 as follows:

(In thousands)	2023	% Revenue	2022	% Revenue	Change
Treatment	$ 6,876	15.8	$ 5,243	15.7	$ 1,633
Services	9,493	20.5	4,366	11.7	$ 5,127
Total	$ 16,369	18.2	$ 9,609	13.6	$ 6,760

Treatment Segment gross profit increased by $1,633,000 or 31.1% primarily due to higher revenue as discussed previously. Despite the slight increase in gross margin, Treatment Segment gross margin was negatively impacted by higher variable costs from waste mix and the impact of overall increase in fixed costs. Services Segment gross profit increased by $5,127,000 or 117.4% and gross margin increased from 11.7% to 20.5% primarily due to higher revenue and improved margin projects. Our overall Services Segment gross margin is impacted by our current projects which are competitively bid and therefore have varying margin structures.

SG&A

SG&A expenses increased $323,000 for the year ended December 31, 2023, as compared to the corresponding period for 2022 as follows:

(In thousands)		2023	% Revenue		2022	% Revenue		Change
Administrative	$	7,230	-	$	6,882	-	$	348
Treatment		4,249	9.8		4,419	13.2		(170)
Services		3,496	7.6		3,351	9.0		145
Total	$	14,975	16.7	$	14,652	20.8	$	323

Administrative SG&A expenses were higher primarily due to the following: payroll-related expenses were higher by approximately $660,000 primarily due to higher accrued employee incentives (including our management incentive plans ("MIPs")) and higher 401(k) matching expenses as payroll expenses in 2022 included more forfeitures of 401(k) plan matching funds contributed by us for former employees who failed to meet the 401(k) plan vesting requirements; outside services expenses were lower by approximately $256,000 as a result of fewer audit/consulting matters; and general expenses were lower by approximately $56,000 in various categories. Treatment Segment SG&A expenses were lower primarily due to the following: outside services expenses were lower by approximately $110,000 due to fewer consulting matters; salaries and payroll related expenses were lower by approximately $212,000; travel expenses were lower by approximately $24,000; and general expenses were higher by approximately $176,000 in various categories. The increase in SG&A expenses within our Services Segment was primarily due to the following: salaries/payroll-related expenses were higher by approximately $92,000 due to more administrative support functions required as the result of higher revenue; travel expenses were higher by approximately $43,000; credit losses on accounts receivable were higher by approximately $59,000, as in the first quarter of 2022 our Services Segment collected on certain accounts that were previously deemed to be uncollectible; outside services expenses were lower by approximately $41,000 due to fewer consulting matters; and general expenses were lower slightly by $8,000. Included in SG&A expenses is depreciation and amortization expense of $84,000 and $82,000 for the twelve months ended December 31, 2023 and 2022, respectively.

Interest Income

Interest income increased by approximately $507,000 for the twelve-months ended December 31, 2023, respectively, as compared to the corresponding period of 2022 primarily due to higher interest earned from the finite risk sinking fund. Interest income for 2023 also included approximately $60,000 received in March 2023 under the ERC program under the CARES Act.

Interest Expense

Interest expense increased by approximately $148,000 for the twelve-months ended December 31, 2023, as compared to the corresponding period of 2022 due to interest incurred on the new $2,500,000 term loan dated July 31, 2023, under our credit facility. Interest expense was also higher in 2023 from higher interest rate on our term loan dated May 8, 2020, which was offset by the declining term loan balance. Additionally, the increase in interest expense in 2023 was also the result of interest incurred from advances made in May of 2022 from the capital line under our credit facility.

Income Taxes

We had income tax expense of $17,000 and income tax benefit of $378,000 for continuing operations for the twelve-months ended December 31, 2023 and 2022, respectively. Our effective tax rates were approximately 1.8% and 10.5% for the twelve- month ended December 31, 2023 and 2022, respectively. Our effective tax rates for the twelve-months ended December 31, 2023, and 2022 were impacted by non-deductible expenses and state taxes.

Backlog

Our Treatment Segment 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. As of December 31, 2023, our Treatment Segment had a backlog of approximately $8,702,000, as compared to approximately $9,156,000 as of December 31, 2022. 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.

Discontinued Operations and Environmental Contingencies

Our discontinued operations consist of all our subsidiaries included in our Industrial Segment which encompasses subsidiaries divested in 2011 and earlier, as well as three previously closed locations.

Our discontinued operations had no revenue for the twelve-months ended December 31, 2023 and 2022. We incurred net losses of $433,000 (net of tax benefit of $117,000) and $605,000 (net of tax benefit of $199,000) for our discontinued operations for the twelve-months ended December 31, 2023, and 2022, respectively. In 2022, we incurred additional costs in connection with management of administrative and regulatory matters related to our remediation projects. We have three environmental remediation projects, all within our discontinued operations, which principally entail the removal/remediation of contaminated soil, and, in most cases, the remediation of surrounding ground water.

Liquidity and Capital Resources

Our cash flow requirements during the twelve-months ended December 31, 2023, were primarily financed by our operations, cash on hand (which included the ERC, along with interest, that we received in March 2023 and proceeds from a new term loan dated July 31, 2023, in the amount of $2,500,000 provided to us under an amendment to our existing credit facility), and credit facility availability. 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, and planned capital expenditures. We plan to fund these requirements from our operations, credit facility availability, cash on hand and collections of unpaid receivables (See "Known Trends and Uncertainties – Perma-Fix Canada, Inc. ("PF Canada")" for a discussion of unpaid receivables due to our Perma-Fix Canada, Inc. subsidiary from a certain customer in which a settlement agreement has been reached, subject to meeting certain conditions/terms precedent and a partial payment received in January 2024). Our ability to utilize our credit facility from our lender is subject to meeting our quarterly financial covenant requirements, among other things. We continue to explore all sources of increasing our capital and/or liquidity and to improve our revenue and working capital, including, but not limited to entering into equity transactions. There are no assurances that we will be successful in increasing our liquidity through our efforts. We are continually reviewing operating costs and reviewing the possibility of further reducing operating costs and non-essential expenditures to bring them in line with revenue levels, when necessary. As of December 31, 2023, our borrowing availability under our revolving part of our credit facility was approximately $10,622,000, which included our cash (deposited with our lender) and was based on our eligible receivables and was net of approximately $3,950,000 in outstanding standby letters of credit and a $750,000 indefinite reduction in borrowing availability that our lender imposed pursuant to the July 31, 2023 amendment of our Loan Agreement. We believe that our cash flows from operations, our available liquidity from our credit facility, and our cash on hand should be sufficient to fund our operations for the next twelve months.

The following table reflects the cash flow activity for the year ended December 31, 2023, and the corresponding period of 2022:

(In thousands)	2023	2022
Cash provided by operating activities of continuing operations	$ 6,745	$ 164
Cash used in operating activities of discontinued operations	(597)	(717)
Cash used in investing activities of continuing operations	(1,714)	(997)
Cash provided by (used in) financing activities of continuing operations	1,696	(921)
Effect of exchange rate changes on cash	8	(4)
Increase (decrease) in cash and finite risk sinking fund (restricted cash)	$ 6,138	$ (2,475)

As of December 31, 2023, we were in a positive cash position with no revolving credit balance. As of December 31, 2023, we had cash on hand of approximately $7,500,000.

Operating Activities

Accounts receivable, net of credit losses, totaled $9,722,000 as of December 31, 2023, an increase of $358,000 from the December 31, 2022, balance of $9,364,000. The increase was attributed to increased revenue, timing of invoicing, and our accounts receivable collection. Our contracts with our customers are subject to various payment terms and conditions. Our accounts receivable at December 31, 2023, included invoices for work performed for a certain Canadian project that remained outstanding which a settlement agreement has been reached, subject to meeting certain conditions/terms precedent (See discussion under "Known Trends and Uncertainties - Perma-Fix Canada Inc. ("PF Canada")" below for a discussion of the accounts receivable and a partial payment made by the customer on January 22, 2024).

Prepaid and other assets totaled $3,738,000 as of December 31, 2023, a decrease of $1,667,000 from the December 31, 2022, balance of $5,405,000. The decrease was primarily due to receipt of the ERC of $1,975,000 in March 2023 that we applied for during the third quarter of 2022.

Accounts payable totaled $9,582,000 as of December 31, 2023, a decrease of $743,000 from the December 31, 2022, balance of $10,325,000. 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 our segments.

Accrued expenses totaled $6,560,000 as of December 31, 2023, an increase of $1,967,000 from the December 31, 2022, balance of $4,593,000. The increase was primarily due to higher employee incentive and commission accruals totaling approximately $1,346,000. Our employee incentive accruals included an aggregate of approximately $750,000 recorded under our 2023 Management Incentive Plans ("MIPs") for our executives.

We had working capital of $4,613,000 (which included working capital of our discontinued operations) as of December 31, 2023, as compared to working capital of $818,000 as of December 31, 2022. The improvement in our working capital was primarily due to increases in our cash and unbilled receivables from improved operations. In 2023, our cash was also increased from the receipt of the ERC in March 2023 and the additional Term Loan 2 dated July 31, 2023, that we entered into with our lender under our Loan Agreement (see a discussion of the Term Loan 2 below under "Financing Activities). The overall improvement in our working capital was offset by the increases in our accrued expenses and deferred revenues.

See discussion of a multi-year contract valued up to approximately EUR 50 million awarded to us and our JV partner by the European Commission on December 18, 2023, for the treatment of radioactive waste from the Joint Research Center in Ispra, Italy under "Business Environment" within this MD&A.

Investing Activities

During 2023, our purchases of capital equipment totaled approximately $2,498,000, of which $784,000 was subject to financing, with the remaining funded from cash from operations and our credit facility. We have budgeted approximately $2,000,000 for 2024 capital expenditures primarily for our Treatment and Services Segments to maintain operations and regulatory compliance requirements and support revenue growth. Certain of these budgeted projects may either be delayed until later years or deferred altogether. We plan to fund our capital expenditures from cash from operations, collections of unpaid receivables, borrowing availability under our credit facility and/or financing. The initiation and timing of projects are also determined by financing alternatives or funds available for such capital projects.

During March 2022, we signed a non-binding joint venture term sheet addressing plans to partner with Springfields Fuels Limited ("SFL"), an affiliate of Westinghouse Electric Company LLC, to develop and manage a nuclear waste-materials treatment facility (the "Facility") in the United Kingdom. The Facility is for the purpose of expanding the partners' waste treatment capabilities for the European nuclear market. It is expected that upon finalization of a partnership agreement, SFL will have an ownership interest of fifty-five (55) percent and our interest will be forty-five (45) percent. The finalization, form and capitalization of this unpopulated partnership is subject to numerous conditions, including but not limited to, completion and execution of a definitive agreement and facility design, granting of required regulatory, lender or permitting approvals and updated cost and profitability analysis based on current and forecast future economic conditions. Upon finalization of this venture, we will be required to make an investment in this venture. The amount of our investment, the period of which it is to be made and the method of funding are to be determined.

Financing Activities

We entered into a Second Amended and Restated Revolving Credit, Term Loan and Security Agreement, dated May 8, 2020 ("Loan Agreement"), with PNC National Association ("PNC" and "lender"), acting as agent and lender. The Loan Agreement, as amended (including the two amendments that we entered into with our lender in 2023 described below), provides us with the following credit facility with a maturity date of May 15, 2027: (a) up to $12,500,000 revolving credit ("revolving credit"), with the maximum that we can borrow under the revolving credit 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; (b) a term loan ("Term Loan 1") dated May 8, 2020, of approximately $1,742,000, requiring monthly installments of $35,547; (c) a term loan ("Term Loan 2") of $2,500,000 dated July 31, 2023, requiring monthly installments of $41,667; and (d) a capital expenditure line ("Capital Line") of up to $1,000,000 with advances on the line, subject to certain limitations, permitted for up to twelve months starting May 4, 2021 (the "Borrowing Period"), with interest only payable on advances during the Borrowing Period. Amounts advanced under the Capital Line at the end of the Borrowing Period totaled approximately $524,000, requiring monthly installments of principal of approximately $8,700 plus interest, commencing June 1, 2022.

On March 21, 2023, we entered into an amendment to our Loan Agreement, as amended, with our lender which provided, among other things, the following:

- removed the quarterly fixed charge coverage ratio ("FCCR") testing requirement for the fourth quarter of 2022 and removed the FCCR testing requirement for the first quarter of 2023;
- reduced the maximum revolving credit line under the credit facility from $18,000,000 to $12,500,000;
- reinstated the quarterly FCCR testing requirement starting in the second quarter of 2023 using a trailing twelve-months period (with no change to the minimum 1.15:1 ratio requirement for each quarter); and
- required maintenance of a minimum of $3,000,000 in borrowing availability under the revolving credit until the minimum FCCR requirement for the quarter ended June 30, 2023 has been met and certified to the lender (we met our FCCR requirement in the second quarter of 2023 which was certified to our lender and therefore, this requirement is no longer applicable under our Loan Agreement, as amended).

In connection with the March 2023 amendment, we paid our lender a fee of $25,000 which is being amortized over the remaining term of the Loan Agreement, as amended, as interest expense-financing fees.

On July 31, 2023, we entered into a further amendment of the Loan Agreement, as amended, with our lender which provided, among other things, the following:

- extended the maturity date of the Loan Agreement, as amended, to May 15, 2027, from May 15, 2024;
- an additional term loan ("Term Loan 2") to us in the amount of $2,500,000, requiring monthly installments of approximately $41,667. The annual rate of interest due on Term Loan 2 is at prime (8.50% at December 31, 2023) plus 3.00% or Secured Overnight Finance Rate ("SOFR") (as defined in the Loan Agreement, as amended) plus 4.00% plus an SOFR Adjustment applicable for an interest period selected by us. A SOFR Adjustment rate of 0.10% and 0.15% is applicable for a one-month interest period and three-month period, respectively, that may be selected by us;
- removed the minimum Tangible Adjusted Net Worth (as defined in the Loan Agreement, as amended) covenant requirement;
- placed an indefinite reduction in borrowing availability of $750,000; and
- allows for up to $2,500,000 in capital expenditure made in fiscal year 2023 and thereafter to be treated as financed capital expenditure in the Company's quarterly FCCR covenant calculation requirement.

At maturity of the Loan Agreement, as amended, any unpaid principal balance plus interest, if any, will become due.

Pursuant to the amendment dated July 31, 2023, we have agreed to pay PNC 1.0% of the total financing under the Loan Agreement, as amended, in the event we pay off our obligations on or before July 31, 2024, and 0.5% of the total financing if we pay off our obligations after July 31, 2024, to and including July 31, 2025. No early termination fee shall apply if we pay off our obligations under the amended Loan Agreement after July 31, 2025.

In connection with amendment dated July 31, 2023, we paid our lender a fee of $100,000 which is being amortized over the remaining term of the Loan Agreement, as amended, as interest expense-financing fees.

Pursuant to the Loan Agreement, as amended, the annual rate of interest due on the revolving credit is at prime plus 2% or SOFR plus 3.00% plus an SOFR Adjustment applicable for an interest period selected by us. The annual rate of interest due on Term Loan 1 and the Capital line is at prime plus 2.50% or SOFR plus 3.50% plus an SOFR Adjustment applicable for an interest period selected by us. SOFR Adjustment rates of 0.10% and 0.15% are applicable for a one-month interest period and three-month period, respectively, that may be selected by us. See payment of annual rate of interest due on Term Loan 2 under the amendment dated July 31, 2023, as discussed above.

Our credit facility under our Loan Agreement, as amended, 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. We were not required to perform testing of the FCCR requirement in the first quarter of 2023 pursuant to the March 21, 2023, amendment as discussed above. We otherwise met all of our other financial covenant requirements. We met all of our covenant requirements in each of the second to fourth quarters of 2023 and we expect to meet our covenant requirements in the next twelve months.

On May 19, 2023, we filed a shelf registration statement on Form S-3 with the U.S Securities and Exchange Commission (the “Commission”), which was declared effective by the Commission on June 1, 2023. The shelf registration statement gives us the ability to sell up to 2,500,000 shares of our Common Stock from time to time and through one or more methods of distribution, subject to market conditions and our capital needs at that time. The terms of any offering under the registration statement will be established at the time of the offering and be set forth in an accompanying prospectus or prospectus supplement relating to the offering. At this time, we do not have any immediate plans or current commitments to issue shares under the registration statement. This is not an offer to sell or a solicitation of an offer to buy, nor shall there be a sale of securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such state or jurisdiction.

Off Balance Sheet Arrangements

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, 2023, the total amount of standby letters of credit outstanding totaled approximately $3,950,000 and the total amount of bonds outstanding totaled approximately $36,674,000. We also provide closure and post-closure requirements through a financial assurance policy for certain of our Treatment Segment facilities through American International Group, Inc. (“AIG”). At December 31, 2023, the closure and post-closure requirements for these facilities were approximately $22,461,000.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared based upon the selection and application of US GAAP, which may require us to make estimates, judgments and assumptions that affect amounts reported in our financial statements and accompanying notes. The accounting policies below are those we believe affect the more significant estimates and judgments used in preparation of our financial statements. Our other accounting policies are described in the accompanying notes to our consolidated financial statements of this Form 10-K (see “Item 8 – Financial Statements and Supplementary Data – Notes to Consolidated Financial Statements – Note 2 – Summary of Significant Accounting Policies”):

Revenues. Our revenues are generated from our two segments, Treatment and Services. Certain contracts within our Services Segment are generated from long-term fixed price contracts. 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 primarily using the input method. For the input method, revenue is recognized based on costs incurred on the project relative to the total estimated costs of the project.

Our contracts generally do not give rise to variable consideration. However, from time to time, we may submit requests for equitable adjustments under certain of our government contracts for price or other modifications that are determined to be variable consideration. We estimate the amount of variable consideration to include in the estimated transaction price based on historical experience with government contracts, anticipated performance and management’s best judgment at the time and to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. These estimates are re-assessed each reporting period as required.

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, 2023, and 2022 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. 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.

Our future cash flow assumptions and conclusions with respect to asset impairments could be impacted by changes arising from (i) a sustained period of economic and industrial slowdowns (ii) inability to scale our operations and implement cost reduction efforts during reduced demand and/or (iii) a significant decline in our share price for a sustained period of time. These factors, among others, could significantly impact the impairment analysis and may result in future asset impairment charges that, if incurred, could have a material adverse effect on our financial condition and results of operations. We believe that the assumptions and estimates utilized for the reporting periods are appropriate based on the information available to management.

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. We develop estimates for the cost of these activities based on our evaluation of site-specific facts and circumstances, such as the existence of structures and other improvements that would need to be dismantled and the length of the post-closure period as determined by the applicable regulatory agency, among other things. Included in our cost estimates are our interpretation of current regulatory requirements and any proposed regulatory changes. These cost estimates may change in the future due to various circumstances including, but not limited to, permit modifications, changes in legislation or regulations, technological changes and results of environmental studies. Our cost estimates are calculated using internal sources as well as input from third-party experts. 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.

Income Taxes. The provision for income tax is determined in accordance with ASC 740, "Income Taxes." As part of the process of preparing our consolidated financial statements, 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 regularly review deferred tax assets by jurisdiction to assess their potential realization and establish a valuation allowance for portions of such assets that we believe will not be realized. In performing this review, we make estimates and assumptions regarding projected future taxable income, the expected timing of the reversals of existing temporary differences and the implementation of tax planning strategies. A change in these assumptions could cause an increase or decrease to the valuation allowance which could materially impact our results of operations.

Recent Accounting Pronouncements

See "Item 8 – Financial Statements and Supplementary Data" – Notes to Consolidated Financial Statements" – Note 2 – Summary of Significant Accounting Policies" for the recent accounting pronouncements that will be adopted in future periods.

Known Trends and Uncertainties

Economic Conditions. Our business continues to be heavily dependent on services that we provide to governmental clients (domestic), primarily as subcontractors for others who are prime contractors to government authorities (particularly the DOE and DOD) or directly as the prime contractor. We believe demand for our services will continue to be subject to fluctuations due to a variety of factors beyond our control, including without limitation, the economic conditions and the manner in which the government entity will be required to spend funding to remediate various sites. In addition, our U.S. governmental contracts and subcontracts relating to activities at governmental sites are generally subject to termination for convenience at any time at the option of the government. 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 U.S governmental authorities through contracts entered into indirectly as subcontractors for others who are prime contractors or directly as the prime contractor to government authorities. Our inability to continue under existing contracts that we have with the U.S government (directly or indirectly as a subcontractor) or significant reductions in the level of governmental funding in any given year could have a material adverse impact on our operations and financial condition.

We performed services relating to waste generated by government clients (domestic), either directly as a prime contractor or indirectly for others as a subcontractor to government entities, representing approximately $70,642,000, or 78.7%, of our total revenue during 2023, as compared to $59,658,000, or 84.5%, of our total revenue during 2022.

See discussion of a multi-year contract valued up to approximately EUR 50 million awarded to us and our JV partner by the European Commission on December 18, 2023, for the treatment of radioactive waste from the Joint Research Center in Ispra, Italy under "Business Environment" within this MD&A.

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.

Perma-Fix Canada Inc. ("PF Canada"). During the fourth quarter of 2021, PF Canada received a Notice of Termination ("NOT") from Canadian Nuclear Laboratories, LTD. ("CNL") on a Task Order Agreement ("TOA") that PF Canada entered into with CNL in May 2019 for remediation work within Ontario, Canada ("Agreement"). The NOT was received after work under the TOA was substantially completed and work under the TOA has since been completed. CNL may terminate the TOA at any time for convenience. As of December 31, 2023, PF Canada has approximately $2,389,000 in unpaid receivables due from CNL as a result of work performed under the TOA. CNL and PF Canada have reached a settlement agreement on payment of the receivables to PF Canada by CNL, subject to certain conditions/terms precedents being met, including release of certain liens. On January 22, 2024, we received a partial payment of approximately $741,000 from CNL, with the remaining receivables to be paid by CNL upon completion of the settlement conditions/terms, which we believe should occur during 2024.

Potential Partnership with Springfields Fuels Limited. As discussed above, we have signed a non-binding term sheet addressing plans to partner with Springfields Fuels Limited, an affiliate of Westinghouse Electric Company LLC, to develop and manage a nuclear waste-materials treatment facility in the United Kingdom. See "Liquidity and Capital Resources – Investing Activities" of this MD&A for a discussion of this transaction.

Inflation and Supply Chain. Our financial results have been negatively impacted by various macroeconomic factors, including the effects of inflation, supply chain issues, labor shortages, and higher interest rates, due, in part, to the impact of COVID-19 (which has mostly subsided). Continued increases in any of our operating costs, including utility, transportation, wage rates, and supply costs, may further increase our overall cost of goods sold or operating expenses. We may attempt to increase our service and treatment prices in order to maintain satisfactory margin from the effect of these factors as discussed above; however, competitive pressures in our industry may have the effect of inhibiting our ability to reflect these increased costs in the prices of our services that we provide to our customers and therefore reduce our profitability.

Related Party Transactions

See a discussion of our related party transactions in "Item 8 – Financial Statements and Supplementary Data – Notes to Consolidate Financial Statements – Note 16 – Related Party Transactions."

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 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;
- partial U.S. government shutdown or additional continued resolution;
- delay waste shipment by government related customers;
- reductions in the level of government funding in future years;
- reducing operating costs and non-essential expenditures;
- ability to meet loan agreement quarterly covenant requirements;
- cash flow requirements;
- receipt of remaining Canadian receivable upon completion of conditions/terms of the settlement agreement in 2024;
- sufficient liquidity to fund operations for the next twelve months;
- revenue under the Italian project;
- future results of operations and liquidity;

- effect of macroeconomic concerns, such as inflation and higher interest rates, on our business;
- manner in which the applicable government will be required to spend funding to remediate various sites;
- finalization of non-binding partnership agreement with Springfields Fuels Limited;
- successful on international bids;
- continued increases in operating costs;
- funding of capital expenditures from cash from operations, collections of unpaid receivables, borrowing availability under our credit facility and/or financing;
- steady improvement in waste shipments and work under projects in 2024;
- funding of remediation expenditures for sites from funds generated internally;
- compliance with environmental regulations;
- potential effect of being a PRP;
- potential violations of environmental laws and attendant remediation at our facilities; and
- our ability to effect increases in the prices of the services we offer.

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;
- contract bids, including international markets;
- material reduction in revenues;
- inability 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;
- 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;
- management retention and development;
- financial valuation of intangible assets is substantially more/less than expected;
- the need to use internally generated funds for purposes not presently anticipated;
- inability of the Company to maintain the listing of its Common Stock on the NASDAQ;
- terminations of contracts with government agencies or subcontracts involving government agencies or reduction in amount of waste delivered to the Company under the contracts or subcontracts;
- failure of joint venture partner to perform its requirements in connection with the Italian project;
- failure to approve 2024 budget by the U.S. government;
- partial government shutdown;
- Changes in the scope of work relating to existing contracts;

- occurrence of an event similar to COVID-19 having adverse effects on the U.S. and world economics;
- renegotiation of contracts involving government agencies;
- 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;
- economic uncertainties;
- new governmental regulations; and
- risk factors contained in Item 1A of this report.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Index to Consolidated Financial Statements

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.

Opinion on the financial statements

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, 2023 and 2022, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for the years then ended, 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, 2023 and 2022, and the results of its operations and its cash flows for the years then ended, 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 regarding 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.

Critical audit matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Realizability of deferred tax assets

As described further in Note 13 to the financial statements, deferred tax assets are reduced by a valuation allowance if, based on the evaluation of positive and negative evidence, in management's judgement it is more likely than not that some portion or all, of the deferred tax assets will not be realized. During the year ended December 31, 2023, management concluded that sufficient positive evidence exists to ensure the realizability of the net deferred tax assets that are recorded on the balance sheet.

The principal consideration for our determination that the realizability of the net deferred tax assets is a critical audit matter is that the projected financial information related to the profitability of the Company, which is primarily reliant on the ability to predict future revenue, subject to significant management judgement in determining whether the net deferred tax assets are more likely than not to be realized in the future. This, in turn, led to a high degree of auditor judgement and effort in performing procedures and evaluating audit evidence related to management's assessment of the realization of the net deferred tax assets.

Our audit procedures related to the realizability of the net deferred tax assets included the following, among others.

- We evaluated the positive and negative evidence available to support management's assessment of the realizability of the net deferred tax assets
- We tested the completeness and accuracy of the underlying data used in management's assessment
- We evaluated the prospective financial information related to future profitability including consideration of:

    - The current and past performance of the Company
    - The consistency with external market and industry data
    - The consistency with evidence obtained in other areas of the audit

/s/ GRANT THORNTON LLP

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

Atlanta, Georgia
March 13, 2024

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
CONSOLIDATED BALANCE SHEETS
As of December 31,

(Amounts in Thousands, Except for Share and Per Share Amounts)	2023	2022
ASSETS		
Current assets:		
Cash	$ 7,500	$ 1,866
Accounts receivable, net of allowance for credit losses of $30 and $57, respectively	9,722	9,364
Unbilled receivables	8,432	6,062
Inventories	1,155	814
Prepaid and other assets	3,738	5,405
Current assets related to discontinued operations	13	15
Total current assets	30,560	23,526
Property and equipment:		
Buildings and land	24,311	24,021
Equipment	22,809	21,242
Vehicles	434	442
Leasehold improvements	8	23
Office furniture and equipment	1,130	1,299
Construction-in-progress	1,010	727
Total property and equipment	49,702	47,754
Less accumulated depreciation	(30,693)	(28,797)
Net property and equipment	19,009	18,957
Property and equipment related to discontinued operations	81	81
Operating lease right-of-use assets	1,990	1,971
Intangibles and other long term assets:		
Permits	9,905	9,610
Other intangible assets - net	461	629
Finite risk sinking fund (restricted cash)	12,074	11,570
Deferred tax assets	4,299	4,116
Other assets	370	438
Total assets	$ 78,749	$ 70,898

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)	2023	2022
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 9,582	$ 10,325
Accrued expenses	6,560	4,593
Disposal/transportation accrual	1,198	887
Deferred revenue	6,815	4,813
Accrued closure costs - current	79	682
Current portion of long - term debt	773	476
Current portion of operating lease liabilities	380	416
Current portion of finance lease liabilities	291	154
Current liabilities related to discontinued operations	269	362
Total current liabilities	25,947	22,708
Accrued closure costs	8,051	7,284
Long-term debt, less current portion	1,975	563
Long-term operating lease liabilities, less current portion	1,670	1,584
Long-term finance lease liabilities, less current portion	776	318
Long-term liabilities related to discontinued operations	953	908
Total long-term liabilities	13,425	10,657
Total liabilities	39,372	33,365
Commitments and Contingencies (Note 14)		
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; 13,654,201 and 13,332,398 shares issued, respectively; 13,646,559 and 13,324,756 shares outstanding, respectively	14	13
Additional paid-in capital	116,502	115,209
Accumulated deficit	(76,951)	(77,436)
Accumulated other comprehensive loss	(100)	(165)
Less Common Stock in treasury, at cost; 7,642 shares	(88)	(88)
Total stockholders' equity	39,377	37,533
Total liabilities and stockholders' equity	$ 78,749	$ 70,898

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
For the years ended December 31,

(Amounts in Thousands, Except for Per Share Amounts)	2023	2022
Net revenues	$ 89,735	$ 70,599
Cost of goods sold	73,366	60,990
Gross profit	16,369	9,609
Selling, general and administrative expenses	14,975	14,652
Research and development	561	336
Loss on disposal of property and equipment	77	18
Income (loss) from operations	756	(5,397)
Other income (expense):		
Interest income	606	99
Interest expense	(323)	(175)
Interest expense-financing fees	(93)	(61)
Other (Note 10)	(11)	1,945
Income (loss) from continuing operations before taxes	935	(3,589)
Income tax expense (benefit)	17	(378)
Income (loss) from continuing operations, net of taxes	918	(3,211)
Loss from discontinued operations (Note 8)	(433)	(605)
Net income (loss)	$ 485	$ (3,816)
Net income (loss) per common share - basic and diluted:		
Continuing operations	$ .07	$ (.24)
Discontinued operations	(.03)	(.05)
Net income (loss) per common share	$ .04	$ (.29)
Number of common shares used in computing net income (loss) per share:		
Basic	13,506	13,280
Diluted	13,739	13,280

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
For the years ended December 31,

(Amounts in Thousands)	2023	2022
Net income (loss)	$ 485	$ (3,816)
Other comprehensive income (loss):		
Foreign currency translation adjustments	65	(137)
Total other comprehensive income (loss)	65	(137)
Comprehensive income (loss)	$ 550	$ (3,953)

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
For the years ended December 31,
(Amounts in Thousands, Except for Share Amounts)

	Common Stock		Additional Paid-In Capital	Common Stock Held In Treasury	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2021	13,222,552	$ 13	$ 114,307	$ (88)	$ (28)	$ (73,620)	$ 40,584
Net loss	—	—	—	—	—	(3,816)	(3,816)
Foreign currency translation	—	—	—	—	(137)	—	(137)
Issuance of Common Stock for services	90,920	—	481	—	—	—	481
Stock-Based Compensation	—	—	408	—	—	—	408
Issuance of Common Stock upon exercise of options	18,926	—	13	—	—	—	13
Balance at December 31, 2022	13,332,398	$ 13	$ 115,209	$ (88)	$ (165)	$ (77,436)	$ 37,533
Net income	—	—	—	—	—	485	485
Foreign currency translation	—	—	—	—	65	—	65
Issuance of Common Stock for services	65,854	—	477	—	—	—	477
Stock-Based Compensation	—	—	548	—	—	—	548
Issuance of Common Stock upon exercise of options	225,949	1	163	—	—	—	164
Issuance of Common Stock upon exercise of warrant	30,000	—	105	—	—	—	105
Balance at December 31, 2023	13,654,201	$ 14	$ 116,502	$ (88)	$ (100)	$ (76,951)	$ 39,377

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the years ended December 31,

(Amounts in Thousands)	2023	2022
Cash flows from operating activities:		
Net income (loss)	$ 485	$ (3,816)
Less: loss on discontinued operations (Note 8)	(433)	(605)
Income (loss) income from continuing operations	918	(3,211)
Adjustments to reconcile net income (loss) income from continuing operations to cash provided by operating activities:		
Depreciation and amortization	2,568	2,109
Amortization of debt issuance costs	93	60
Deferred tax benefit	(66)	(390)
Provision for (recovery of) credit losses on accounts receivable	45	(20)
Loss on disposal of property and equipment	77	18
Issuance of common stock for services	477	481
Stock-based compensation	548	408
Changes in operating assets and liabilities of continuing operations:		
Accounts receivable	(403)	2,028
Unbilled receivables	(2,370)	2,933
Prepaid expenses, inventories and other assets	4,193	2,018
Accounts payable, accrued expenses and unearned revenue	665	(6,270)
Cash provided by continuing operations	6,745	164
Cash used in discontinued operations	(597)	(717)
Cash provided by (used in) operating activities	6,148	(553)
Cash flows from investing activities:		
Purchases of property and equipment (net of financed amount)	(1,714)	(1,023)
Proceeds from sale of property and equipment	—	26
Cash used in investing activities of continuing operations	(1,714)	(997)
Cash flows from financing activities:		
Borrowing on revolving credit	90,256	73,322
Repayments of revolving credit borrowings	(90,256)	(73,322)
Proceeds from long term debt (Term Loan 2/Capital Line) (Note 9)	2,500	524
Principal repayment of finance lease liabilities	(189)	(860)
Principal repayments of long term debt	(709)	(502)
Payment of debt issuance costs	(175)	(35)
Offering costs paid from sale of Common Stock in 2021	—	(61)
Proceeds from issuance of Common Stock upon exercise of options/warrant	269	13
Cash provided by (used in) financing activities of continuing operations	1,696	(921)
Effect of exchange rate changes on cash	8	(4)
Increase (decrease) in cash and finite risk sinking fund (restricted cash) (Note 2)	6,138	(2,475)
Cash and finite risk sinking fund (restricted cash) at beginning of period (Note 2)	13,436	15,911
Cash and finite risk sinking fund (restricted cash) at end of period (Note 2)	$ 19,574	$ 13,436
Supplemental disclosure:		
Interest paid	$ 308	$ 173
Income taxes paid	—	6
Non-cash investing and financing activities:		
Equipment purchase subject to financing	784	114

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

NOTE 1
DESCRIPTION OF BUSINESS AND BASIS OF PRESENTATION

Perma-Fix Environmental Services, Inc. (the Company, which may be referred to as we, us, or our), an environmental and technology know-how company, is a Delaware corporation, engaged through its subsidiaries, in two reportable segments:

TREATMENT SEGMENT, which includes:

- nuclear, low-level radioactive, mixed waste (containing both hazardous and low-level radioactive constituents), hazardous and non-hazardous waste treatment, processing and disposal services primarily through four uniquely licensed and permitted treatment and storage facilities; and
- R&D activities to identify, develop and implement innovative waste processing techniques for problematic waste streams.

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 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 OSHA citation assistance;
    - global technical services providing consulting, engineering, project management, waste management, environmental, and D&D 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, D&D, specialty services and construction, 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 NEOSH instrumentation.

The Company's continuing operations consist of the operations of our subsidiaries/facilities as follow: Diversified Scientific Services, Inc. ("DSSI"), Perma-Fix of Florida, Inc. ("PFF"), Perma-Fix of Northwest Richland, Inc. ("PFNWR"), Safety & Ecology Corporation ("SEC"), Perma-Fix Environmental Services UK Limited ("PF UK Limited"), Perma-Fix Canada, Inc. ("PF Canada") and Oak Ridge Environmental Waste Operations Center ("EWOC").

The Company's continuing operations also consisted of Perma-Fix ERRG, a variable interest entity ("VIE") for which we were the primary beneficiary. The VIE was an unpopulated joint venture ("JV") entered between the Company and Engineering/Remediation Resources Group, Inc. ("ERRG") for a specific project under the Services Segment in which the Company and ERRG had a 51% and 49% partnership interest in the joint venture, respectively. During the fourth quarter of 2022, project work under the JV was completed

The Company's discontinued operations (see "Note 8 – Discontinued Operations") consist of operations of all our subsidiaries included in our Industrial Segment which encompasses subsidiaries divested in 2011 and earlier, as well as three previously closed locations.

On December 18, 2023, a JV where the Company and Campoverde Srl ("JV partner") each owns 50% of the partnership, was awarded a multi-year contract valued up to approximately EUR 50 million by the European Commission (the "Contracting Authority") for the treatment of radioactive waste from the Joint Research Center in Ispra, Italy. Work under this JV has not started as of December 31, 2023. The scope of work to be performed in the initial phases of this contract will be performed predominately by our JV partner. Revenue generated by the Company under the initial phases will be limited to project management support through 2025. The Company expects to generate an increase in revenue under this contract starting in 2026 when the waste treatment phases begin. The Contracting Authority may terminate the contract under certain conditions as set forth in the contract. Once activities commence under this JV, the Company will consolidate the operations of this JV into its financial statements.

Financial Positions and Liquidity

The Company experienced significant improvement in its 2023 financial results as the lingering effects of COVID-19 began to subside starting in the early part of 2022. The Company's Treatment Segment continued to see steady improvements in waste receipts from certain customers who had previously delayed waste shipments due, in part, from the impact of COVID-19. Within the Company's Services Segment, certain projects which were delayed/curtailed in first part of 2022 due, in part, from the lingering effects of the COVID-19, achieved full operational status and improved productivity in 2023 which positively impacted revenue. Revenues from both of the Company's Segments were also positively impacted from contracts won in 2023 as procurement and planning on behalf of our government clients continued to progress as the lingering effects of COVID-19 pandemic subsided.

Heading into 2024, the Company expects to see overall continue steady improvements in waste receipts and increases in project work from certain existing contracts, contracts won in 2023, and bids submitted in both segments that are awaiting awards. However, due to our operations which is subject to seasonal factor, the Company generally experiences lower revenue in the first quarter due to overall reduced activities by our customers from the usual slowdown in operations due, in part, from returning from the holiday periods and poorer weather conditions. Additionally, due to Congress's inability to timely approve FY 2024 budget and the extension of the continuing resolution, certain of our government related customers have informed us that waste shipments will likely be delayed. Although the Company expects to see overall improvements in revenue in 2024 as disclosed above, if Congress is unable to enact the full FY 2024 appropriation bills or further extend the continuing resolutions to fund government spending by the late March deadline, the U.S. government will enter into a partial shutdown. The full impact of any additional continued resolution beyond March or a partial government shutdown is uncertain. If a partial government shutdown were to occur and were to continue an extended period, our financial results of operations could be negatively impacted by delays in procurement actions, waste shipments and project delays on newly awarded projects.

The Company's cash flow requirements during the twelve-months ended December 31, 2023, were primarily financed by its operations, credit facility availability and cash on hand (which included the ERC, along with interest, that the Company received in March 2023 (See "Note 10 – Employee Retention Credit ("ERC") and proceeds from a new term loan dated July 31, 2023, in the amount of $2,500,000 provided to us under an amendment to the Company's existing credit facility (See "Note 9 – Long Term Debt")). The Company's 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, and planned capital expenditures. The Company plans to fund these requirements from its operations, cash on hand, credit facility availability, and collections of unpaid receivables (See "Note 14 – Commitments and Contingencies - Perma-Fix Canada, Inc. ("PF Canada")" and "Note 19 – Subsequent Events – Perma-Fix Canada, Inc. ("PF Canada")" for a discussion of a settlement agreement relating to unpaid receivables due to the Company from Canadian Nuclear Laboratories ("CNL")). The Company's ability to utilize its credit facility from its lender is subject to meeting its quarterly financial covenant requirements, among other things. The Company continues to explore all sources of increasing its capital and/or liquidity and to improve its revenue and working capital, including, but not limited to entering into equity transactions. There are no assurances that the Company will be successful in increasing our liquidity through our efforts. The Company is continually reviewing operating costs and reviewing the possibility of further reducing operating costs and non-essential expenditures to bring them in line with revenue levels, when necessary. At this time, the Company believes that its cash flows from operations, our available liquidity from our credit facility, and our cash on hand should be sufficient to fund our operations for the next twelve months.

NOTE 2
SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The Company's consolidated financial statements include our accounts and those of our wholly-owned subsidiaries. The Company's consolidated financial statements for 2022 also included the accounts of Perma-Fix ERRG, a VIE for which we were the primary beneficiary as discussed above, after elimination of all significant intercompany accounts and transactions.

Use of Estimates

The Company prepares financial statements in conformity with accounting standards generally accepted in the United States ("U.S. GAAP"), which may require estimates of future cash flows 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. Due to the inherent uncertainty involved in making estimates, actual results could differ from those estimates.

Cash and Finite Risk Sinking Fund (Restricted Cash)

As of December 31, 2023, and 2022, the Company had cash on hand of approximately $7,500,000 and $1,866,000, respectively. Starting in late 2023, the Company maintained an interest bearing money account with its lender. At December 31, 2023, and 2022, the Company had finite risk sinking funds of approximately $12,074,000 and $11,570,000, respectively, which represented cash held as collateral under the Company's financial assurance policy (see "Note 14 – Commitment and Contingencies – Insurance" for a discussion of this finite risk sinking fund).

Accounts Receivable

Accounts receivable are customer obligations due under normal trade terms generally requiring payment within 30 or 60 days from the invoice date based on the customer type (government, broker, or commercial). The carrying amount of accounts receivables is reduced by a credit loss determined in accordance with Accounting Standards Update ("ASU") 2016-13 "Credit Losses (Topic 326) Measurement of Credit Losses on Financial Instruments." which requires the Company to consider forward-looking information in estimating the expected loss and is developed using historical collection experience, current and future economic and market conditions that may affect customers' ability to pay, and a review of the current status of customers' accounts receivables. The Company does not apply a credit loss allowance to government related receivables due to our past successful experience in their collectability. The Company's monitoring activities include routine follow-up on past due accounts and consideration of customers' financial conditions. Once the Company has exhausted all options in the collection of a delinquent accounts receivable balance, which includes collection letters, demands for payment, collection agencies and attorneys, the account is deemed uncollectible and subsequently written off. The write off process involves approvals from senior management based on required approval thresholds.

The following table sets forth the activity in the allowance for credit losses for the years ended December 31, 2023, and 2022 (in thousands):

	Year Ended December 31,	
	2023	2022
Allowance for credit losses - beginning of year	$ 57	$ 85
Provision charges (Recovery of)	44	(21)
Write-off	(71)	(7)
Allowance for credit losses - end of year	$ 30	$ 57

Unbilled Receivables

Unbilled receivables are generated by differences between invoicing timing and our over time revenue recognition methodology used for revenue recognition purposes. As major processing and contract completion phases are completed and the costs are incurred, the Company recognizes the corresponding percentage of revenue. Within our Treatment Segment, the facilities experience delays in processing invoices due to the complexity of the documentation that is required for invoicing, as well as the difference between completion of revenue recognition milestones and agreed upon invoicing terms, which results in unbilled receivables. The timing differences occur for several reasons which include: delays in the final processing of all wastes associated with certain work orders and delays for analytical testing that is required after the facilities have processed waste but prior to our release of waste for disposal. The tasks relating to these delays can take months to complete but are generally completed within twelve months.

Unbilled receivables within our Services Segment can result from work performed under contracts but invoice milestones have not yet been met and/or contract claims and pending change orders, including requests for equitable adjustments ("REA") for which work has been performed and collection of revenue is reasonably assured.

Inventories

Inventories consist of treatment chemicals, saleable used oils, and certain supplies. Additionally, the Company has replacement parts in inventory, which are deemed critical to the operating equipment and may also have extended lead times should the part fail and need to be replaced. Inventories are valued at the lower of cost or net realizable value with cost determined by the first-in, first-out method.

Disposal and Transportation Costs

The Company accrues for waste disposal based on 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 for the transportation and disposal accruals.

Property and Equipment

Property and equipment expenditures are capitalized and depreciated using the straight-line method over the estimated useful lives of the assets for financial statement purposes, while accelerated depreciation methods are principally used for income tax purposes. Generally, asset lives range from ten to forty years for buildings (including improvements and asset retirement costs) and three to seven years for office furniture and equipment, vehicles, and decontamination and processing equipment. Leasehold improvements are capitalized and amortized over the lesser of the term of the lease or the life of the asset. Maintenance and repairs are charged directly to expense as incurred. The cost and accumulated depreciation of assets sold or retired are removed from the respective accounts, and any gain or loss from sale or retirement is recognized in the accompanying Consolidated Statements of Operations. Renewals and improvements, which extend the useful lives of the assets, are capitalized.

Certain property and equipment expenditures are financed through leases. Amortization of financed leased assets is computed using the straight-line method over the estimated useful lives of the assets. As of December 31, 2023, assets recorded under finance leases were $1,608,000 less accumulated depreciation of $545,000, resulting in net fixed assets under finance leases of $1,063,000. As of December 31, 2022, assets recorded under finance leases were $1,201,000 less accumulated depreciation of $549,000, resulting in net fixed assets under finance leases of $652,000. These assets are recorded within net property and equipment on the Consolidated Balance Sheets.

Long-lived assets, such as property, plant and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset. Assets to be disposed of are separately presented in the balance sheet and reported at the lower of the carrying amount or fair value less costs to sell and are no longer depreciated.

Our depreciation expense totaled approximately $2,370,000 and $1,872,000 in 2023 and 2022, respectively.

Leases

The Company accounts for leases in accordance with FASB's ASU 2016-02, "Leases (Topic 842)." At the inception of an arrangement, the Company determines if an arrangement is, or contains, a lease based on facts and circumstances present in that arrangement. Lease classifications, recognition, and measurement are then determined at the lease commencement date.

The Company's operating lease right-of-use ("ROU") assets and operating lease liabilities include primarily leases for office and warehouse spaces used to conduct our business. The Company's operating leases also include the lease of a building with land utilized for our waste treatment operations which includes a purchase option. These leases have remaining terms of approximately one to six years. The Company includes renewal options in valuing its ROU assets and liabilities when it determines that it is reasonably certain to exercise these renewal options; however, at December 31, 2023, none of our operating leases has remaining renewal options. As most of our operating leases do not provide an implicit rate, the Company uses its incremental borrowing rate as the discount rate when determining the present value of the lease payments. The incremental borrowing rate is determined based on the Company's secured borrowing rate, lease terms and current economic environment. Some of our operating leases include both lease (rent payments) and non-lease components (maintenance costs such as cleaning and landscaping services). The Company has elected the practical expedient to account for lease component and non-lease component as a single component for all leases under ASU 2016-02. Lease expense for operating leases is recognized on a straight-line basis over the lease term.

Finance leases primarily consist of processing and transport equipment used by our facilities' operations. The Company's finance leases have remaining terms of approximately one to six years. See "Property and Equipment" above for assets recorded under financed leases. Borrowing rates for our finance leases are either explicitly stated in the lease agreements or implicitly determined from available terms in the lease agreements.

The Company adopted the policy to not recognize ROU assets and liabilities for short term leases.

Intangible Assets

Intangible assets consist primarily of the recognized value of the permits required to operate our business. 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, a quantitative test is performed 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. Judgments and estimates 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 indefinite-lived permits related to our Treatment reporting unit as of October 1, 2023 and 2022 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. Definite-lived intangible assets are also tested for impairment whenever events or changes in circumstances suggest impairment might exist.

Research and Development ("R&D")

Operational innovation and technical know-how are 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 and to develop new company service offerings. The Company conducts research internally and also through collaborations with other third parties. R&D costs consist primarily of employee salaries and benefits, laboratory costs, third party fees, and other related costs associated with the development and enhancement of new potential waste treatment processes and new technology and are charged to expense when incurred in accordance with ASC Topic 730, "Research and Development."

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, the Company 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 flows. Increases in the ARO liability due to passage of time impact net income as accretion expense, which is included in cost of goods sold. Changes in costs resulting from changes or expansion at the facilities require adjustment to the ARO liability and are capitalized and charged as depreciation expense, in accordance with the Company's depreciation policy.

Income Taxes

Income taxes are accounted for in accordance with ASC 740, "Income Taxes." Under ASC 740, the provision for income taxes is comprised of taxes that are currently payable and deferred taxes that relate to the temporary differences between financial reporting carrying values and tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using enacted income tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Any effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

ASC 740 requires that deferred income tax assets be reduced by a valuation allowance if it is more likely than not that some portion or all of the deferred income tax assets will not be realized. The Company regularly assesses the likelihood that the deferred tax asset will be recovered from future taxable income. The Company considers projected future taxable income and ongoing tax planning strategies, then records a valuation allowance to reduce the carrying value of the net deferred income taxes to an amount that is more likely than not to be realized.

ASC 740 sets out a consistent framework for preparers to use to determine the appropriate recognition and measurement of uncertain tax positions. ASC 740 uses a two-step approach wherein a tax benefit is recognized if a position is more-likely-than-not to be sustained. The amount of the benefit is then measured to be the highest tax benefit which is greater than 50% likely to be realized. ASC 740 also sets out disclosure requirements to enhance transparency of an entity's tax reserves. The Company recognizes accrued interest and income tax penalties related to unrecognized tax benefits as a component of income tax expense.

The Company reassesses the validity of our conclusions regarding uncertain income tax positions on a quarterly basis to determine if facts or circumstances have arisen that might cause us to change our judgment regarding the likelihood of a tax position's sustainability under audit.

Foreign Currency

The Company's foreign subsidiaries include PF UK Limited and PF Canada. Assets and liabilities are translated to U.S. dollars at the exchange rate in effect at the balance sheet date and revenue and expenses at the average exchange rate for the period. Foreign currency translation adjustments for these subsidiaries are accumulated as a separate component of accumulated other comprehensive income (loss) in stockholders' equity. Gains and losses resulting from foreign currency transactions are recognized in the Consolidated Statements of Operations.

Concentration Risk

The Company performed services relating to waste generated by government clients (domestic), either indirectly for others as a subcontractor to government entities or directly as a prime contractor, representing approximately \$70,642,000, or 78.8%, of our total revenue during 2023, as compared to \$59,658,000, or 84.5%, of our total revenue during 2022.

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.

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist principally of cash and accounts receivable. The Company maintains cash with high quality financial institutions, which may exceed Federal Deposit Insurance Corporation ("FDIC") insured amounts from time to time. The Company has not experienced any losses due to such cash concentration. Concentration of credit risk with respect to accounts receivable is limited due to the Company's large number of customers and their dispersion throughout the United States as well as with the significant amount of work that we perform for government entities.

The Company had two government related customers whose total unbilled and net outstanding receivable balances each represented 13.2% of the Company's total consolidated unbilled and net accounts receivable at December 31, 2023. The Company had two government related customers whose total unbilled and net outstanding receivable balances represented 12.5% and 23.0% of the Company's total consolidated unbilled and net accounts receivable at December 31, 2022.

Revenue Recognition and Related Policies

The Company recognizes revenue in accordance with FASB's ASC 606, "Revenue from Contracts with Customers." ASC 606 provides a single, comprehensive revenue recognition model for all contracts with customers. Under ASC 606, 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. Under ASC 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 primarily 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 (ranging from 9.0% to 33%), treatment/processing (ranging from 40% to 87%) and shipment/final disposal (ranging from 2.0% to 27%). 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.

The Company periodically enter into arrangements with customers for transportation of wastes to either our facility or to non-company owned disposal sites. Revenue from this arrangement is recognized at a point in time, upon the transfer of control. Control transfers when the wastes are picked up by the Company.

Services Segment Revenues:

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

The Company's 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.

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 primarily using the input method. For the input method, revenue is recognized based on costs incurred on the project relative to the total estimated costs of the project.

As discussed above for the Treatment and Services Segments, the Company' revenue is generally recognized using the input method. This method of measuring progress provides a faithful depiction of the transfer to goods and services because the costs incurred are expected to be substantially proportionate to the Company's satisfaction of the performance obligation.

Contracts with our customers within our Treatment Segment are generally short term with an original expected length of one year or less. For the Services Segment, contracts with our customers generally have original terms ranging from one year or less to approximately twenty-four months. The Company's contracts and subcontracts relating to activities at governmental sites generally allow for termination for convenience at any time at the government's option without payment of a substantial penalty.

Variable Consideration

The Company's contracts generally do not give rise to variable consideration. However, from time to time, the Company may submit requests for equitable adjustments under certain of its government contracts for price or other modifications that are determined to be variable consideration. The Company estimates the amount of variable consideration to include in the estimated transaction price based on historical experience with government contracts, anticipated performance and management's best judgment at the time and to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. These estimates are re-assessed each reporting period as required.

Significant Payment Terms

Invoicing is based on schedules established in customer contracts. Payment terms vary by customers but are generally established at 30 days from invoicing.

Incremental Costs to Obtain a Contract

Costs incurred to obtain contracts with our customers are immaterial and as a result, the Company expenses (within selling, general and administration expenses ("SG&A")) incremental costs incurred in obtaining contracts with our customer as incurred.

Remaining Performance Obligations

The Company applies the practical expedient in ASC 606-10-50-14 and does not disclose information about remaining performance obligations that have original expected durations of one year or less.

Within our Services Segment, there are service contracts which provide that the Company has a right to consideration from a customer in an amount that corresponds directly with the value to the customer of our performance completed to date. For those contracts, the Company has utilized the practical expedient in ASC 606-10-55-18, which allows the Company to recognize revenue in the amount for which we have the right to invoice; accordingly, the Company does not disclose the value of remaining performance obligations for those contracts.

The Company's contracts and subcontracts relating to activities at governmental sites generally allow for termination for convenience at any time at the government's option without payment of a substantial penalty. The Company does not disclose remaining performance obligations on these contracts.

Stock-Based Compensation

Stock-based compensation granted to employees are accounted for in accordance with ASC 718, "Compensation – Stock Compensation." Stock-based payment transactions for acquiring goods and services from nonemployees are also accounted for under ASC 718. ASC 718 requires stock-based payments to employees and nonemployees, including grant of options, to be recognized in the Statement of Operations based on their fair values. The Company uses 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. The Company accounts for forfeitures when they occur.

Comprehensive Income (Loss)

The components of comprehensive income (loss) are net income (loss) and the effects of foreign currency translation adjustments.

Income (Loss) Per Share

Basic income (loss) per share is calculated based on the weighted-average number of outstanding common shares during the applicable period. Diluted income (loss) per share is based on the weighted-average number of outstanding common shares plus the weighted-average number of potential outstanding common shares. In periods where they are anti-dilutive, such amounts are excluded from the calculations of dilutive earnings per share. Income (loss) per share is computed separately for each period presented.

Fair Value of Financial Instruments

Certain assets and liabilities are required to be recorded at fair value on a recurring basis, while other assets and liabilities are recorded at fair value on a nonrecurring basis. Fair value is determined based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. The three-tier value hierarchy, which prioritizes the inputs used in the valuation methodologies, is:

Level 1—Valuations based on quoted prices for identical assets and liabilities in active markets.
Level 2—Valuations based on observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.
Level 3—Valuations based on unobservable inputs reflecting the Company's own assumptions, consistent with reasonably available assumptions made by other market participants.

Financial instruments include cash (Level 1), accounts receivable, accounts payable, and debt obligations (Level 3). Credit is extended to customers based on an evaluation of a customer's financial condition and, generally, collateral is not required. As of December 31, 2023, and December 31, 2022, the fair value of the Company's financial instruments approximated their carrying values. The fair value of the Company's revolving credit, term loans and capital loan approximate its carrying value due to the variable interest rate.

Recently Issued Accounting Standards – Not Yet Adopted

In August 2023, the FASB issued ASU 2023-05, "Business Combinations—Joint Venture Formations (Subtopic 805-60): Recognition and Initial Measurement." ASU 2023-05 applies to the formation of a "joint venture" or a "corporate joint venture" and requires a joint venture to initially measure all contributions received upon its formation at fair value. The guidance does not impact accounting by the venturers. The new guidance is applicable to joint venture entities with a formation date on or after January 1, 2025 on a prospective basis. The Company is currently evaluating the impact of this ASU on its consolidated financial statements.

In November 2023, the FASB issued ASU 2023-07, "Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures," which expands reportable segment disclosure requirements by requiring disclosures of significant reportable segment expenses that are regularly provided to the CODM and included within each reported measure of a segment's profit or loss. The ASU also requires disclosure of the title and position of the individual identified as the CODM and an explanation of how the CODM uses the reported measures of a segment's profit or loss in assessing segment performance and deciding how to allocate resources. Additionally, ASU 2023-07 requires all segment profit or loss and assets disclosures to be provided on an annual and interim basis. The amendments in this ASU are required to be adopted for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024 with early adoption permitted, and should be applied on a retrospective basis. ASU 2023-07 will be effective for the Company's financial statements for the year ended December 31, 2024. This ASU will not have impact on the Company's consolidated financial condition or results of operations. The Company is evaluating the impact to the related segment reporting disclosures.

In December 2023, the FASB issued Accounting Standards Update No. 2023-09, "Income Taxes (Topic 740): Improvements to Income Tax Disclosures" ("ASU 2023-09"), which modifies the rules on income tax disclosures to require entities to disclose (1) specific categories in the rate reconciliation, (2) the income or loss from continuing operations before income tax expense or benefit (separated between domestic and foreign) and (3) income tax expense or benefit from continuing operations (separated by federal, state and foreign). ASU 2023-09 also requires entities to disclose their income tax payments to international, federal, state and local jurisdictions, among other changes. The guidance is effective for annual periods beginning after December 15, 2024. ASU 2023-09 should be applied on a prospective basis, but retrospective application is permitted. This ASU will not have impact on the Company's consolidated financial condition or results of operations. The Company is evaluating the impact to its income taxes reporting disclosures.

NOTE 3
REVENUE

Disaggregation of Revenue

In general, the Company's business segmentation is aligned according to the nature and economic characteristics of our services and provides meaningful disaggregation of each business segment's results of operations. The following tables present further disaggregation of our revenues by different categories for our Services and Treatment Segments:

Revenue by Contract Type
(In thousands)

	Twelve Months Ended December 31, 2023			Twelve Months Ended December 31, 2022		
	Treatment	Services	Total	Treatment	Services	Total
Fixed price	$ 43,477	$ 41,540	$ 85,017	$ 33,358	$ 26,960	$ 60,318
Time and materials	—	4,718	4,718	—	10,281	10,281
Total	$ 43,477	$ 46,258	$ 89,735	$ 33,358	$ 37,241	$ 70,599

Revenue by generator
(In thousands)

	Twelve Months Ended December 31, 2023			Twelve Months Ended December 31, 2022		
	Treatment	Services	Total	Treatment	Services	Total
Domestic government	$ 31,448	$ 39,194	$ 70,642	$ 23,752	$ 35,906	$ 59,658
Domestic commercial	10,670	6,357	17,027	8,307	1,408	9,715
Foreign government	1,001	619	1,620	574	(202)	372
Foreign commercial	358	88	446	725	129	854
Total	$ 43,477	$ 46,258	$ 89,735	$ 33,358	$ 37,241	$ 70,599

Contract Balances

The timing of revenue recognition and billings results in unbilled receivables (contract assets). The Company's contract liabilities consist of deferred revenues which represent advance payment from customers in advance of the completion of our performance obligation. The following table represents changes in our contract asset and contract liabilities balances: Our deferred revenue as of December 31, 2023, included a remaining prepayment of approximately $2,031,000 by a certain customer for a waste treatment project which is expected to be completed in 2024.

(In thousands)	December 31, 2023	December 31, 2022	Year-to-date Change ($)	Year-to-date Change (%)
Contract assets				
Unbilled receivables - current	$ 8,432	$ 6,062	$ 2,370	39.1%
Contract liabilities				
Deferred revenue	$ 6,815	$ 4,813	$ 2,002	41.6%

During the twelve-months ended December 31, 2023, and 2022, the Company recognized revenue of $6,759,000 and $6,576,000, respectively, related to untreated waste that was in the Company's control as of the beginning of each respective year. Revenue recognized in each period relates to performance obligations satisfied within the respective period.

NOTE 4
LEASES

The components of lease cost for the Company's leases were as follows (in thousands):

	Twelve Months Ended December 31, 2023	Twelve Months Ended December 31, 2022
Operating Leases:		
Lease cost	$ 612	$ 627
Finance Leases:		
Amortization of ROU assets	163	176
Interest on lease liability	33	37
	196	213
Short-term lease rent expense	2	7
Total lease cost	$ 810	$ 847

The weighted average remaining lease term and the weighted average discount rate for operating and finance leases at December 31, 2023, were:

	Operating Leases	Finance Leases
Weighted average remaining lease terms (years)	5.6	4.5
Weighted average discount rate	7.5%	8.7%

The weighted average remaining lease term and the weighted average discount rate for operating and finance leases at December 31, 2022, were:

	Operating Leases	Finance Leases
Weighted average remaining lease terms (years)	6.2	3.0
Weighted average discount rate	7.8%	5.3%

The following table reconciles the undiscounted cash flows for the operating and finance leases as of December 31, 2023, to the operating and finance lease liabilities recorded on the balance sheet (in thousands):

	Operating Leases	Finance Leases
2024	$ 520	$ 372
2025	433	345
2026	416	192
2027	406	157
2028	383	134
2029 and thereafter	366	102
Total undiscounted lease payments	2,524	1,302
Less: Imputed interest	(474)	(235)
Present value of lease payments	$ 2,050	$ 1,067
Current portion of operating lease obligations	$ 380	$ —
Long-term operating lease obligations, less current portion	$ 1,670	$ —
Current portion of finance lease obligations	$ —	$ 291
Long-term finance lease obligations, less current portion	$ —	$ 776

Supplemental cash flow and other information related to our leases were as follows (in thousands):

	Twelve Months Ended December 31, 2023	Twelve Months Ended December 31, 2022
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flow from operating leases	$ 582	$ 573
Operating cash flow from finance leases	$ 32	$ 37
Financing cash flow from finance leases	$ 189	$ 860
ROU assets obtained in exchange for lease obligations for:		
Finance liabilities	$ 786	$ 147
Operating liabilities	$ 466	$ —

NOTE 5
PERMIT AND OTHER INTANGIBLE ASSETS

The following table summarizes changes in the carrying value of permits, which exist only in our Treatment Segment.

Permit (amount in thousands)	Treatment
Balance as of December 31, 2021	$ 9,476
Permit in progress	134
Balance as of December 31, 2022	$ 9,610
Permit in progress	295
Balance as of December 31, 2023	$ 9,905

The following table summarizes information relating to the Company's definite-lived intangible assets:

		December 31, 2023			December 31, 2022		
Other Intangibles (amount in thousands)	Weighted Average Amortization Period (Years)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Patent	8.3	$ 710	$ (387)	$ 323	$ 711	$ (374)	$ 337
Software	3	667	(529)	138	640	(468)	172
Customer relationships	10	3,370	(3,370)	—	3,370	(3,250)	120
Total		$ 4,747	$ (4,286)	$ 461	$ 4,721	$ (4,092)	$ 629

The intangible assets noted above were amortized on a straight-line basis over their useful lives with the exception of customer relationships which were amortized using an accelerated method.

The following table summarizes the expected amortization over the next five years for our definite-lived intangible assets:

Year	Amount (In thousands)
2024	72
2025	35
2026	35
2027	32
2028	25

Amortization expense recorded for definite-lived intangible assets was approximately $198,000 and $237,000, for the years ended December 31, 2023, and 2022, respectively.

NOTE 6
CAPITAL STOCK, STOCK PLANS, WARRANTS AND STOCK BASED COMPENSATION

Stock Option Plans

The Company's 2003 Outside Directors Stock Plan, as amended (the "2003 Plan") provides for the grant of Non-Qualified Stock Options ("NQSOs") to member of the Company's Board of Directors (the "Board") who is not an employee of the Company or its subsidiaries ("Eligible Director"). The 2003 Plan also provides for the grant of an NQSO to purchase up to 10,000 shares of the Company's Common Stock for each Eligible Director upon each re-election to the Board, and the grant of an NQSO to purchase up to 20,000 shares of the Company's Common Stock upon initial election. NQSOs granted prior to July 20, 2021 have a vesting period of six months from the date of grant and a term of 10 years, with an exercise price equal to the closing trade price on the date prior to grant date. NQSOs granted on and after July 20, 2021 vest 25% per year, beginning on the first anniversary date of the grant and also have a term of 10 years, with an exercise price equal to the closing trade price on the date prior to grant date. Additionally, the 2003 Plan provides for the issuance to each Eligible Director a number of shares of the Company's Common Stock in lieu of 65% or 100% (based on option elected by each director) of the fee payable to the Eligible Director for services rendered as a member of the Board. The number of shares issued is determined at 75% of the market value as defined in the plan (the Company recognizes 100% of the market value of the shares issued). At December 31, 2023, the 2003 Plan had available for issuance 318,680 shares.

The Company's 2017 Stock Option Plan, as amended (the "2017 Plan"), authorizes the grant of options to officers and employees of the Company, including any employee who is also a member of the Board, as well as to consultants of the Company. The 2017 Plan authorizes an aggregate grant of 1,740,000 NQSOs and Incentive Stock Options ("ISOs"), which included an increase of 600,000 additional authorized shares approved by the Company's Stockholders at the Company's 2023 Annual Meeting of Stockholders held on July 20, 2023. Consultants of the Company can only be granted NQSOs. The term of each stock option granted under the 2017 Plan shall be fixed by the Compensation and Stock Option Committee (the "Compensation Committee"), but no stock options will be exercisable more than ten years after the grant date, or in the case of an ISO granted to a 10% stockholder, five years after the grant date. The exercise price of any ISO granted under the 2017 Plan to an individual who is not a 10% stockholder at the time of the grant shall not be less than the fair market value of the shares at the time of the grant, and the exercise price of any ISO granted to a 10% stockholder shall not be less than 110% of the fair market value at the time of grant. The exercise price of any NQSOs granted under the plan shall not be less than the fair market value of the shares at the time of grant. At December 31, 2023, the 2017 Plan had available for issuance 720,500 shares.

Stock Options to Employees and Outside Director

On January 19, 2023, the Company granted ISOs to certain employees under the 2017 Plan, for the purchase of up to an aggregate 295,000 shares of the Company's Common Stock. The total ISOs granted included an ISO for each of the Company's executive officers for the purchase set forth in his respective ISO Agreement, as follows: 70,000 shares for the Chief Executive Officer ("CEO"); 40,000 shares for the Chief Financial Officer ("CFO"); 30,000 shares for the Executive Vice President ("EVP") of Strategic Initiatives; 30,000 shares for the EVP of Waste Treatment Operations; and 30,000 shares for the EVP of Nuclear and Technical Services. Each of the ISOs granted has a contractual term of six years with one-fifth yearly vesting over a five-year period. The exercise price of each ISO is $3.95 per share, which was equal to the fair market value of the Company's Common Stock on the date of grant.

On July 20, 2023, the Company issued a NQSO to each of the Company's seven reelected outside (non-management) directors under the 2003 Plan, for the purchase of up to 10,000 shares of the Company's Common Stock. The CEO and EVP of Strategic Initiatives, each an executive officer of the Company as well as a director, were not eligible to receive an option under the 2003 Plan. Each NQSO granted is for a contractual term of ten years with one-fourth vesting annually over a four-year period. The exercise price of each NQSO is $9.81 per share, which was equal to the fair market value of the Company's Common Stock on the day preceding the grant date, in accordance with the 2003 Plan.

On October 19, 2023, the Company granted an ISO to an employee under the 2017 Plan, for the purchase of up to 5,000 shares of the Company's Common Stock. The ISO granted is for a contractual term of six years with one-fifth vesting annually over a five-year period. The exercise price of the ISO is $9.62 per share, which was equal to the fair market value of the Company's Common Stock on the date of grant.

On July 21, 2022, the Company issued a NQSO to each of the Company's seven reelected outside directors under the 2003 Plan, for the purchase of up to 10,000 shares of the Company's Common Stock. The Company's EVP of Strategic Initiatives and also a member of the Company's Board, was not eligible to receive an option under the 2003 Plan as an employee of the Company. Each NQSO granted is for a contractual term of ten years with one-fourth vesting annually over a four-year period. The exercise price of the NQSO is $5.15 per share, which was equal to the fair market value of the Company's Common Stock the day preceding the grant date, pursuant to the 2003 Plan.

On July 21, 2022, the Company granted ISOs to certain employees under the 2017 Plan, for the purchase of up to an aggregate of 24,000 shares of the Company's Common Stock. Each ISO granted is for a contractual term of six years with one-fifth vesting annually over a five-year period. The exercise price of the ISO is $5.34 per share, which was equal to the fair market value of the Company's Common Stock on the date of grant.

During 2023, the Company issued an aggregate 185,549 shares of its Common Stock from cashless exercises of options for the purchases of 280,000 shares of the Company's Common Stock, at exercise prices ranging from $3.60 per share to $7.005 per share. Additionally, the Company issued 40,400 shares of its Common Stock from the cash exercise of options for the purchase of 40,400 shares of the Company's Common Stock, at exercise prices ranging from at $2.785 per share to $7.005 per share resulting in proceeds of approximately $164,000. Income tax benefit associated with stock options exercised with cash during 2023 was approximately $25,000.

During 2022, the Company issued 16,526 shares of its Common Stock from a cashless exercise of an option for the purchase of 50,000 shares of the Company's Common Stock at $3.97 per share. Additionally, the Company issued 2,400 shares of its Common Stock from the exercise of an option for the purchase of 2,400 shares of the Company's Common Stock at $5.50 per share resulting in proceeds of approximately $13,000. Income tax benefit associated with the stock option exercised with cash during 2022 was approximately $3,000.

The Company estimates fair value of stock options using the Black-Scholes valuation model. Assumptions used to estimate the fair value of stock options granted include the exercise price of the award, the expected term, the expected volatility of the Company's stock over the option's expected term, the risk-free interest rate over the option's expected term, and the expected annual dividend yield. The fair value of the options granted during 2023 and 2022 and the related assumptions used in the Black-Scholes option model used to value the options granted were as follows:

	Employee Stock Options Granted	
	2023	2022
Weighted-average fair value per share	$ 2.07	2.71
Risk -free interest rate [(1)]	3.48%-4.98%	3.00%
Expected volatility of stock [(2)]	55.19%-58.78%	55.72%
Dividend yield [(3)]	None	None
Expected option life (years) [(4)]	5.0 - 5.6	5.0

	Outside Director Stock Options Granted	
	2023	2022
Weighted-average fair value per share	$ 6.46	$ 3.61
Risk -free interest rate [(1)]	3.85%	2.91%
Expected volatility of stock [(2)]	54.31%	55.04%
Dividend yield [(3)]	None	None
Expected option life (years) [(4)]	10.0	10.0

(1) The risk-free interest rate is based on the U.S. Treasury yield in effect at the grant date over the expected term of the option.

(2) The expected volatility is based on historical volatility from our traded Common Stock over the expected term of the option.

(3) The Company has never paid any dividends on its Common Stock. Our Loan Agreement prohibits the Company from paying any cash dividends without prior approval from our lender.

(4) The expected option life is based on historical exercises and post-vesting data.

The following table summarizes stock-based compensation recognized (within SG&A expenses) for fiscal years 2023 and 2022.

	Year Ended	
	2023	2022
Employee Stock Options	$ 367,000	$ 313,000
Director Stock Options	181,000	95,000
Total	$ 548,000	$ 408,000

Income tax benefits associated with stock-based compensation expense were approximately $45,000 and $23,000, respectively, for the years ended December 31, 2023, and 2022.

At December 31, 2023, the Company had approximately $1,809,000 of total unrecognized compensation costs related to unvested options for employee and directors. The weighted average period over which the unrecognized compensation costs are expected to be recognized is approximately 3.2 years.

Stock Options to Consultant

On July 27, 2017, the Company granted a NQSO from the 2017 Plan to Robert Ferguson, for the purchase of up to 100,000 shares of the Company's Common Stock ("Ferguson Stock Option"), at an exercise price of $3.65 per share, which was the fair market value of the Company's Common Stock on the date of grant. The Ferguson Stock Option was granted in connection with Mr. Ferguson's work as a consultant to the Company's Test Bed Initiative ("TBI") at our PFNWR facility. The term of the Ferguson Stock Option was seven years from the grant date, with vesting subject to the achievement of three separate milestones by certain dates, the achievement of which would entitle Mr. Ferguson to purchase, respectively, 10,000, 30,000, and 60,000 shares of the Company's Common Stock issuable under the Ferguson Stock Option. Mr. Ferguson previously achieved the first milestone during the first vesting period. Upon the death of Mr. Ferguson, the balance of the shares issuable under the Ferguson Stock Option was forfeited in accordance with the terms of the option.

Summary of Stock Option Plans

The summary of the Company's total plans as of December 31, 2023, and 2022, and changes during the period then ended are presented as follows:

	Shares	Weighted Average Exercise Price		Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value [4]	
Options outstanding January 1, 2023	1,018,400	$	5.02			
Granted	370,000	$	3.15			
Exercised	(320,400)	$	3.72		$	2,335,042
Forfeited/expired	(73,500)	$	3.77			
Options outstanding end of period [1]	994,500	$	5.57	5.0	$	2,417,081
Options exercisable at December 31, 2023[2]	319,300	$	5.46	4.1	$	766,037

	Shares	Weighted Average Exercise Price		Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value [4]	
Options outstanding January 1, 2022	1,019,400	$	4.91			
Granted	94,000	$	5.20			
Exercised	(52,400)	$	4.04		$	97,856
Forfeited/expired	(42,600)	$	4.08			
Options outstanding end of period [3]	1,018,400	$	5.02	3.8	$	44,262
Options exercisable at December 31, 2022[3]	530,900	$	4.27	2.4	$	30,962

(1) Options with exercise prices ranging from $3.15 to $9.81
(2) Options with exercise prices ranging from $3.15 to $7.50
(3) Options with exercise prices ranging from $2.79 to $7.50
(4) The intrinsic value of a stock option is the amount by which the market value of the underlying stock exceeds the exercise price

The summary of the Company's nonvested options as of December 31, 2023, and changes during the period then ended are presented as follows:

	Shares	Weighted Average Grant-Date Fair Value	
Non-vested options January 1, 2023	487,500	$	3.32
Granted	370,000		2.90
Vested	(119,300)		3.27
Forfeited	(63,000)		3.22
Non-vested options at December 31, 2023	675,200	$	3.12

Warrant

In connection with a $2,500,000 loan that the Company received from Mr. Robert Ferguson (the "Ferguson Loan") on April 1, 2019, the Company issued a warrant to Mr. Ferguson (the "Ferguson Warrant") for the purchase of up to 60,000 shares of our Common Stock at an exercise price of $3.51 per share. The Ferguson Loan was paid in full in December 2020. Upon Mr. Ferguson's death, the Ferguson Warrant was transferred equally to Mr. Ferguson's two heirs with each holding a Warrant for the purchase of up to 30,000 shares of the Company's Common Stock, as permitted under the Ferguson Warrant. On December 12, 2023, one of Warrant was exercised by Mr. Ferguson's heir for the purchase of 30,000 shares of the Company's Common Stock, resulting in proceeds received by the Company of approximately $105,000. As of December 31, 2023, the remaining Warrant remains outstanding and will expire on April 1, 2024.

Common Stock Issued for Services

The Company issued a total of 65,854 and 90,920 shares of our Common Stock in 2023 and 2022, respectively, under our 2003 Plan to our outside directors as compensation for serving on our Board. As a member of the Board, each director elects to receive either 65% or 100% of the director's fee in shares of our Common Stock. The number of shares received is calculated based on 75% of the fair market value of our Common Stock determined on the business day immediately preceding the date that the quarterly fee is due. The balance of each director's fee, if any, is payable in cash. The Company recorded approximately $477,000 in each of the years 2023 and 2022 in compensation expense (included in SG&A expenses) for the for the portion of director fees earned in the Company's Common Stock.

Shares Reserved

As of December 31, 2023, the Company has reserved approximately 994,500 shares of our Common Stock for future issuance under all of the option arrangements.

NOTE 7
INCOME (LOSS) PER SHARE

The following table reconciles the income (loss) and average share amounts used to compute both basic and diluted income (loss) per share:

(Amounts in Thousands, Except for Per Share Amounts)	Years Ended December 31, 2023	Years Ended December 31, 2022
Income (loss) per common share from continuing operations		
Income (Loss) from continuing operations, net of taxes	$ 918	$ (3,211)
Basic income (loss) per share	$ .07	$ (.24)
Diluted income (loss) per share	$ .07	$ (.24)
Loss per common share from discontinued operations,		
Loss from discontinued operations, net of taxes	$ (433)	$ (605)
Basic loss per share	$ (.03)	$ (.05)
Diluted loss per share	$ (.03)	$ (.05)
Net income (loss) per common share		
Net income (loss)	$ 485	$ (3,816)
Basic income (loss) per share	$ .04	$ (.29)
Diluted income (loss) per share	$ .04	$ (.29)
Weighted average shares outstanding:		
Basic weighted average shares outstanding	13,506	13,280
Add: dilutive effect of stock options	215	—
Add: dilutive effect of warrants	18	—
Diluted weighted average shares outstanding	13,739	13,280
Potential shares excluded from above weighted average share calculations due to their anti-dilutive effect include:		
Stock options	75	499

NOTE 8
DISCONTINUED OPERATIONS

The Company's discontinued operations consist of all our subsidiaries included in our Industrial Segment which encompasses subsidiaries divested in 2011 and earlier, as well as three previously closed locations.

The Company incurred losses from discontinued operations of $433,000 (net of tax benefit of $117,000) and $605,000 (net of tax benefit of $199,000) for the years ended December 31, 2023, and 2022, respectively. In 2022, the Company incurred additional costs in connection with management of administrative and regulatory matters for the Company's remediation projects as discussed below.

The following table presents the major class of assets of discontinued operations as of December 31, 2023, and December 31, 2022. No assets and liabilities were held for sale at each of the periods noted.

(Amounts in Thousands)	December 31, 2023	December 31, 2022
Current assets		
Other assets	$ 13	$ 15
Total current assets	13	15
Long-term assets		
Property, plant and equipment, net [1]	81	81
Total long-term assets	81	81
Total assets	$ 94	$ 96
Current liabilities		
Accounts payable	$ 80	$ 104
Accrued expenses and other liabilities	128	146
Environmental liabilities	61	112
Total current liabilities	269	362
Long-term liabilities		
Closure liabilities	169	159
Environmental liabilities	784	749
Total long-term liabilities	953	908
Total liabilities	$ 1,222	$ 1,270

(1)net of accumulated depreciation of $10,000 for each period presented.

Environmental Liabilities

The Company has three remediation projects, which are currently in progress relating to our PFD, PFM and PFSG subsidiaries, all within our discontinued operations. The Company divested PFD in 2008; however, the environmental liability of PFD was retained by the Company 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.

As of December 31, 2023, the Company had total accrued environmental remediation liabilities of $845,000, a decrease of $16,000 from the December 31, 2022 balance of $861,000. The decrease represents payments for remediation projects. As of December 31, 2023, $61,000 of the total accrued environmental liabilities was recorded as current.

The current and long-term accrued environmental liabilities as of December 31, 2023, are summarized as follows (in thousands).

	Current Accrual	Long-term Accrual	Total
PFD	—	$ 60	$ 60
PFM	—	15	15
PFSG	61	709	770
Total liability	$ 61	$ 784	$ 845

NOTE 9
LONG - TERM DEBT

Long-term debt consists of the following as of December 31, 2023, and December 31, 2022:

(Amounts in Thousands)	December 31, 2023	December 31, 2022
Revolving Credit facility dated May 8, 2020, borrowings based upon eligible accounts receivable, subject to monthly borrowing base calculation, balance due on May 15, 2027. Effective interest rate for 2023 and 2022 was 9.7% and 8.9%, respectively. (1)	$ —	$ —
Term Loan 1 dated May 8, 2020, payable in equal monthly installments of principal, balance due on May 15, 2027. Effective interest rate for 2023 and 2022 was 9.2% and 5.6%, respectively (1)	213	640
Term Loan 2 dated July 31, 2023, payable in equal monthly installments of principal, balance due on May 15, 2027. Effective interest rate for 2023 was 9.9% (1)	2,333	—
Capital Line dated May 4, 2021, payable in equal monthly installments of principal, balance due on May 15, 2027. Effective interest rate for 2023 and 2022 was was 8.6% and 6.2%, respectively (1)	358	463
Debt Issuance Costs	(170)(2)	(88)(2)
Notes Payable to 2023 and 2025, annual interest rate of 5.6% and 9.1%.	14	24
Total debt	2,748	1,039
Less current portion of long-term debt	773	476
Long-term debt	$ 1,975	$ 563

(1)Our revolving credit facility is collateralized by our accounts receivable, and our term loans and capital line are collateralized by our property, plant, and equipment.

(2)Aggregate unamortized debt issuance costs in connection with the Company's credit facility, which consists of the revolving credit, Term loan 1, Term loan 2 and Capital Line, as applicable.

Revolving Credit and Term Loan Agreement

The Company entered into a Second Amended and Restated Revolving Credit, Term Loan and Security Agreement, dated May 8, 2020 ("Loan Agreement"), with PNC National Association ("PNC" and "lender"), acting as agent and lender. The Loan Agreement, as amended from time to time and including the March 21, 2023, and the July 31, 2023, amendments as discussed below, provides the Company with the following credit facility with a maturity date of May 15, 2027: (a) up to $12,500,000 revolving credit ("revolving credit"), with the maximum that the Company can borrow under the revolving credit based on a percentage of eligible receivables (as defined) at any one time reduced by outstanding standby letters of credit and borrowing reductions that the Company's lender may impose from time to time; (b) a term loan ("Term Loan 1") of approximately $1,742,000, requiring monthly installments of $35,547; (c) a term loan ("Term Loan 2") of $2,500,000, requiring monthly installments of $41,667; and (d) a capital expenditure line ("Capital Line") of up to $1,000,000 with advances on the line, subject to certain limitations, permitted for up to twelve months starting May 4, 2021 (the "Borrowing Period"), with interest only payable on advances during the Borrowing Period. Amounts advanced under the Capital Line at the end of the Borrowing Period totaled approximately $524,000, requiring monthly installments of principal of approximately $8,700 plus interest, commencing June 1, 2022.

On March 21, 2023, the Company entered into an amendment to its Loan Agreement, as amended, with its lender which provided, among other things, the following:

- removed the quarterly FCCR testing requirement for the fourth quarter of 2022 and removed the FCCR testing requirement for the first quarter of 2023;
- reduced the maximum revolving credit line under the credit facility from $18,000,000 to $12,500,000;
- reinstated the quarterly FCCR testing requirement starting in the second quarter of 2023 using a trailing twelve-months period (with no change to the minimum 1.15:1 ratio requirement for each quarter); and
- required maintenance of a minimum of $3,000,000 in borrowing availability under the revolving credit until the minimum FCCR requirement for the quarter ended June 30, 2023 has been met and certified to the lender (the Company met its FCCR in the second quarter of 2023 which was certified to its lender and therefore, this requirement is no longer applicable under the Loan Agreement, as amended).

In connection with the March 21, 2023, amendment, the Company paid its lender a fee of $25,000 which is being amortized over the remaining term of the Loan Agreement, as amended, as interest expense-financing fees.

On July 31, 2023, the Company entered into a further amendment to its Loan Agreement, as amended, which provided, among other things, the following:

- extended the maturity date of the Loan Agreement, as amended, to May 15, 2027, from May 15, 2024;
- an additional term loan ("Term Loan 2") to the Company in the amount of $2,500,000, requiring monthly installments of approximately $41,667. The annual rate of interest due on Term Loan 2 is at prime (8.50% at December 31, 2023) plus 3.00% or SOFR (as defined in the Loan Agreement, as amended) plus 4.00% plus an SOFR Adjustment applicable for an interest period selected by the Company. A SOFR Adjustment rate of 0.10% and 0.15% is applicable for a one-month interest period and three-month period, respectively, that may be selected by the Company;
- removed the minimum Tangible Adjusted Net Worth (as defined in the Loan Agreement) covenant requirement;
- placed an indefinite reduction in borrowing availability of $750,000; and
- allows for up to $2,500,000 in capital expenditure made in fiscal year 2023 and thereafter to be treated as financed capital expenditure in the Company's quarterly FCCR covenant calculation requirement.

At maturity of the Loan Agreement, as amended, any unpaid principal balance plus interest, if any, will become due.

Pursuant to the amendment dated July 31, 2023, as discussed above, the Company agreed to pay PNC 1.0% of the total financing under the Loan Agreement, as amended, in the event the Company pays off its obligations on or before July 31, 2024, and 0.5% of the total financing if the Company pays off its obligations after July 31, 2024, to and including July 31, 2025. No early termination fee shall apply if the Company pays off its obligations under Loan Agreement, as amended, after July 31, 2025.

In connection with the amendment dated July 31, 2023, the Company paid its lender a fee of $100,000 which is being amortized over the remaining term of the Loan Agreement, as amended, as interest expense-financing fees.

Pursuant to the Loan Agreement, as amended, the annual rate of interest due on the revolving credit is at prime plus 2% or SOFR plus 3.00% plus an SOFR Adjustment applicable for an interest period selected by the Company. The annual rate of interest due on Term Loan 1 and the Capital Line is at prime plus 2.50% or SOFR plus 3.50% plus an SOFR Adjustment applicable for an interest period selected by the Company. SOFR Adjustment rates of 0.10% and 0.15% are applicable for a one-month interest period and three-month period, respectively, that may be selected by the Company. See payment of annual rate of interest due on Term Loan 2 as provided under the amendment dated July 31, 2023.

The Company's credit facility under its Loan Agreement, as amended, with PNC contains certain financial covenants, along with customary representations and warranties. A breach of any of these financial covenants, unless waived by PNC, 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 Company's Loan Agreement, as amended, prohibits us from paying cash dividends on our Common Stock without prior approval from our lender. The Company was not required to perform testing of the FCCR requirement in the first quarter of 2023 pursuant to the March 21, 2023, amendment as discussed above. It otherwise met all of its other financial covenant requirements. The Company met all of its covenant requirements in each of the second to fourth quarters of 2023.

At December 31, 2023, the borrowing availability under the Company's credit facility was approximately $10,622,000 which included our cash (deposited with the Company's lender) and was based on our eligible receivables and is net of approximately $3,950,000 in outstanding standby letters of credit and net of the $750,000 indefinite reduction in borrowing availability imposed by the Company's lender pursuant to the amendment dated July 31, 2023, as discussed above.

The following table details the amount of the maturities of long-term debt maturing in future years as of December 31, 2023 (excludes unamortized debt issuance costs of $170,000).

Year ending December 31:
(In thousands)

2024	$	824
2025		612
2026		605
2027		877
Total	$	2,918

NOTE 10
EMPLOYEE RETENTION CREDIT ("ERC")

The Coronavirus Aid, Relief and Economic Securities Act ("CARES Act"), which was enacted on March 27, 2020, provided an Employee Retention Credit ("ERC") for qualifying businesses keeping employees on their payroll during the COVID-19 pandemic. The ERC was subsequently amended by the Taxpayer Certainty and Disaster Tax Relief Act of 2020, the Consolidated Appropriation Act of 2021, and the American Rescue Plan Act of 2021, all of which amended and extended the ERC availability and guidelines under the CARES Act. Following these amendments, the Company determined that it was eligible for the ERC, and as a result of the foregoing legislations, was eligible to claim a refundable tax credit against the Company's share of certain payroll taxes equal to 70% of the qualified wages paid to employees between July 1, 2021 and September 30, 2021. Qualified wages were limited to $10,000 per employee per calendar quarter in 2021 for a maximum allowable ERC per employee of $7,000 per calendar quarter in 2021. For purposes of the amended ERC, an eligible employer was defined as having experienced a significant (20% or more) decline in gross receipts during one or more of the first three 2021 calendar quarters when compared to 2019.

During the third quarter of 2022, the Company determined it was eligible for the ERC and amended its third quarter 2021 employer payroll tax filings claiming a refund from the U.S. Treasury in the amount of approximately $1,975,000. As there is no authoritative guidance under U.S. GAAP on accounting for government assistance to for-profit business entities, the Company accounted for the ERC by analogy to International Accounting Standard ("IAS") 20, "Accounting for Government Grants and Disclosure of Government Assistance." In accordance with IAS 20, management determined it had reasonable assurance for receipt of the ERC and recorded the expected refund as other income (within "Other income (expense)") on the Company's Consolidated Statements of Operations and other receivables (within "Prepaid and other assets") on the Company's Consolidated Balance Sheets. On March 30, 2023, the Company received the ERC refund of $1,975,000 and approximately $60,000 in interest (recorded within "Interest Income" on the Company's Consolidated Statements of Operations for the quarter ended March 31, 2023), totaling approximately $2,035,000.

NOTE 11
ACCRUED EXPENSES

Accrued expenses include the following (in thousands) at December 31:

	2023	2022
Salaries and employee benefits	$ 4,120	$ 2,629
Accrued sales, property and other tax	477	240
Interest payable	23	8
Insurance payable	1,390	1,253
Other	550	463
Total accrued expenses	$ 6,560	$ 4,593

Accrued expenses for 2023 included a total of approximately $750,000 in compensation expenses accrued under the 2023 Management Incentive Plans ("MIPs") for our executives (See "Note 18 – Employment Agreements and MIPs" for further discussion of the 2023 MIPs) in addition to a remaining $25,000 in discretionary bonus approved by the Company's Compensation Committee payable to the Company's EVP of Nuclear and Technical Services.

NOTE 12
ACCRUED CLOSURE COSTS AND ARO

Accrued closure costs represent our estimated environmental liability to clean up our fixed-based regulated facilities as required by our permits, in the event of closure. Changes to reported closure liabilities (current and long-term) for the years ended December 31, 2023, and 2022, were as follows:

Amounts in thousands	
Balance as of December 31, 2021	$ 7,191
Accretion expense	411
Addition to closure liability	1,339
Spending	(975)
Balance as of December 31, 2022	$ 7,966
Accretion expense	462
Spending	(298)
Balance as of December 31, 2023	$ 8,130

In 2022, the Company recorded a total of approximately $1,339,000 in additional estimated closure liabilities of which approximately $465,000 (within long-term) was recorded in connection with the footprint expansion at one of our facilities and an update to a processing enclosure area at another facility. The remaining additional closure liabilities was recorded for our EWOC facility for decommissioning activities due to changes in estimated closure costs.

As of December 31, 2023, and December 31, 2022, the current portion of the closure liabilities totaled approximately $79,000 and $682,000, respectively, which reflect closure liabilities for our EWOC facility. The spending made in each of the years 2023 and 2022 was primarily for our EWOC facility.

The reported closure asset or ARO, is reported as a component of "Net Property and equipment" in the Consolidated Balance Sheets as of December 31, 2023, and 2022 with the following activity for the years ended December 31, 2023, and 2022:

Amounts in thousands		
Balance as of December 31, 2021	$	3,576
Addition to closure and post-closure asset		1,128
Amortization of closure and post-closure asset		(603)
Balance as of December 31, 2022	$	4,101
Amortization of closure and post-closure asset		(878)
Balance as of December 31, 2023	$	3,223

The addition to ARO in 2022 reflects closure obligations as discussed above.

NOTE 13
INCOME TAXES

The components of income (loss) before income tax expense (benefit) by jurisdiction for continuing operations for the years ended December 31, consisted of the following (in thousands):

		2023		2022
United States		622		(2,782)
Canada		521		(630)
United Kingdom		(208)		(177)
Total income (loss) before tax benefit	$	935	$	(3,589)

The components of current and deferred federal and state income tax expense (benefit) for continuing operations for the years ended December 31, consisted of the following (in thousands):

		2023		2022
Federal income tax expense - current		76		—
Federal income tax benefit - deferred		(28)		(331)
State income tax expense - current		7		12
State income tax benefit - deferred		(38)		(59)
Total income tax expense (benefit)	$	17	$	(378)

An overall reconciliation between the expected tax expense (benefit) using the federal statutory rate of 21% for each of the years ended 2023 and 2022 and the expense (benefit) for income taxes from continuing operations as reported in the accompanying Consolidated Statement of Operations is provided below (in thousands).

		2023		2022
Federal tax expense (benefit) at statutory rate	$	196	$	(754)
State tax expense, net of federal benefit		50		5
Difference in foreign rate		20		(42)
Permanent items		116		133
Change in deferred tax rates		51		20
Reserve for uncertain tax positions		81		—
Tax credits		(318)		—
Stock-based compensation		100		93
Provision-to-return adjustments		155		52
Other		—		5
(Decrease) increase in valuation allowance		(434)		110
Income tax expense (benefit)	$	17	$	(378)

The global intangible low-taxed income (“GILTI”) provisions under the Tax Cuts and Jobs Act of 2017 (the “TCJA”) require the Company to include in its U.S. income tax return foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary’s tangible assets. The Company has elected to account for GILTI tax in the period in which it is incurred, and therefore has not provided any deferred tax impacts of GILTI in its consolidated financial statements for the years ended December 31, 2023 and 2022. As the Canada and United Kingdom foreign subsidiaries are in loss positions for 2023, no GILTI inclusion is expected for these entities for the current year.

The Company had temporary differences and net operating loss carry forwards from both our continuing and discontinued operations, which gave rise to deferred tax assets as of December 31, 2023, and 2022 as follows (in thousands):

	2023	2022
Deferred tax assets:		
Net operating losses	$ 9,876	$ 11,646
Environmental and closure reserves	2,332	2,269
Lease liability	525	482
Capital loss carryforward	780	756
Accrued expenses	1,186	776
R&D cost capitalization	905	25
Tax credits	200	135
Deferred tax liabilities:		
Depreciation and amortization	(4,260)	(4,351)
Indefinite lived intangible assets	(557)	(503)
Right-of-use lease asset	(510)	(476)
481(a) adjustment	—	(53)
Prepaid expenses	(46)	(30)
	10,431	10,676
Valuation allowance	(6,131)	(6,560)
Net deferred income tax asset	4,300	4,116

As of December 31, 2023, the Company assessed whether its deferred tax asset will more likely than not to be realized. This assessment included both positive and negative available evidences, which included the Company’s current contracts, cumulative loss, future reversal of existing taxable differences, and overall prospect of future business and earnings. Based on the weight of these available evidences, the Company concluded that it will more likely than not utilize its Federal and certain state net operating losses.

The Company has estimated net operating loss carryforwards (“NOLs”) for federal and state income tax purposes of approximately $19,450,000 and $72,859,000, respectively, as of December 31, 2023. These NOLs can be carried forward and applied against future taxable income, if any, and expire in various amounts starting in 2023. All of our federal NOLs were generated after December 31, 2017 and thus do not expire.

The Company accounts for uncertainties in income tax pursuant to ASC 740. A reconciliation of the beginning and ending amount of our recognized tax expense is summarized as follows (in thousands):

	2023	2022
Balances at beginning of year	$ —	$ —
Addition related to R&D tax credit	81	—
Balances at end of the year	$ 81	$ —

The tax years 2020 through 2022 remain open to examination by taxing authorities in the jurisdictions in which the Company operates.

The Company had $76,000 and $0 federal income tax payable for the years ended December 31, 2023 and 2022, respectively.

Beginning in 2022, the Tax Cuts and Jobs Act of 2017 (the “TCJA”) amended Section 174 to eliminate current-year deductibility of research and experimentation (“R&E”) expenditures and software development costs (collectively, “R&E expenditures”) and instead require taxpayers to charge their R&E expenditures to a capital account amortized over five years (15 years for expenditures attributable to R&E activity performed outside the United States). For each tax year 2023 and 2022, the Company has capitalized $2,059,000 of research and development expenses. While Management believes the estimate for 2023 to be materially accurate, the Company plans to complete a formal IRC Section 174 analysis in advance of filing the tax return for the year ended December 31, 2023.

NOTE 14
COMMITMENTS AND CONTINGENCIES

Hazardous Waste

In connection with our waste management services, the Company processes hazardous, non-hazardous, low-level radioactive and mixed (containing both hazardous and low-level radioactive) waste, which we transport to our own, or other, facilities for destruction or disposal. As a result of disposing of hazardous substances, in the event any cleanup is required at the disposal site, the Company could be a potentially responsible party for the costs of the cleanup notwithstanding any absence of fault on our part.

Legal Matters

In the normal course of conducting our business, the Company may be involved in various litigation. The Company is not a party to any litigation or governmental proceeding which our management believes could result in any judgments or fines against us that would have a material adverse effect on our financial position, liquidity or results of future operations.

Tetra Tech EC, Inc. (“Tetra Tech”)

During July 2020, Tetra Tech EC, Inc. (“Tetra Tech”) filed a complaint in the U.S. District Court for the Northern District of California (the “Court”) against CH2M Hill, Inc. (“CH2M”) and four subcontractors of CH2M, including the Company (“Defendants”). The complaint alleges various claims, including a claim for negligence, negligent misrepresentation, equitable indemnification and related business claims against all Defendants related to alleged damages suffered by Tetra Tech in respect of certain draft reports prepared by Defendants at the request of the U.S. Navy as part of an investigation and review of certain whistleblower complaints about Tetra Tech’s environmental restoration at the Hunter’s Point Naval Shipyard in San Francisco.

CH2M was hired by the Navy in 2016 to review Tetra Tech’s work. CH2M subcontracted with environmental consulting and cleanup firms Battelle Memorial Institute, Cabrera Services, Inc., SC&A, Inc. and the Company to assist with the review, according to the complaint.

The Company’s insurance carrier is providing a defense on our behalf in connection with this lawsuit, subject to a $100,000 self-insured retention and the terms and limitations contained in the insurance policy.

The majority of Tetra Tech’s claims have been dismissed by the Court. Remaining claims include: (1) intentional interference with contractual relations; and (2) inducing a breach of contract. The Company continues to believe it has no liability exposure to Tetra Tech.

Insurance

The Company has a 25-year finite risk insurance policy entered into in June 2003 (“2003 Closure Policy”) with AIG, which provides financial assurance to the applicable states for our permitted facilities in the event of unforeseen closure. The 2003 Closure Policy, as amended, provides for a maximum allowable coverage of $28,177,000 which includes available capacity to allow for annual inflation and other performance and surety bond requirements. Total coverage under the 2003 Closure Policy, as amended, was $22,461,000 at December 31, 2023. As of December 31, 2023, and December 31, 2022, finite risk sinking funds contributed by the Company related to the 2003 Closure Policy which is included in other long term assets on the accompanying Consolidated Balance Sheets totaled $12,074,000 and $11,570,000, respectively, which included interest earned of $2,603,000 and $2,099,000 on the finite risk sinking funds as of December 31, 2023 and December 31, 2022, respectively. Interest income for the year ended 2023 and 2022 was approximately $504,000 and $99,000, respectively. If the Company so elects, AIG is obligated to pay the Company an amount equal to 100% of the finite risk sinking fund account balance in return for complete release of liability from both the Company and any applicable regulatory agency using this policy as an instrument to comply with financial assurance requirements.

Perma-Fix Canada Inc. (“PF Canada”)

During the fourth quarter of 2021, PF Canada received a Notice of Termination (“NOT”) from CNL on a Task Order Agreement (“TOA”) that PF Canada entered into with CNL in May 2019 for remediation work within Ontario, Canada (“Agreement”). The NOT was received after work under the TOA was substantially completed and work under the TOA has since been completed. CNL may terminate the TOA at any time for convenience. As of December 31, 2023, PF Canada has approximately $2,389,000 in unpaid receivables due from CNL as a result of work performed under the TOA. CNL and PF Canada have reached a settlement agreement on payment of the aforementioned receivables to PF Canada by CNL, subject to certain conditions/terms precedents being met, including release of certain liens. (see “Note 19 - Subsequent Event – PF Canada” for a discussion of a partial payment made by CNL in January 2024 on the receivables and the remaining receivables to be paid by CNL).

Letter of Credits and Bonding Requirements

From time to time, the Company is 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, 2023, the total amount of standby letters of credit outstanding was approximately $3,950,000 and the total amount of bonds outstanding was approximately $36,674,000.

NOTE 15
PROFIT SHARING PLAN

The Company adopted a 401(k) Plan in 1992, which is intended to comply with Section 401 of the Internal Revenue Code and the provisions of the Employee Retirement Income Security Act of 1974. All full-time employees who have attained the age of 18 are eligible to participate in the 401(k) Plan. Eligibility is immediate upon employment but enrollment is only allowed during four quarterly open periods of January 1, April 1, July 1, and October 1. Participating employees may make annual pretax contributions to their accounts up to 100% of their compensation, up to a maximum amount as limited by law. The Company, at its discretion, may make matching contributions of 25% based on the employee's elective contributions. Company contributions vest over a period of five years. In 2023 and 2022, the Company contributed approximately $576,000 and $575,000 in 401(k) matching funds, respectively.

NOTE 16
RELATED PARTY TRANSACTIONS

David Centofanti serves as our Vice President of Information Systems. For such position, he received annual compensation of $191,000 and $187,000 for 2023 and 2022, respectively. David Centofanti is the son of our EVP of Strategic Initiatives and a Board member.

NOTE 17

SEGMENT REPORTING

In accordance with 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 CODM to make decisions about resources to be allocated to the segment and assess its performance; and
- for which discrete financial information is available.

We have two reporting segments, consisting of the Treatment and Services Segments, which are based on a service offering approach. Our reporting segments exclude our corporate headquarter, business center and our discontinued operations (see "Note 8 – Discontinued Operations") which do not generate revenues.

The table below shows certain financial information of our reporting segments as of and for the years ended December 31, 2023, and 2022 (in thousands).

Segment Reporting as of and for the year ended December 31, 2023

	Treatment	Services	Segments Total	Corporate (2)	Consolidated Total
Revenue from external customers	$ 43,477	$ 46,258	$ 89,735(3)(4)	$ —	$ 89,735
Intercompany revenues	290	139	429	—	—
Gross profit	6,876	9,493	16,369	—	16,369
Research and development	418	38	456	105	561
Interest income	—	—	—	606	606
Interest expense	(91)	(27)	(118)	(205)	(323)
Interest expense-financing fees	—	—	—	(93)	(93)
Depreciation and amortization	2,112	397	2,509	59	2,568
Segment income (loss) before income taxes	2,107	5,854	7,961	(7,026)	935
Income tax (benefit) expense	(121)	138	17	—	17
Segment income (loss)	2,228	5,716	7,944	(7,026)	918
Segment assets (1)	40,470	10,239	50,709	28,040(5)	78,749(9)
Expenditures for segment assets (net)	1,696	10	1,706	8	1,714(7)
Total debt	372	—	372	2,376	2,748(6)

Segment Reporting as of and for the year ended December 31, 2022

	Treatment	Services	Segments Total	Corporate (2)	Consolidated Total
Revenue from external customers	$ 33,358	$ 37,241	$ 70,599 (3)(4)	$ —	$ 70,599
Intercompany revenues	56	213	269	—	—
Gross profit	5,243	4,366	9,609	—	9,609
Research and development	246	23	269	67	336
Interest income	—	—	—	99	99
Interest expense	(74)	(3)	(77)	(98)	(175)
Interest expense-financing fees	—	(1)	(1)	(60)	(61)
Depreciation and amortization	1,710	334	2,044	65	2,109
Segment income (loss) before income taxes	1,531	1,565	3,096	(6,685)	(3,589) (8)
Income tax benefit	(236)	(133)	(369)	(9)	(378)
Segment income (loss)	1,767	1,698	3,465	(6,676)	(3,211)
Segment assets (1)	37,918	8,473	46,391	24,507 (5)	70,898 (9)
Expenditures for segment assets (net)	866	157	1,023	—	1,023 (7)
Total debt	482	5	487	552	1,039 (6)

(1) Segment assets have been adjusted for intercompany accounts to reflect actual assets for each segment.

(2) Amounts reflect the activity for corporate headquarters not included in the segment information.

(3) The Company performed services relating to waste generated by government clients (domestic), either directly as a prime contractor or indirectly for others as a subcontractor to government entities, representing approximately $70,642,000 or 78.7% of total revenue for 2023 and $59,658,000 or 84.5% of total revenue for 2022. The following reflects such revenue generated by our two segments:

	2023			2022		
	Treatment	Services	Total	Treatment	Services	Total
Domestic government	$ 31,448	$ 39,194	$ 70,642	$ 23,752	$ 35,906	$ 59,658

(4) The following table reflects revenue based on customer location:

	2023	2022
United States	$ 87,669	$ 69,373
Canada	1,685	406
Germany	206	678
Italy	—	14
Slovenia	87	—
United Kingdom	88	128
Total	$ 89,735	$ 70,599

(5) Amount includes assets from our discontinued operations of $94,000 and $96,000 as of December 31, 2023, and 2022, respectively.

(6) Net of debt issuance costs of ($170,000) and ($88,000) for 2023 and 2022, respectively (see "Note 9 – Long-Term Debt" for additional information).

(7) Net of financed amount of $784,000 and $114,000 for the year ended December 31, 2023, and 2022, respectively.

(8) Includes approximately $1,975,000 recorded as other income under the ERC program under the CARES Act, as amended (see "Note 10 –Employee Retention Credit ("ERC")" for a discussion of this refund amount).

(9) Includes long-lived assets for continued operations as follows:

	2023	2022
United States	$ 19,009	$ 18,957
Foreign Subsidiaries	—	—
Total	$ 19,009	$ 18,957

NOTE 18

EMPLOYEMENT AGREEMENTS AND MIPS

Employment Agreements

On April 20, 2023, the Company entered into employment agreements with each of its executive officers: Mark Duff, President and CEO; Ben Naccarato, EVP and CFO; Dr. Louis Centofanti, EVP of Strategic Initiatives; Andrew Lombardo, EVP of Nuclear and Technical Services; and Richard Grondin, EVP of Waste Treatment Operations (collectively the "New Employment Agreements" and each, individually, the "New Employment Agreement"). The Company had previously entered into employment agreements with each of the aforementioned executive officers on July 22, 2020, all five of which agreements were due to expire on July 22, 2023, but which were terminated effective April 20, 2023, upon the execution of the New Employment Agreements.

Each of the New Employment Agreements are substantially identical except for compensation. Under the New Employment Agreements, each of these executive officers is provided an annual salary, which annual salary may be increased from time to time, but not reduced, as determined by the Compensation Committee. In addition, each of these executive officers is entitled to participate in the Company's broad-based benefits plans and to certain performance compensation payable under separate Management Incentive Plan ("MIP") as approved by the Company's Compensation Committee and the Company's Board.

Each of the New Employment Agreements is effective for three years from April 20, 2023 (the "Initial Term") unless earlier terminated by the Company or by the executive officer. At the end of the Initial Term of each New Employment Agreement, each New Employment Agreement will automatically be extended for one additional year, unless at least six months prior to the expiration of the Initial Term, the Company or the executive officer provides written notice not to extend the terms of the New Employment Agreement. Mr. Andrew Lombardo retired from the position of EVP of Nuclear and Technical Services effective January 1, 2024. Upon Mr. Lombardo's retirement from the position of EVP of Nuclear and Technical Services, he no longer was an executive officer of the Company and his employment agreement dated April 20, 2023, was terminated effective January 1, 2024. Mr. Lombardo remains employed by the Company at a reduced capacity, and assists with the transition of his former responsibilities as well as contributing to certain business development matters.

Pursuant to the New Employment Agreements, if the executive officer's employment is terminated due to death, disability or for cause (as defined in the agreements), the Company will pay to the executive officer or to his estate an amount equal to the sum of any unpaid base salary and accrued unused vacation time through the date of termination and any benefits due to the executive officer under any employee benefit plan (the "Accrued Amounts") plus any performance compensation payable pursuant to the MIP with respect to the fiscal year immediately preceding the date of termination. In the event that an executive officer's employment is terminated due to death, the Company will also pay a lump-sum payment (the "Cash Medical Continuation Benefit") equal to eighteen times the monthly premium that would be required to be paid, pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), to continue group health coverage for the executive officer's eligible covered dependents in effect on the date of the executive officer's termination of employment, based on the premium for the first month of COBRA coverage. Such cash payment will be taxable and will be made regardless of whether the executive officer's eligible covered dependents elect COBRA continuation coverage.

If the executive officer terminates his employment for "good reason" (as defined in the agreements) or is terminated by the Company without cause (including any such termination for "good reason" or without cause within 24 months after a Change in Control (as defined in the agreements), the Company will pay the executive officer Accrued Amounts, (a) two years of full base salary, plus (b) (i) two times the performance compensation (under the executive officer's MIP) earned with respect to the fiscal year immediately preceding the date of termination provided the performance compensation earned with respect to the fiscal year immediately preceding the date of termination has not yet been paid, or (ii) if performance compensation earned with respect to the fiscal year immediately preceding the date of termination has already been paid to the executive officer, the executive officer will be paid an additional year of the performance compensation earned with respect to the fiscal year immediately preceding the date of termination, and (c) the Cash Medical Continuation Benefit. If the executive officer terminates his employment for a reason other than for good reason, the Company will pay to the executive officer an amount equal to the Accrued Amounts plus any performance compensation payable pursuant to the MIP applicable to such executive officer.

Additionally, in the event of a Change in Control (as defined in the agreements), all outstanding stock options to purchase 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 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 an executive officer terminates his employment for "good reason" (as defined in the agreements) or is terminated by the Company without cause, all outstanding stock options to purchase common stock held by the 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 officer's date of termination. Severance benefits payable with respect to a termination (other than Accrued Amounts) shall not be payable until the termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h)).

MIPs

On January 19, 2023, the Board and the Compensation Committee approved individual MIP for the calendar year 2023 for each of the Company's executive officers. Each MIP was effective January 1, 2023, and applicable for year 2023. Each MIP provided guidelines for the calculation of annual cash incentive-based compensation, subject to Compensation Committee oversight and modification. The performance compensation under each of the MIPs was based upon meeting certain of the Company's separate target objectives during 2023. The total potential target performance compensation payable ranged from 25% to 150% of the 2023 base salary for the CEO ($93,717 to $562,304), 25% to 100% of the 2023 base salary for the CFO ($76,193 to $304,772), 25% to 100% of the 2023 base salary for the EVP of Strategic Initiatives ($63,495 to $253,980), 25% to 100% of the 2023 base salary for the EVP of Nuclear and Technical Services ($76,193 to $304,772), and 25% to 100% ($65,308 to $261,233) of the 2023 base salary for the EVP of Waste Treatment Operations. Total compensation earned under the five 2023 MIPs were approximately $750,000, which is to be paid on or about 90 after year-end, or sooner, based on the Company's filing of its 2023 Form 10-K. As disclosed above, Mr. Lombardo retired from the position of EVP of Nuclear and Technical Services effective January 1, 2024. He is entitled to compensation earned under his 2023 MIP as EVP of Nuclear and Technical Services.

NOTE 19
SUBSEQUENT EVENTS

The Company evaluated subsequent events and transactions that occurred after the balance sheet date through March 13, 2024, the date that these consolidated financial statements were available to be issued. Based upon this review, the Company did not identify any subsequent events that would have required adjustment or disclosure in the consolidated financial statements other than the below.

MIPs

On January 18, 2024, the Board (with Mr. Mark Duff and Dr. Louis Centofanti abstaining) and the Compensation Committee approved individual MIP for the calendar year 2024 for each of our executive officers. Each MIP is effective January 1, 2024 and applicable for year 2024. Each MIP provides guidelines for the calculation of annual cash incentive-based compensation, subject to Compensation Committee oversight and modification. The performance compensation under each of the MIPs is based upon meeting certain of the Company's separate target objectives during 2024. The total potential target performance compensation payable ranges from 25% to 150% of the 2024 base salary for the CEO ($104,287 to $625,733), 29% to 100% of the 2024 base salary for the CFO ($95,681 to $332,811), 25% to 100% of the 2024 base salary for the EVP of Strategic Initiatives ($69,337 to $277,346), and 25% to 100% ($71,317 to $285,267) of the 2024 base salary for the EVP of Waste Treatment Operations.

PF Canada

As discussed in "Note 14 – Commitment and Contingencies - Perma-Fix Canada Inc. ("PF Canada")," the Company's subsidiary, PF Canada. has unpaid receivables due from CNL for a previous TOA that PF Canada entered into with CNL in May 2019 for remediation work within Ontario, Canada in which a settlement agreement on the payment of the receivables by CNL was reached, subject to certain conditions/terms precedents being met, including release of certain liens. On January 22, 2024, the Company received approximately $741,000 of the $2,389,000 in unpaid receivables, with the remaining receivables to be paid by CNL upon completion of the settlement conditions/terms, which the Company believes should occur during 2024.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures.

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic reports filed with the Securities and Exchange Commission (the "Commission") is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Commission and that such information is accumulated and communicated to our management, including the Chief Executive Officer ("CEO") (Principal Executive Officer), and Chief Financial Officer ("CFO") (Principal Financial Officer), as appropriate to allow timely decisions regarding the required disclosure. In designing and assessing our disclosure controls and procedures, our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their stated control objectives and are subject to certain limitations, including the exercise of judgment by individuals, the difficulty in identifying unlikely future events, and the difficulty in eliminating misconduct completely. Our management, with the participation of our CEO and CFO, evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended. Based upon this assessment, our CEO and CFO have concluded that our disclosure controls and procedures were effective as of December 31, 2023.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934. Internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements or fraudulent acts. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. A control system, no matter how well designed, can provide only reasonable assurance with respect to financial statement preparation and presentation.

Internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of the consolidated financial statements in accordance with generally accepted accounting principles in the United States of America, and that receipts and expenditures of the Company are being made only in accordance with appropriate authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the consolidated financial statements.

Management, with the participation of our CEO and CFO, conducted an assessment of the effectiveness of internal control over financial reporting as of December 31, 2023 based on the framework in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, management and our CEO and CFO, concluded that the Company's internal control over financial reporting was effective as of December 31, 2023.

This Form 10-K does not include an attestation report of the Company's independent registered public accounting firm regarding internal control over financial reporting. Since the Company is not a large accelerated filer or an accelerated filer, management's report was not subject to attestation by the Company's independent registered public accounting firm pursuant to the rules of the Commission that permit the Company to provide only management's report in this Form 10-K.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the fiscal quarter ended December 31, 2023 that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

ITEM 9B. OTHER INFORMATION

(a) None.

(b) During the quarter ended December 31, 2023, no director or "officer" (as defined in Rule 16a-1(f)) of the Company adopted or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as each term is defined in Item 408(a) of Regulation S-K.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not Applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

DIRECTORS

The following table sets forth, as of the date of this Report, information concerning our Board of Directors (the "Board"):

NAME	AGE	POSITION
Lieutenant General (LTG) (ret) Thomas P. Bostick	67	Director
Dr. Louis F. Centofanti	80	Director; EVP of Strategic Initiatives
Mr. Mark J. Duff [(1)]	61	Director; President and CEO
Ms. Kerry C. Duggan	45	Director
Mr. Joseph T. Grumski	62	Director
The Honorable Joe R. Reeder	76	Director
Mr. Larry M. Shelton	70	Chairman of the Board
The Honorable Zach P. Wamp	66	Director
Mr. Mark A. Zwecker	73	Director

(1) Mr. Duff was unanimously elected by the Board effective April 20, 2023, to fill a newly created directorship.

Each director is elected to serve until the next annual meeting of stockholders or until their respective successors are duly elected and qualified.

Director Information

Our directors and executive officers, their ages, the positions with us held by each of them, the periods during which they have served in such positions and a summary of their recent business experience are set forth below. Each of the biographies of the current directors listed below also contains information regarding such person's service as a director, business experience, director positions with other public companies held currently or at any time during the past five years, and the experience, qualifications, attributes and skills that our Board considered in nominating or appointing each of them to serve as one of our directors.

LTG (ret.) Thomas P. Bostick

LTG (ret.) Bostick, a director since August 2020, is currently the CEO of Bostick Global Strategies, LLC, a position he has held since July 2016. Bostick Global Strategies, LLC provides strategic advisory support in the areas of engineering, environmental sustainability, human resources, biotechnology, education, executive coaching, and Agile Project Management. In February 2021, LTG (ret.) Bostick was selected by U. S. Senator Jack Reed, Chairman of the Senate Armed Services Committee, to serve as a member of the Naming Commission consisting of eight appointed individuals, tasked with renaming Confederate-named military bases and property. LTG (ret.) Bostick previously served (from November 2017 to February 2020) as the COO and President of Intrexon Bioengineering, a division of Intrexon Corporation (formerly Nasdaq: XON; now Nasdaq: PGEN). Intrexon Bioengineering addresses global challenges across food, agriculture, environmental, energy, and industrial fields by advancing biologically engineered solutions to improve sustainability and efficiency. Since October 2020, LTG (ret.) Bostick has served as a board member of CSX Corporation (Nasdaq: CSX), a publicly-held rail transportation company, and since December 2020, as a member of both the Finance Committee and the Governance Committee of CSX Corporation. Since June 2021, LTG (ret.) Bostick has served on the Board of Trustees of Fidelity Equity and High Income Funds overseeing equity funds and high yield funds sponsored by Fidelity Investments, Inc., a privately-owned investment management company. LTG (ret.) Bostick continues to serve as a board member for several other privately-held and nonprofit organizations. LTG (ret.) Bostick was named as one of 2021's Most Influential Black Corporate Directors by Savoy Magazine, a national publication that showcases and drives positive dialogue about Black culture.

LTG (ret.) Bostick has had a distinguished career in the U.S. military, retiring from the U.S. Army in July 2016 with the rank of Lieutenant General. Prior to his retirement, LTG (ret.) Bostick held a variety of positions within the U.S. Army, including the 53rd Chief of Engineers and Commanding General, U.S. Army Corps of Engineers (2012-2016) and Deputy Chief of Staff and Director of Human Resources, U.S. Army (2009-2012). LTG (ret.) Bostick has been awarded many military honors and decorations during his military career, including the Distinguished Service Medal, the Defense Superior Service Medal, and the Bronze Star Medal.

As a White House Fellow, one of America's most prestigious programs for leadership and public service, LTG (ret.) Bostick was a special assistant to the Secretary of Veterans Affairs.

LTG (ret.) Bostick graduated with a Bachelor of Science degree from the U.S. Military Academy at West Point and later returned to the Academy to serve as an Associate Professor of Mechanical Engineering. He holds Master's degrees in Civil Engineering and Mechanical Engineering from Stanford University, an Executive MBA from Oxford University, and a Doctorate in Systems Engineering from George Washington University. He is a Member of the National Academy of Engineering and the National Academy of Construction.

LTG (ret.) Bostick's distinguished career in both the government and private sectors brings valuable experience and insight into solving complex issues domestically and globally. His extensive knowledge and problem-solving experiences enhance the Board's ability to address significant challenges in the nuclear market and led the Board to conclude that he should serve as a director.

Dr. Louis F. Centofanti

Dr. Centofanti, the founder of the Company and a director of the Company since its inception in 1991, currently holds the position of EVP of Strategic Initiatives. From March 1996 to September 8, 2017 and from February 1991 to September 1995, Dr. Centofanti held the position of President and CEO of the Company. Dr. Centofanti served as Chairman of the Board from the Company's inception in February 1991 until December 16, 2014. In January 2015, Dr. Centofanti was appointed by the U.S Secretary of Commerce Penny Prizker to serve on the U.S. Department of Commerce's Civil Nuclear Trade Advisory Committee ("CINTAC"). The CINTAC is composed of industry representatives from the civil nuclear industry and meets periodically throughout the year to discuss the critical trade issues facing the U.S. civil nuclear sector. From 1985 until joining the Company, Dr. Centofanti served as SVP of USPCI, Inc., a large publicly-held hazardous waste management company, where he was responsible for managing the treatment, reclamation and technical groups within USPCI. In 1981, he and Mark Zwecker, a current Board member of the Company, founded PPM, Inc. (later sold to USPCI), a hazardous waste management company specializing in treating PCB-contaminated oil. From 1978 to 1981, Dr. Centofanti served as Regional Administrator of the U.S. Department of Energy for the southeastern region of the United States. Dr. Centofanti has a Ph.D. and a M.S. in Chemistry from the University of Michigan, and a B.S. in Chemistry from Youngstown State University.

As founder of Perma-Fix and PPM, Inc., and as a senior executive at USPCI, Dr. Centofanti combines extensive business experience in the waste management industry with a drive for innovative technology which is critical for a waste management company. In addition, his service in the government sector provides a solid foundation for the continuing growth of the Company, particularly within the Company's Nuclear business. Dr. Centofanti's comprehensive understanding of the Company's operations and his extensive knowledge of its history, coupled with his drive for innovation and excellence, positions Dr. Centofanti to optimize our role in this competitive, evolving market, and led the Board to conclude that he should serve as a director.

Mark J. Duff

Effective April 20, 2023, Mr. Duff was unanimously elected by the Company's Board of Directors to serve as a member of Board to fill a newly created directorship. Mr. Duff is currently the Company's President and CEO, a position he has held since September 2017. Since joining the Company in 2016, Mr. Duff has developed and implemented strategies to meet growth objectives in both the Treatment and Services Segments. In the Treatment Segment, he continues to upgrade each facility to increase efficiency and modernize treatment capabilities to meet the changing markets associated with the waste management industry. This growth includes expansion into additional market sectors including development of new clients in the commercial power and oil and gas industries. In the Services Segment, which encompasses all field operations, he has completed the revitalization of business development programs, which has resulted in increased competitive procurement effectiveness, and broadened the market penetration within both the commercial and government sectors. Within the Services Segment, Mr. Duff has established a team of professionals with experience in conducting safe and efficient field operations while addressing complex technical challenges associated with removal of radioactive and hazardous waste contamination. Mr. Duff has over 39 years of management and technical experience in the DOE and DOD environmental and construction markets as a corporate officer, senior project manager, co-founder of a consulting firm, and federal employee. Mr. Duff has an MBA from the University of Phoenix and received his B.S. from the University of Alabama.

Mr. Duff's extensive experience in the government sector has proven invaluable in the continuing growth of the Company's Treatment and Services Segments. Mr. Duff's comprehensive understanding of the Company's operations, his proven leadership skills, and his drive for new innovation in this evolving industry and market, led the Board to conclude that he should serve as a director.

Kerry C. Duggan

Ms. Duggan, a director of the Company since May 2021, is the founder of SustainabiliD, a woman-owned advisory services firm working with gamechangers to equitably solve the climate crisis. She was appointed to the faculty and named as the Founding Director of the University of Michigan's School for Environmental and Sustainability (SEAS) Clinic in Detroit.

In 2021, Ms. Duggan was appointed to the Department of Energy's prestigious Secretary of Energy Advisory Board (SEAB), serving under Energy Secretary Jennifer Granholm. In February 2021, Michigan Governor Gretchen Whitmer also appointed Duggan to the State of Michigan's Council on Climate Solutions, to advise on the implementation of the MI Healthy Climate Plan, to reduce greenhouse gas emissions and to transition toward economy-wide carbon neutrality. More recently, Duggan also served on the Governor's bipartisan Growing Michigan Together Council (Infrastructure &Places Workgroup). In 2020-21, Ms. Duggan was a member of the Biden-Harris Transition Team on the Department of Energy Agency Review Team. In May 2020, Ms. Duggan was named a member of the Biden-Sanders Unity Task Force on Climate Change, serving as one of Biden's five delegates alongside Gina McCarthy and Sec. John Kerry; and later co-chaired the climate change policy committee and served as a surrogate for the Biden campaign.

Previously, Ms. Duggan served nearly seven years in federal public-service leadership roles, including inside the Obama-Biden White House as Deputy Director for Policy in the Office of then Vice President Joe Biden for energy, environment, climate, and distressed communities. Simultaneously, she served as Deputy Director of the Detroit Federal Working Group to support Detroit's revitalization. Prior to the White House, Ms. Duggan held several senior roles at the Department of Energy, including as Secretary Moniz's embedded Liaison to the City of Detroit (where she championed a citywide LED streetlight conversion), and in the Office of Energy Efficiency & Renewable Energy as Director of Stakeholder Engagement, Director of Legislative, Regulatory & Urban Affairs, and as a Senior Policy Advisor.

After her time in federal service, Ms. Duggan co-founded the Smart Cities Lab, was a Partner with the Honorable Thomas J. Ridge's firm, RIDGE-LANE Limited Partners, and served on the external advisory board of the University of Michigan's Erb Institute for Global Sustainable Enterprise and was a Board Member at the Global Council for Science and the Environment. She was also briefly a Trustee of the University Liggett School. In 2018, Ms. Duggan was named to the prestigious "40 Under 40" list by Crain's Detroit Business and their inaugural "Notable Leaders in Sustainability" lists. She previously worked at the League of Conservation Voters in Washington, D.C.

Currently, Ms. Duggan serves as a senior advisor at The RockCreek Group, LP, a registered private fund adviser that manages fund of funds portfolios and direct equity trading portfolios. She also sits on the corporate advisory boards of Our Next Energy, Inc. (ONE), a privately-held energy storage solutions company; Aclima, Inc., a public benefit corporation dedicated to protecting public health, reducing climate-changing emissions, and advancing environmental justice; BlueConduit, a privately-held water analytics company that builds machine learning software to support the efficient removal of lead and other dangerous materials from communities; Walker-Miller Energy Services, L.L.C., a privately-held energy efficiency services company; Commonweal Investors, a private equity firm that invests in early-stage technology companies advancing a sustainable economy, upgrading transportation and infrastructure systems, and revitalizing the urban environment; and Arctaris Impact Investors, LLC, an investment management company that manages funds which invest in growth-oriented operating businesses and community infrastructure projects located in underserved communities, among others.

Ms. Duggan attended the University of Vermont, where she completed her Bachelor of Science degree in environmental studies. Ms. Duggan also has a Master of Science degree in natural resource policy & behavior from the University of Michigan.

Ms. Duggan's career in both the government and private sectors brings valuable experience and insight into solving complex issues. Her extensive knowledge and problem-solving experiences, with an Environmental, Social and Governance ("ESG") mindset and Diversity, Equity and Inclusion ("DEI") core values, led the Board to conclude that she should serve as a director.

Mr. Joseph T. Grumski

Mr. Grumski, a director of the Company since February 2020, has served since April 2020 as the CEO of TAS Energy Inc. ("TAS"), a wholly-owned subsidiary of Comfort Systems USA, Inc. (NYSE: FIX), a publicly-held company that provides mechanical and electrical contracting services in locations throughout the United States. Mr. Grumski also served as the President of TAS Energy, Inc. from April 2020 to December 2023. Prior to the acquisition of TAS by Comfort Systems USA, Inc., Mr. Grumski served as President and CEO and a board member of TAS from May 2013 to March 2020. From 1997 to February 2013, Mr. Grumski was employed with Science Applications International Corporation ("SAIC") (NYSE: SAIC), a publicly-held company that provides government services and information technology support. During his employment with SAIC, Mr. Grumski held various senior management positions, including the positions of President of SAIC's Energy, Environment & Infrastructure ("E2I") commercial subsidiary and General Manager of the E2I Business Unit. SAIC's E2I commercial subsidiary and Business Unit is comprised of approximately 5,200 employees performing over $1.1 billion of services for federal, commercial, utility and state customers. Mr. Grumski's many accomplishments with SAIC included growing SAIC's $300 million federal environmental business to a top ranked, $1.1 billion business; receiving the National Safety Council "Industry Leader" award in 2009; and receiving highest senior executive performance rating three years in a row. Mr. Grumski began his career with Gulf Oil Company and has progressed through senior level engineering, operations management, and program management positions with various companies, including Westinghouse Electric Corporation and Lockheed Martin, Inc. Mr. Grumski received a B.S. in Mechanical Engineering from The University of Pittsburgh and a M.S in Mechanical Engineering from West Virginia University.

Mr. Grumski has had an extensive career in solving and overseeing solutions to complex issues involving both domestic and international concerns. In addition, his extensive experience in companies that provide services to the government sector as well as his experience in the commercial sector provide solid experience for the continuing growth of the Company's Treatment and Services Segment. Mr. Grumski's extensive knowledge and problem-solving experiences, executive operational leadership experience and governance experience enhance the Board's ability to address significant challenges in the nuclear market, and led the Board to conclude that he should serve as a director.

The Honorable Joe R. Reeder

Mr. Reeder, a director since 2003, is a principal shareholder of the law firm of Greenberg Traurig LLP, one of the nation's largest law firms, with 47 offices and 2,700 attorneys worldwide. Mr. Reeder served as Shareholder-in-Charge of the law firm's Mid-Atlantic Region offices for ten years. His clientele includes celebrities, heads of state, sovereign nations, international corporations, and law firms. As the U.S. Army's 14th Undersecretary (1993-97), he also served three years as Chairman of the Panama Canal Commission's Board, overseeing a multibillion-dollar infrastructure program. For the past 22 years, he has served on the Canal's International Advisory Board. He has written extensively in leading journals on corporate cybersecurity, and has served on the boards of the USO; the National Defense Industry Association ("NDIA"), chairing NDIA's Ethics Committee; the Armed Services YMCA; the Marshall Legacy Institute; and many other private companies and charitable organizations. Mr. Reeder served as a director of ELBIT Systems of America, LLC, (2005-2020), a subsidiary of Elbit Systems Ltd. (Nasdaq: ESLT), a multi-billion-dollar provider of defense, homeland security, and commercial aviation system solutions. Mr. Reeder has served as director of WashingtonFirst Bank, the bank subsidiary of WashingtonFirst Bankshares, Inc. (Nasdaq: WSBI), from 2004 to 2017; Sandy Spring Bancorp, Inc. (Nasdaq: SASR), from 2018 to 2020; and Trustar Bank, a Virginia state-chartered bank (2022 - present).

After two successive 4-year appointments by Virginia Governors Mark Warner and Tim Kaine, Mr. Reeder served seven years as Chairman of two Commonwealth of Virginia military boards, and 10 years on the USO Board of Governors. Appointed by former Governor Terry McAuliffe to the Virginia Military Institute's Board of Visitors (2014), he was reappointed in 2018 by former Virginia Governor Ralph Northam, with his term ending in 2022. Mr. Reeder, who has been a television commentator on legal and national security issues, is consistently named a Super Lawyer for Washington, D.C. In May 2018 he was appointed to the United States Court of Federal Claims Advisory Council Bid Protest Committee.

A West Point graduate who served in the 82nd Airborne Division after Ranger School, Mr. Reeder earned his J.D. from the University of Texas, his L.L.M. from Georgetown University, and has devoted his career to resolving complex domestic and international issues. He continues to greatly enhance the Board's ability to address major challenges in the nuclear market and day-to-day corporate, and Washington D.C.- related challenges.

Mr. Larry M. Shelton

Mr. Shelton, a director since July 2006, has also held the position of Chairman of the Board of the Company since December 2014. Mr. Shelton served as the CFO of S K Hart Management, LLC, a private investment management company ("S K Hart Management"), from 1999 until August 2018. Mr. Shelton served as President of Pony Express Land Development, Inc. (an affiliate of SK Hart Management), a privately held land development company, from January 2013 until August 2017, and has served on its board since December 2005. Mr. Shelton served as Director and CFO of S K Hart Ranches (PTY) Ltd, a private South African Company involved in agriculture, from March 2012 to March 2020. Mr. Shelton has over 20 years of experience as an executive financial officer for several waste management companies, including as CFO of Envirocare of Utah, Inc. (now EnergySolutions, Inc. (1995–1999)), a privately held nuclear waste services company, and as CFO of USPCI, Inc. (1982–1987), then a NYSE- listed public company engaged in the hazardous waste business. Since July 1989, Mr. Shelton has served on the board of Subsurface Technologies, Inc., a privately held company specializing in providing environmentally sound innovative solutions for water well rehabilitation and development. Mr. Shelton has a B.A. in accounting from the University of Oklahoma.

With his years of accounting experience as CFO for various companies, including a number of waste management companies, Mr. Shelton combines extensive industry knowledge and understanding of accounting principles, financial reporting requirements, evaluating and overseeing financial reporting processes and business matters. These factors led the Board to conclude that he should serve as a director.

The Honorable Zach P. Wamp

Mr. Wamp, a director since January 2018, is currently the President of Zach Wamp Consulting, a position he has held since 2011. As the President and owner of Zach Wamp Consulting, he has served some of the most prominent companies from Silicon Valley to Wall Street as a business development consultant and advisor. From September 2013 to November 2017, Mr. Wamp chaired the Board of Directors for Chicago Bridge and Iron Federal Services, LLC (a subsidiary of Chicago Bridge & Iron Company, NYSE: CBI, which provides critical services primarily to the U.S. government). From January 1995 to January 2011, Mr. Wamp served as a member of the U.S. House of Representatives from Tennessee's 3rd Congressional District. Among his many accomplishments, which included various leadership roles in the advancement of education and science, Mr. Wamp was instrumental in the formation and success of the Tennessee Valley Technology Corridor, which created thousands of jobs for Tennesseans in the areas of high-tech research, development, and manufacturing. During his career in the political arena, Mr. Wamp served on several prominent subcommittees during his 14 years on the House Appropriations Committee, including serving as a "ranking member" of the Subcommittee on Military Construction and Veterans Affairs and Related Agencies. Mr. Wamp has been a regular panelist on numerous media outlets and has been featured in a number of national publications effectively articulating sound social and economic policy. Mr. Wamp's business career has also included work in the real estate sector for a number of years as a licensed industrial-commercial real estate broker, for which he was named Chattanooga's Small Business Person of the Year.

Mr. Wamp has an extensive career in solving and overseeing solutions to complex issues involving domestic concerns. In addition, his wide-ranging career, particularly with respect to his government-related work, provides solid experience for the continuing growth of the Company's Treatment and Services Segments. His extensive knowledge and problem-solving expertise enhance the Board's ability to address significant challenges in the nuclear market, and led the Board to conclude that he should serve as a director.

Mr. Mark A. Zwecker

Mr. Zwecker, a director since the Company's inception in January 1991, previously served as the CFO and a board member for JCI US Inc. from 2013 to 2019. JCI US Inc. is a telecommunications company and wholly-owned subsidiary of Japan Communications, Inc. (Tokyo Stock Exchange (Securities Code: 9424)), which provides cellular service for M2M (machine to machine) applications. From 2006 to 2013, Mr. Zwecker served as Director of Finance for Communications Security and Compliance Technologies, Inc., a wholly-owned subsidiary of JCI US Inc. that develops security software products for the mobile workforce. Mr. Zwecker has held various other senior management positions, including President of ACI Technology, LLC, a privately-held IT services provider, and Vice President of Finance and Administration for American Combustion, Inc., a privately-held combustion technology solutions provider. In 1981, with Dr. Centofanti, Mr. Zwecker co-founded a start-up, PPM, Inc., a hazardous waste management company. He remained with PPM, Inc. until its acquisition in 1985 by USPCI. Mr. Zwecker has a B.S. in Industrial and Systems Engineering from the Georgia Institute of Technology and an M.B.A. from Harvard University.

As a director since our inception, Mr. Zwecker's understanding of our business provides valuable insight to the Board. With years of experience in operations and finance for various companies, including a number of waste management companies, Mr. Zwecker combines extensive knowledge of accounting principles, financial reporting rules and regulations, the ability to evaluate financial results, and understanding of financial reporting processes. He has an extensive background in operating complex organizations. Mr. Zwecker's experience and background position him well to serve as a member of our Board. These factors led the Board to conclude that he should serve as a director.

Board Skills Matrix

The Company is focused on nominating a Board of Directors with a balance of functional expertise, leadership experience, high moral character, critical thinking, and a diversity of backgrounds and tenure necessary to effectively oversee the Company's business. The Company's Corporate Governance and Nominating Committee is responsible for developing the criteria and qualifications required for directors. The following Board Skills Matrix below reflects how certain relevant and important skills, experience, characteristics and other criteria are currently represented on our Board.

KEY SKILLS/EXPERIENCE	NUBMER OF DIRECTORS
Corporate Governance: Supports management and board accountability, transparency and protection of shareholder interests	9
Financial Literacy: Knowledge of financial reporting, internal controls and procedures and complex financial transactions, as is involved with the Company business	7
Government/DOE/DOD Policies: Significant work experience with government decision makers	9
Business/Investment Structures: Work experience with infrastructure for financial interests and proven success	8
Risk Management and Compliance: Understanding and experience with identification, assessment and oversight of risk management and programs, including cyber-security risks	9
Nuclear Waste Management: Understanding the compliance and environmentally responsible nuclear services and radioactive waste management solutions	7
Environmental Studies: Analytical tools and skills understanding the environment, while emphasizing the role of beliefs, values and ethics of the corporate body	9
Human Capital Management: Experience and understanding talent management and development, executive compensation issues and succession planning efforts	9
Regulatory/Legal Processes: Knowledge of the various regulatory processes governing Perma-Fix business sectors, such as financial, environmental, nuclear, and safety	9
International Work: Experience in overseeing global operations and assessing opportunities and challenges	9

Board Diversity Matrix

The following table reflects the Company's Board diversity matrix as of the date of this Form 10-K. In addition to gender and demographic diversity, two of our nine current directors are also military veterans.

Total Number of Directors	9			
	Female	Male	Non-Binary	Did Not Disclose Gender
Gender Identity:				
Directors	1	8	-	-
Number of Directors Who Identify in Any of The Categories Below:				
African American or Black	-	-	-	-
Alaskan Native or Native American	-	-	-	-
Asian	-	-	-	-
Hispanic or Latinx	-	-	-	-
Native Hawaiian or Pacific Islander	-	-	-	-
White	1	7	-	-
Two or More Races or Ethnicities	-	1	-	-
LGBTQ	-	-	-	-
Did not Disclose Demographic Background	-	-	-	-

CORPORATE GOVERNANCE AND NOMINATING COMMITTEE

We have a separately-designated standing Corporate Governance and Nominating Committee (the "Governance and Nominating Committee"). Members of the Governance and Nominating Committee during 2023 were Joe R. Reeder (Chairperson), Thomas P. Bostick, Kerry C. Duggan and Zach P. Wamp. All members of the Nominating Committee are and were "independent" as that term is defined by current Nasdaq listing standards.

The Governance and Nominating Committee has specific responsibilities which include:

- considering and making recommendations to the Board regarding the composition and chairmanship of the committees of our Board;
- developing and making recommendations to our Board regarding corporate governance guidelines which include policies and procedures that promote honest and ethical conduct and prohibit conflict of interest in business conduct;
- overseeing evaluations of the Board's performance, including committees of the Board; and
- overseeing Company practices and initiatives with respect to environmental, social and governance matters.

The Governance and Nominating Committee recommends to the Board of Directors candidates to fill vacancies on the Board and the nominees for election as directors at each annual meeting of stockholders. In making such recommendations, the Governance and Nominating Committee takes into account information provided to them from the candidates, as well as the Committee's own knowledge and information obtained through inquiries to third parties to the extent the Committee deems appropriate. The Company's Bylaws sets forth certain minimum director qualifications to qualify as a nominee for election as a director. To qualify for nomination or for election as a director, an individual must:

- be an individual at least 21 years of age who is not under legal disability;
- have the ability to be present, in person, at all regular and special meetings of the Board of Directors;
- not serve on the boards of more than three other publicly-held companies;
- satisfy the director qualification requirements of all environmental and nuclear commissions, boards or similar regulatory or law enforcement authorities to which the Company is subject so as not to cause the Company to fail to satisfy any of the licensing requirements imposed by any such authority;
- not be affiliated with, employed by or be a representative of, or have or acquire a material personal involvement with, or material financial interest in, any "Business Competitor" (as defined in the Bylaws);
- not have been convicted of a felony or of any misdemeanor involving moral turpitude; and

- have been nominated for election to the Board of Directors in accordance with the terms of the Bylaws.

In addition to the minimum director qualifications as mentioned above, in order for any proposed nominee to be eligible to be a candidate for election to the Board of Directors, such candidate must deliver to the Governance and Nominating Committee a completed questionnaire with respect to the background, qualifications, stock ownership and independence of such proposed nominee. The Governance and Nominating Committee reviews each candidate's qualifications to include considerations of:

- standards of integrity, personal ethics and values, commitment, and independence of thought and judgment;
- ability to represent the interests of the Company's stockholders;
- ability to dedicate sufficient time, energy and attention to fulfill the requirements of the position; and
- diversity of skills and experience with respect to accounting and finance, management and leadership, business acumen, vision and strategy, charitable causes, business operations, and industry knowledge.

The Governance and Nominating Committee does not assign specific weight to any particular criteria and no particular criterion is necessarily applicable to all prospective nominees. The Governance and Nominating Committee does not have a formal policy for the consideration of diversity in identifying nominees for directors. However, diversity is one of the many factors taken into account when considering potential candidates to serve on the Board of Directors. The Company recognizes that diversity in professional and life experiences may include consideration of gender, race, cultural background or national origin, in identifying individuals who possess the qualifications that the Governance and Nominating Committee believes are important to be represented on the Board. The Company also views and values diversity from the perspective of professional and life experiences, as well as geographic location, representative of the markets in which we do business. The Company believes that the inclusion of diversity as one of many factors considered in selecting director nominees is consistent with the Company's goal of creating a board of directors that best serves our needs and those of our shareholders.

Stockholder Nominees

The Governance and Nominating Committee will consider properly submitted stockholder nominations for candidates for membership on the Board from stockholders who meet each of the requirements set forth in the Bylaws, including, but not limited to, the requirements that any such stockholder own at least 1% of the Company's shares of the Common Stock entitled to vote at the meeting on such election, has held such shares continuously for at least one full year, and continuously holds such shares through and including the time of the annual or special meeting. Nominations of persons for election to the Board may be made at any Annual Meeting of Stockholders, or at any Special Meeting of Stockholders called for the purpose of electing directors. Any stockholder nomination ("Proposed Nominee") must comply with the requirements of the Company's Bylaws and the Proposed Nominee must meet the minimum qualification requirements as discussed above. For a nomination to be made by a stockholder, such stockholder must provide advance written notice to the Governance and Nominating Committee, delivered to the Company's principal executive office address (i) in the case of an Annual Meeting of Stockholders, no later than the 90th day nor earlier than the 120th day prior to the anniversary date of the immediately preceding Annual Meeting of Stockholders; and (ii) in the case of a Special Meeting of Stockholders called for the purpose of electing directors, not later than the 10th day following the day on which public disclosure of the date of the Special Meeting of Stockholders is made.

The Governance and Nominating Committee will evaluate the qualification of the Proposed Nominee and the Proposed Nominee's disclosure and compliance requirements in accordance with the Company's Bylaws. If the Board, upon the recommendation of the Governance and Nominating Committee, determines that a nomination was not made in accordance with the Company's Bylaws, the Chairman of the Meeting shall declare the nomination defective and it will be disregarded.

BOARD LEADERSHIP STRUCTURE

We currently separate the roles of Chairman of the Board and CEO. The Board believes that this leadership structure promotes balance between the Board's independent authority to oversee our business, and the CEO and his management team, who manage the business on a day-to-day basis.

The Company does not have a written policy with respect to the separation of the positions of Chairman of the Board and CEO. The Company believes it is important to retain its flexibility to allocate the responsibilities of the offices of the Chairman and CEO in any way that is in the best interests of the Company at a given point in time; therefore, the Company's leadership structure may change in the future as circumstances may dictate.

Mark A. Zwecker, a current member of our Board, continues to serve as the Independent Lead Director, a position he has held since February 2010. The Lead Director's role includes:

- convening and chairing meetings of the non-employee directors as necessary from time to time and Board meetings in the absence of the Chairman of the Board;
- acting as liaison between directors, committee chairs and management;
- serving as an information source for directors and management; and
- carrying out responsibilities as the Board may delegate from time to time.

AUDIT COMMITTEE

We have a separately designated standing Audit Committee of our Board established in accordance with Section 3(a)(58)(A) of the Exchange Act. Members of the Audit Committee are Mark A. Zwecker (Chairperson), Joseph T. Grumski and Larry M. Shelton.

Our Board has determined that each of our Audit Committee members is independent within the meaning of the rules of the Nasdaq and is an "audit committee financial expert" as defined by Item 407(d)(5)(ii) of Regulation S-K of the Securities Exchange Act of 1934, as amended (the "Exchange Act").

The Audit Committee has also discussed with Grant Thornton, LLP, the Company's independent registered accounting firm, the matters required to be discussed by Public Company Accounting Oversight Board ("PCAOB") Auditing Standard No. 16 (Communications with Audit Committee).

BOARD OF DIRECTOR INDEPENDENCE

The Board has determined that each director, other than Dr. Centofanti and Mark Duff, is "independent" within the meaning of applicable Nasdaq rules. Each of Dr. Centofanti and Mark Duff is not deemed to be an "independent director" because of his employment as an executive officer of the Company.

COMPENSATION AND STOCK OPTION COMMITTEE

The Compensation and Stock Option Committee (the "Compensation Committee") reviews and recommends to the Board the compensation and benefits of all of the Company's officers and reviews general policy matters relating to compensation and benefits of the Company's employees. The Compensation Committee also administers the Company's stock option plans. The Compensation Committee has the sole authority to retain and terminate a compensation consultant, as well as to approve the consultant's fees and other terms of engagement. It also has the authority to obtain advice and assistance from internal or external legal, accounting or other advisors. No compensation consultant was employed during 2023. Members of the Compensation Committee during 2023 were Joseph T. Grumski (Chairperson), Zach P. Wamp and Mark A. Zwecker. None of the members of the Compensation Committee has been or is an officer or employee of the Company or has had or has any relationship with the Company requiring disclosure under applicable Commission regulations.

STRATEGIC ADVISORY COMMITTEE

We have a separately designated Strategic Advisory Committee (the "Strategic Committee"). The primary functions of the Strategic Committee are to investigate and evaluate strategic alternatives available to the Company and to work with management on long-range strategic planning and identification of potential new business opportunities. The members of the Strategic Advisory Committee are Dr. Louis Centofanti (Chairperson), Kerry C. Duggan, Joe R. Reeder, and Zach P. Wamp, who replaced Mark A. Zwecker, effective October 19, 2023.

The Board has adopted a written charter for each of the Audit Committee, the Compensation Committee, the Governance and Nominating Committee, and the Strategic Advisory Committee, each of which is available on our website at https://ir.perma-fix.com/governance-docs.

EXECUTIVE OFFICERS OF THE REGISTRANT

The following table sets forth, as of the date hereof, information concerning our executive officers:

NAME	AGE	POSITION
Mr. Mark Duff	61	President and CEO
Mr. Ben Naccarato	61	CFO, EVP, and Secretary
Dr. Louis Centofanti	80	EVP of Strategic Initiatives
Mr. Richard Grondin	65	EVP of Waste Treatment Operations
Mr. Andrew Lombardo (1)	64	EVP of Nuclear and Technical Services

(1) Mr. Andrew Lombardo retired from the position of EVP of Nuclear and Technical Services effective January 1, 2024, a position he had held since January 2020. Upon Mr. Lombardo's retirement from the position of EVP of Nuclear and Technical Services, he no longer is considered an executive officer of the Company. Mr. Lombardo remains employed by the Company at a reduced capacity, and assists with the transition of his former responsibilities as well as contributing to certain business development matters.

Mr. Mark Duff

See "Director – Mark J. Duff" in this section for information on Mr. Duff.

Mr. Ben Naccarato

Mr. Naccarato has served as the Company's CFO since February 2009. Mr. Naccarato joined the Company in September 2004, holding the positions of Vice President of Finance for the Company's Industrial Segment until May 2006, when he was named Vice President, Corporate Controller/Treasurer. Mr. Naccarato has over 35 years of experience in senior financial positions in the waste management and used oil industries. Mr. Naccarato was the CFO of a privately-held company in the fuel distribution and used waste oil industry from 2002 to 2004 and prior to that served in numerous senior financial roles in the waste management industry in both the US and Canada. Mr. Naccarato is a graduate of the University of Toronto with a Bachelor of Commerce and Finance Degree and is a Chartered Professional Accountant, Certified Management Accountant (CPA, CMA).

Since March 2021, Mr. Naccarato has served as an independent director and as a member of the Audit Committee, the Compensation Committee, and the Strategic Initiatives Committee of PyroGenesis Canada, Inc., a high-tech company involved in the design, development, manufacture and commercialization of advanced plasma processes and products and whose stock is listed for trading on the Toronto Stock Exchange.

Dr. Louis Centofanti

See "Director – Dr. Louis F. Centofanti" in this section for information on Dr. Centofanti.

Mr. Richard Grondin

Mr. Grondin has held the position of EVP of Waste Treatment Operations since July 2020. Since joining the Company in 2002, Mr. Grondin has held various positions within the Company's Treatment Segment, including Vice President of Technical Services, Vice President/General Manager of the Perma-Fix Northwest Richland, Inc. Facility and Vice President of Western Operations. Mr. Grondin, a Project Management Professional, has over 35 years of management and technical experience in the highly regulated and specialized radioactive/hazardous waste management industry with the majority of his experience concentrated on managing start-up waste management processing and disposal facilities for four different organizations in the commercial and government sectors. Prior to joining the Company, Mr. Grondin held the position of Vice President of Mixed Waste Operations for Allied Technology Group in Richland, Washington; Vice President of Operations for Waste Control Specialists in Andrews Texas; and Technical Manager/Director of Operations for Rollins Environmental Services Facility in Deer Trail, Colorado. Mr. Grondin is recognized in the United States and Canada as an authority in hazardous and mixed waste treatment. Mr. Grondin has a Diploma of Collegial Studies in Pure and Applied Sciences from CEGEP of Amiante (Thetford-Mines, Canada) and Analytical Chemistry Techniques from CEGEP of Ahuntsic (Montreal, Canada), a Geography minor from Montreal University (Montreal, Canada) and a Certificate of Business Management from the School of Higher Commercial Studies from Montreal University (Montreal, Canada).

Certain Relationships

There are no family relationships between any of the directors or executive officers.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act, and the regulations promulgated thereunder require our executive officers and directors and beneficial owners of more than 10% of our Common Stock to file reports of ownership and changes of ownership of our Common Stock with the Commission, and to furnish us with copies of all such reports. Based solely on a review of the copies of such reports furnished to us and written information provided to us, we believe that during 2023 none of our executive officers, directors, or beneficial owners of more than 10% of our Common Stock failed to timely file reports under Section 16(a).

Schelhammer Capital Bank AG, a banking institution regulated by the banking regulations of Austria, has represented to the Company that as of February 1, 2024, it holds of record as a nominee for, and as an agent of, certain accredited investors, 1,837,572 shares of our Common Stock. Schelhammer Capital Bank AG has also represented to the Company that none of the investors, individually or as a group, as the term "group" is defined under Rule 13d-5(b) of the Exchange Act, beneficially owns more than 4.9% of our Common Stock. Additionally, the investors for whom Schelhammer Capital Bank AG acts as nominee with respect to such shares maintain full voting and dispositive power over the Common Stock beneficially owned by such investors, and Schelhammer Capital Bank AG has neither voting nor investment power over such shares. Accordingly, Schelhammer Capital Bank AG believes that (i) it is not the beneficial owner, as such term is defined in Rule 13d-3 of the Exchange Act, of the shares of Common Stock registered in Schelhammer Capital Bank AG's name because (a) Schelhammer Capital Bank AG holds the Common Stock as a nominee only, (b) Schelhammer Capital Bank AG has neither voting nor investment power over such shares, and (c) Schelhammer Capital Bank AG has not nominated or sought to nominate, and does not intend to nominate in the future, any person to serve as a member of our Board; and (ii) it is not required to file reports under Section 16(a) of the Exchange Act or to file either Schedule 13D or Schedule 13G in connection with the shares of our Common Stock registered in the name of Schelhammer Capital Bank AG.

If the representations of, or information provided by Schelhammer Capital Bank AG, are incorrect or Schelhammer Capital Bank AG was historically acting on behalf of its investors as a group, rather than on behalf of each investor independent of other investors, then Schelhammer Capital Bank AG and/or the investor group would have become a beneficial owner of more than 10% of our Common Stock on February 9, 1996, as a result of the acquisition on such date of 1,100 shares of our Preferred Stock that were convertible into a maximum of 256,560 shares of our Common Stock. If either Schelhammer Capital Bank AG or a group of Schelhammer Capital Bank AG's investors became a beneficial owner of more than 10% of our Common Stock on February 9, 1996, or at any time thereafter, and thereby required to file reports under Section 16(a) of the Exchange Act, then Schelhammer Capital Bank AG has failed to file a Form 3 or any Forms 4 or 5 since February 9, 1996. (See "Item 12 - Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters – Security Ownership of Certain Beneficial Owners" for a discussion of Schelhammer Capital Bank AG's current record ownership of our securities).

Code of Ethics

Our Code of Business Conduct and Ethics ("Code of Ethics"), which applies to our Board and all our employees, including our CEO and our senior financial officers, complies with applicable SEC rules and Nasdaq listing standards. and is available on our website at https://ir.perma-fix.com/governance-docs. The provisions of the Code of Ethics that apply to the CEO and our senior financial officers, including our CFO and our chief accounting officer, complies with the requirements imposed by the Sarbanes-Oxley Act of 2002 and the rules issued thereunder for codes of ethics applicable to such officers. If any amendments are made to the Code of Ethics, or any grants of waivers are made to any provision of the Code of Ethics, that are applicable to our CEO and our senior financial officers, we will promptly disclose the amendment or waiver and nature of such amendment or waiver on our website at the same web address.

ITEM 11. EXECUTIVE COMPENSATION

Summary Compensation

The following table summarizes the total compensation of the Company's named executive officers ("NEOs") for the fiscal years ended December 31, 2023, 2022 and 2021.

Name and Principal Position	Year	Salary	Bonus	Option Awards	Non-Equity Incentive Plan Compensation	All other Compensation	Total Compensation
		($)	($)	($) (3)	($) (4)	($) (5)	($)
Mark Duff	2023	382,367	—	140,840	187,435	37,453	748,095
President and CEO	2022	374,870	—	—	—	41,270	416,140
	2021	350,341	—	175,518	—	37,121	562,980
Ben Naccarato	2023	310,867	—	80,480	152,386	51,744	595,477
EVP and CFO	2022	304,772	—	—	—	51,484	356,256
	2021	284,830	—	87,759	—	45,440	418,029
Dr. Louis Centofanti	2023	259,060	—	60,360	126,990	39,015	485,425
EVP of Strategic Initiatives	2022	253,980	—	—	—	38,776	292,756
	2021	237,361	—	70,207	—	35,836	343,404
Andy Lombardo (1)	2023	310,867	50,000(2)	60,360	152,386	16,212	589,825
EVP of Nuclear & Technical Services	2022	304,772	—	—	—	15,088	319,860
	2021	284,830	—	87,759	—	15,500	388,089
Richard Grondin	2023	266,458	—	60,360	130,617	40,890	498,325
EVP of Waste Treatment Operations	2022	261,233	—	—	—	38,240	299,473
	2021	244,140	—	87,759	—	33,943	365,842

(1) Mr. Andrew Lombardo retired from the position of EVP of Nuclear and Technical Services effective January 1, 2024. Upon Mr. Lombardo's retirement from the position of EVP of Nuclear and Technical Services, he no longer was an executive officer of the Company. Mr. Lombardo remains employed by the Company at a reduced capacity, and assists with the transition of his former responsibilities as well as contributing to certain business development matters. Amounts reflected in the table reflects compensation earned by Mr. Lombardo as EVP of Nuclear and Technical Services.

(2) Reflects a discretionary bonus earned by Mr. Lombardo which was approved by the Company's Compensation Committee. Remaining $25,000 of the $50,000 was paid in January 2024.

(3) Reflects the aggregate grant date fair value of awards computed in accordance with ASC 718, "Compensation – Stock Compensation." Assumptions used in the calculation of this amount are included in "Part II – Item 8 – Financial Statements and Supplementary Data – Notes to Consolidated Financial Statements - Note 6 – Capital Stock, Stock Plans, Warrants and Stock Based Compensation."

(4) Represents performance compensation earned under the Company's 2023 Management Incentive Plans ("MIPs"). The MIP for each individual in the table is described under the heading "2023 MIPs." Compensation earned under the 2023 MIPs is to be paid on or about 90 days after year-end, or sooner based on final Form 10-K filing.

(5) The amount shown for 2023 includes a monthly automobile allowance, insurance premiums (health, disability and life) paid by the Company on behalf of the NEO, and 401(k) matching contributions.

Name	Insurance Premium	Auto Allowance	401(k) match	Total
Mark Duff	$ 22,107	$ 9,000	$ 6,346	$ 37,453
Ben Naccarato	$ 35,244	$ 9,000	$ 7,500	$ 51,744
Dr. Louis Centofanti	$ 24,390	$ 9,000	$ 5,625	$ 39,015
Andy Lombardo	$ —	$ 9,000	$ 7,212	$ 16,212
Richard Grondin	$ 24,390	$ 9,000	$ 7,500	$ 40,890

Pay Versus Performance Table

As required by Section 953(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 402(v) of Regulation S-K, we are providing the following information about the relationship between executive compensation actually paid and certain financial performance of the Company.

Year	Summary Compensation Table (SCT) Total for Principal Executive Officer (PEO)(1)	Compensation Actually Paid to PEO (2)	Average Summary Compensation Table Total for Non-PEO NEOs (3)	Average Compensation Actually Paid to Non-PEO NEOs (4)	Value of Initial Fixed $100 Investment Based On Total Shareholder Return (5)	Net income (loss) (6)
(a)	(b)	(c)	(d)	(e)	(f)	(g)
2023	$ 748,095	$ 999,730	$ 542,263	$ 661,212	$ 132	$ 485,000
2022	$ 416,140	$ 276,985	$ 317,086	$ 250,745	$ 59	$ (3,816,000)
2021	$ 562,980	$ 526,242	$ 378,841	$ 364,503	$ 106	$ 671,000

(1) Reflect amount for Mark Duff, President and CEO for each corresponding year in the "Total Compensation" column of the Summary Compensation Table above.

(2) The dollar amounts reported in column (c) represent the amount of "compensation actually paid" to Mr. Duff, as computed in accordance with Item 402(v) of Regulation S-K. The dollar amounts do not reflect the actual amount of compensation earned by or paid to Mr. Duff during the applicable year. In accordance with the requirements of Item 402(v) of Regulation S-K, the following adjustments were made to Mr. Duff**'s** total compensation for each year to determine the "compensation actually paid" under Item 402(v) of Regulation S-K:

Year	Reported Summary Compensation Table Total for PEO ($)	Reported Value of Equity Awards (a) ($)	Equity Award Adjustments (b) ($)	Compensation Actually Paid to PEO ($)
2023	$ 748,095	$ (140,840)	$ 392,475	$ 999,730
2022	$ 416,140	$ -	$ (139,155)	$ 276,985
2021	$ 562,980	$ (175,518)	$ 138,780	$ 526,242

(a) The grant date fair value of equity awards represents the total of the amounts reported in the "Option Awards" column in the Summary Compensation Table for the applicable year.

(b) The equity award adjustments for each applicable year include the addition (or subtraction, as applicable) of the following: (i) the year-end fair value of any equity awards granted in the applicable year that are outstanding and unvested as of the end of the year; (ii) the amount of change as of the end of the applicable year (from the end of the prior fiscal year) in fair value of any awards granted in prior years that are outstanding and unvested as of the end of the applicable year; (iii) for awards that are granted and vest in same applicable year, the fair value as of the vesting date; (iv) for awards granted in prior years that vest in the applicable year, the amount equal to the change as of the vesting date (from the end of the prior fiscal year) in fair value; (v) for awards granted in prior years that are determined to fail to meet the applicable vesting conditions during the applicable year, a deduction for the amount equal to the fair value at the end of the prior fiscal year; and (vi) the dollar value of any dividends or other earnings paid on stock or option awards in the applicable year prior to the vesting date that are not otherwise reflected in the fair value of such award or included in any other component of total compensation for the applicable year. The valuation assumptions used to calculate fair values did not materially differ from those disclosed at the time of grant. The amounts deducted or added in calculating the equity award adjustments are as follows:

Year	Year End Fair Value of Outstanding and Unvested Equity Awards Granted in the Year ($)	Year over Year Change in Fair Value of Outstanding and Unvested Equity Award Granted in Prior Years ($)	Fair Value as of Vesting Date of Equity Awards Granted and Vested in the Year ($)	Year over Year Change in Fair Value of Equity Award Granted in Prior Years that Vested in the Year ($)	Fair Value at the End of the Prior Year of Equity Awards that Failed to Meet Vesting Conditions in the Year ($)	Value of Dividends or other Earnings Paid on Stock or Option Awards not Otherwise Reflected in Fair Value or Total Compensation ($)	Total Equity Award Adjustments ($)
2023	$ 245,070	$ 101,015	$ -	$ 46,390	$ -	$ -	$ 392,475
2022	$ -	$ (99,870)	$ -	$ (39,285)	$ -	$ -	$ (139,155)
2021	$ 147,050	$ (3,860)	$ -	$ (4,410)	$ -	$ -	$ 138,780

(3) Reflect the average of the amounts reported for the Company's NEO as a group (excluding Mr. Duff) in the "Total Compensation" column of the Summary Compensation Table in each applicable year. The names of each of the NEOs (excluding Mr. Duff) included for purposes of calculating the average amounts in each applicable year were Ben Naccarato, CFO; Dr. Louis Centofanti, EVP of Strategic Initiatives; Andy Lombardo, EVP of Nuclear and Technical Services; and Richard Grondin, EVP of Waste Treatment Operations.

(4) The dollar amounts reported in column (e) represent the average amount of "compensation actually paid" to the NEOs as a group (excluding Mr. Duff), as computed in accordance with Item 402(v) of Regulation S-K. The dollar amounts do not reflect the actual average amount of compensation earned by or paid to NEOs as a group (excluding Mr. Duff) during the applicable year. In accordance with the requirements of Item 402(v) of Regulation S-K, the following adjustments were made to average total compensation for the NEOs as a group (excluding Mr. Duff) for each year to determine the compensation actually paid, using the same methodology described in Note (2):

Year	Average Reported Summary Compensation Table Total for Non-PEO NEOs ($)	Average Reported Value of Equity Awards ($)	Average Equity Award Adjustments (a) ($)	Average Compensation Actually Paid to Non-PEO NEOs ($)
2023	$ 542,263	$ (65,390)	$ 184,339	$ 661,212
2022	$ 317,086	$ -	$ (66,341)	$ 250,745
2021	$ 378,841	$ (83,371)	$ 69,033	$ 364,503

(a) The amount deduced or added in calculating the total average equity adjustments are as follows:

Year	Average Year End Fair Value of Outstanding and Unvested Equity Awards Granted in the Year ($)	Average Year over Year Change in Fair Value of Outstanding and Unvested Equity Award Granted in Prior Years ($)	Average Fair Value as of Vesting Date of Equity Awards Granted and Vested in the Year ($)	Average Year over Year Change in Fair Value of Equity Award Granted in Prior Years that Vested in the Year ($)	Average End of the Prior Year of Equity Awards that Failed to Meet Vesting Conditions in the Year ($)	Average Value of Dividends or other Earnings Paid on Stock or Option Awards not Otherwise Reflected in Fair Value or Total Compensation ($)	Average Total Equity Award Adjustments ($)
2023	$ 113,783	$ 48,478	$ -	$ 22,078	$ -	$ -	$ 184,339
2022	$ -	$ (48,134)	$ -	$ (18,207)	$ -	$ -	$ (66,341)
2021	$ 69,849	$ (1,127)	$ -	$ 311	$ -	$ -	$ 69,033

(5) Cumulative TSR is calculated by dividing the sum of the cumulative amount of dividends (which is none for the Company) for the measurement period, assuming dividend reinvestment, and the difference between our share price at the end and the beginning of the measurement period by our share price at the beginning of the measurement period.

(6) The dollar amounts reported represent the amount of net income (loss) reflected in our consolidated audited financial statements for the applicable year.

All information provided in the "Pay Versus Performance" table above and the related disclosures will not be deemed to be incorporated by reference in any of our filings under the Securities Act of 1933, as amended, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth unexercised options held by the NEOs as of the fiscal year-end.

Outstanding Equity Awards at December 31, 2023

	Option Awards				
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) [1] Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date
Mark Duff	20,000(2)	5,000(2)		3.150	1/17/2025
	20,000(3)	30,000(3)		7.005	10/14/2027
	—(4)	70,000(4)		3.950	1/19/2029
Ben Naccarato	12,000(2)	3,000(2)		3.150	1/17/2025
	10,000(3)	15,000(3)		7.005	10/14/2027
	—(4)	40,000(4)		3.950	1/19/2029
Dr. Louis Centofanti	12,000(2)	3,000(2)		3.150	1/17/2025
	8,000(3)	12,000(3)		7.005	10/14/2027
	—(4)	30,000(4)		3.950	1/19/2029
Andy Lombardo	6,000(2)	2,000(2)		3.150	1/17/2025
	10,000(3)	15,000(3)		7.005	10/14/2027
	—(4)	30,000(4)		3.950	1/19/2029
Richard Grondin	—(2)	2,000(2)		3.150	1/17/2025
	10,000(3)	15,000(3)		7.005	10/14/2027
	—(4)	30,000(4)		3.950	1/19/2029

(1) Pursuant to each of the employment agreements between the Company and, respectively, Mark Duff, Ben Naccarato, Dr. Louis Centofanti, Andy Lombardo, and Richard Grondin, each dated April 20, 2023, in the event of a change in control, death of the executive officer, the executive officer terminates his employment for "good reason" or the executive officer is terminated by the Company without cause, each outstanding option and award shall immediately become exercisable in full (see "Employment Agreements" below for further discussion of the events pursuant to which accelerated exercise of the respective NEO's outstanding options can arise).

(2) Incentive stock option granted on January 17, 2019 under the Company's 2017 Stock Option Plan. The option has a contractual term of six years with one-fifth yearly vesting over a five-year period.

(3) Incentive stock option granted on October 14, 2021 under the Company's 2017 Stock Option Plan. The option has a contractual term of six years with one-fifth yearly vesting over a five-year period.

(4) Incentive stock option granted on January 19, 2023 under the Company's 2017 Stock Option Plan. The option has a contractual term of six years with one-fifth yearly vesting over a five-year period.

Option Exercises

The table below reflects options exercised by our NEO in 2023:

Name	Number of Shares Acquired on Exercise (#)		Value Realized on Exercise ($)
Mark Duff	66,968(1)	$	740,000(1)
Ben Naccarato	33,484(2)	$	370,000(2)
Louis Centofanti	33,484(3)	$	370,000(3)
Andy Lombardo	8,398(4)	$	100,740(4)
Richard Grondin	12,882(5)	$	130,300(5)
	5,509(6)	$	55,720(6)

(1) On May 22, 2023, Mr. Duff exercised 100% of his ISO granted to him on July 27, 2017 under the Company's 2017 Stock Option Plan for the purchase of up to 100,000 shares (Option Shares) of the Company's Common Stock at $3.65 per share. As permitted by the 2017 Stock Option Plan, Mr. Duff elected to pay the exercise price of the Option Shares by having the Company withhold from the Option Shares a number of shares having a fair market value equal to the aggregate exercise price of $365,000. Since the fair market value of the Company's Common Stock on May 22, 2023, (as determined in accordance with the 2017 Stock Option Plan) was $11.05 per share, the Company withheld 33,032 shares of Common Stock ($365,000 divided by $11.05) to pay the aggregate exercise price for the Option Shares and issued 66,968 shares to Mr. Duff. Realized value on this exercise was determined based on the difference between the (a) exercise price ($3.65) per share of the Option Shares multiplied by the 100,000 Option Shares exercised, and (b) the market value ($11.05) on the date of exercise of the Option Shares times the 100,000 Option Shares exercised.

(2) On May 22, 2023, Mr. Naccarato exercised 100% of his ISO granted to him on July 27, 2017 under the Company's 2017 Stock Plan for the purchase of up to 50,000 shares (Option Shares) of the Company's Common Stock at $3.65 per share. As permitted by the 2017 Stock Option Plan, Mr. Naccarato elected to pay the exercise price of the Option Shares by having the Company withhold from the Option Shares a number of shares having a fair market value equal to the aggregate exercise price of $182,500. Since the fair market value of the Company's Common Stock on May 22, 2023, (as determined in accordance with the 2017 Stock Option Plan) was $11.05 per share, the Company withheld 16,516 shares of Common Stock ($182,500 divided by $11.05) to pay the aggregate exercise price for the Option Shares and issued 33,484 shares to Mr. Naccarato. Realized value on this exercise was determined based on the difference between the (a) exercise price ($3.65) per share of the Option Shares multiplied by the 50,000 Option Shares exercised, and (b) the market value ($11.05) on the date of exercise of the Option Shares times the 50,000 Option Shares exercised.

(3) On May 22, 2023, Dr. Louis Centofanti exercised 100% of his ISO granted to him on July 27, 2017 under the Company's 2017 Stock Plan for the purchase of up to 50,000 shares (Option Shares) of the Company's Common Stock at $3.65 per share. As permitted by the 2017 Stock Option Plan, Dr. Centofanti elected to pay the exercise price of the Option Shares by having the Company withhold from the Option Shares a number of shares having a fair market value equal to the aggregate exercise price of $182,500. Since the fair market value of the Company's Common Stock on May 22, 2023, (as determined in accordance with the 2017 Stock Option Plan) was $11.05 per share, the Company withheld 16,516 shares of Common Stock ($182,500 divided by $11.05) to pay the aggregate exercise price for the Option Shares and issued 33,484 shares to Dr. Centofanti. Realized value on this exercise was determined based on the difference between the (a) exercise price ($3.65) per share of the Option Shares multiplied by the 50,000 Option Shares exercised, and (b) the market value ($11.05) on the date of exercise of the Option Shares times the 50,000 Option Shares exercised.

(4) On March 28, 2023, Mr. Lombardo exercised 100% of his remaining ISO granted to him on October 19, 2017 under the Company's 2017 Stock plan for the purchase of up to 12,000 shares (Option shares) of the Company's Common Stock at $3.60 per share. As permitted by the 2017 Stock Option Plan, Mr. Lombardo elected to pay the exercise price of the Option Shares by having the Company withhold from the Option Shares a number of shares having a fair market value equal to the aggregate exercise price of $43,200. Since the fair market value of the Company's Common Stock on March 28, 2023, (as determined in accordance with the 2017 Stock Option Plan) was $11.995 per share, the Company withheld 3,602 shares of Common Stock ($43,200 divided by $11.995) to pay the aggregate exercise price for the Option Shares and issued 8,398 shares to Mr. Lombardo. Realized value on this exercise was determined based on the difference between the (a) exercise price ($3.60) per share of the Option Shares multiplied by the 12,000 Option Shares exercised, and (b) the market value ($11.995) on the date of exercise of the Option Shares times the 12,000 Option Shares exercised.

(5) On October 2, 2023, Mr. Grondin exercised 100% of an ISO granted to him on October 19, 2017 under the Company's 2017 Stock Option Plan for the purchase of up to 20,000 shares (Option Shares) of the Company's Common Stock at $3.60 per share. As permitted by the 2017 Stock Option Plan, Mr. Grondin elected to pay the exercise price of the Option Shares by having the Company withhold from the Option Shares a number of shares having a fair market value equal to the aggregate exercise price of $72,000. Since the fair market value of the Company's Common Stock on October 2, 2023, (as determined in accordance with the 2017 Stock Option Plan) was $10.115 per share, the Company withheld 7,118 shares of Common Stock ($72,000 divided by $10.115) to pay the aggregate exercise price of the option and issued 12,882 shares to Mr. Grondin. Realized value on this exercise was determined based on the difference between the (a) exercise price ($3.60) per share of the Option Shares multiplied by the 20,000 Option Shares exercised, and (b) the market value ($10.115) on the date of exercise of the Option Shares times the 20,000 Option Shares exercised.

(6) On October 2, 2023, Mr. Grondin exercised the vested portion of an ISO granted to him on January 17, 2019 under the Company's 2017 Stock Option Plan for the purchase of 8,000 shares (Option Shares) of the Company's Common Stock at $3.15 per share. As permitted by the 2017 Stock Option Plan, Mr. Grondin elected to pay the exercise price of the Option Shares by having the Company withhold from the Option Shares a number of shares having a fair market value equal to the aggregate exercise price of $25,200. Since the fair market value of the Company's Common Stock on October 2, 2023, (as determined in accordance with the 2017 Stock Option Plan) was $10.115 per share, the Company withheld 2,491 shares of Common Stock ($25,200 divided by $10.115) to pay the aggregate exercise price of the option and issued 5,509 shares to Mr. Grondin. Realized value on this exercise was determined based on the difference between the (a) exercise price ($3.15) per share of the Option Shares multiplied by the 8,000 Option Shares exercised, and (b) the market value ($10.115) on the date of exercise of the Option Shares times the 8,000 Option Shares exercised.

Employment Agreements

On April 20, 2023, upon recommendation by the Compensation Committee and approval by the Board, the Company entered into employment agreements with each of Mark Duff, President and CEO, Ben Naccarato, EVP and CFO, Dr. Louis Centofanti, EVP of Strategic Initiatives, Andrew Lombardo, EVP of Nuclear and Technical Services, and Richard Grondin, EVP of Waste Treatment Operations (collectively the "New Employment Agreements" and each, individually, a "New Employment Agreement")." The Company had previously entered into employment agreements with each of Mark Duff, Ben Naccarato, Dr. Louis Centofanti, Andrew Lombardo and Richard Grondin on July 22, 2020, all five of which agreements were due to expire on July 22, 2023, but which were terminated effective April 20, 2023 upon the execution of the New Employment Agreements.

Each of the New Employment Agreements, which are substantially identical except for compensation, are effective April 20, 2023. Under the New Employment Agreements, each of these executive officers is provided an annual salary, which annual salary may be increased from time to time, but not reduced, as determined by the Compensation Committee. In addition, each of these executive officers is entitled to participate in the Company's broad-based benefits plans and to certain performance compensation payable under separate MIPs as approved by the Company's Compensation Committee and the Company's Board. The Company's Compensation Committee and the Board approved individual 2023 MIPs on January 19, 2023 (which were effective January 1, 2023 and applicable for the 2023 fiscal year) for each of the executive officers (see discussion of each of the 2023 MIPs below under "2023 MIPs").

Each of the New Employment Agreements is effective for three years from April 20, 2023 (the "Initial Term") unless earlier terminated by the Company or by the executive officer. At the end of the Initial Term of each New Employment Agreement, each New Employment Agreement will automatically be extended for one additional year, unless at least six months prior to the expiration of the Initial Term, the Company or the executive officer provides written notice not to extend the terms of the New Employment Agreement. Mr. Andrew Lombardo retired from the position of EVP of Nuclear and Technical Services effective January 1, 2024. Upon Mr. Lombardo's retirement from the position of EVP of Nuclear and Technical Services, he no longer was an executive officer of the Company. Upon his retirement as EVP of Nuclear and Technical Services, his employment agreement dated April 20, 2023, was terminated effective January 1, 2024. Mr. Lombardo remains employed by the Company at a reduced capacity, and assists with the transition of his former responsibilities as well as contributing to certain business development matters.

Pursuant to the New Employment Agreements, if the executive officer's employment is terminated due to death, disability or for cause (as defined in the agreements), the Company will pay to the executive officer or to his estate an amount equal to the sum of any unpaid base salary and accrued unused vacation time through the date of termination and any benefits due to the executive officer under any employee benefit plan (the "Accrued Amounts") plus any performance compensation payable pursuant to the executive officer's MIP with respect to the fiscal year immediately preceding the date of termination. In the event that an executive officer's employment is terminated due to death, the Company will also pay a lump-sum payment (the "Cash Medical Continuation Benefit") equal to eighteen times the monthly premium that would be required to be paid, pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), to continue group health coverage for the executive officer's eligible covered dependents in effect on the date of the executive officer's termination of employment, based on the premium for the first month of COBRA coverage. Such cash payment will be taxable and will be made regardless of whether the executive officer's eligible covered dependents elect COBRA continuation coverage.

If the executive officer terminates his employment for “good reason” (as defined in the agreements) or is terminated by the Company without cause (including any such termination for “good reason” or without cause within 24 months after a Change in Control (as defined in the agreements), the Company will pay the executive officer Accrued Amounts, (a) two years of full base salary, plus (b) (i) two times the performance compensation (under the executive officer’s MIP) earned with respect to the fiscal year immediately preceding the date of termination provided the performance compensation earned with respect to the fiscal year immediately preceding the date of termination has not yet been paid, or (ii) if performance compensation earned with respect to the fiscal year immediately preceding the date of termination has already been paid to the executive officer, the executive officer will be paid an additional year of the performance compensation earned with respect to the fiscal year immediately preceding the date of termination, and (c) the Cash Medical Continuation Benefit. If the executive officer terminates his employment for a reason other than for good reason, the Company will pay to the executive officer an amount equal to the Accrued Amounts plus any performance compensation payable pursuant to the MIP applicable to such executive officer.

Additionally, in the event of a Change in Control (as defined in the agreements), all outstanding stock options to purchase the 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 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 an executive officer terminates his employment for “good reason” (as defined in the agreements) or is terminated by the Company without cause, all outstanding stock options to purchase common stock held by the 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 officer’s date of termination. Severance benefits payable with respect to a termination (other than Accrued Amounts) shall not be payable until the termination constitutes a “separation from service” (as defined under Treasury Regulation Section 1.409A-1(h)).

Potential Payments Upon Termination or Change in Control

The following table sets forth the potential (estimated) payments and benefits to which each executive officer would be entitled upon termination of employment by the executive officer for “good reason” or by the Company “without cause,” or following a Change in Control of the Company, as specified under each of their respective Employment Agreements with the Company, assuming each circumstance described below occurred on December 31, 2023, the last day of our most recent fiscal year. Such potential payments include any Accrued Amounts (accrued base salary earned for 2023 but paid in 2024, as well as accrued unused vacation/sick time and other vested benefits under the Company plans in which the executive officer participates). The executive officer is not entitled to payment of any benefits upon termination for cause or resignation without good reason other than for Accrued Amounts.

Name and Principal Position Potential Payment/Benefit		By Executive for Good Reason or by Company Without Cause		Change in Control of the Company
Mark Duff				
President and CEO				
Base salary and Accrued Amounts	$	791,176(1)	$	791,176(1)
Performance compensation	$	374,870(2)	$	374,870(2)
Stock Options	$	435,650(3)	$	435,650(3)
Cash Medical Benefit Cotinuation	$	32,814(4)	$	32,814(4)
Ben Naccarato				
EVP and CFO				
Base salary and Accrued Amounts	$	682,857(1)	$	682,857(1)
Performance compensation	$	304,772(2)	$	304,772(2)
Stock Options	$	249,225(3)	$	249,225(3)
Cash Medical Benefit Cotinuation	$	54,144(4)	$	54,144(4)
Dr. Louis Centofanti				
EVP of Strategic Initiatives				
Base salary and Accrued Amounts	$	674,187(1)	$	674,187(1)
Performance compensation	$	253,980(2)	$	253,980(2)
Stock Options	$	205,700(3)	$	205,700(3)
Cash Medical Benefit Cotinuation	$	37,415(4)	$	37,415(4)
Andy Lombardo				
EVP of Nuclear and Technical Services				
Base salary and Accrued Amounts	$	652,427(1)	$	652,427(1)
Performance compensation	$	304,772(2)	$	304,772(2)
Stock Options	$	176,985(3)	$	176,985(3)
Cash Medical Benefit Cotinuation	$	—(4)	$	—(4)
Richard Grondin				
EVP of Waste Treatment Operations				
Base salary and Accrued Amounts	$	626,791(1)	$	626,791(1)
Performance compensation	$	261,234(2)	$	261,234(2)
Stock Options	$	148,665(3)	$	148,665(3)
Cash Medical Benefit Cotinuation	$	37,415(4)	$	37,415(4)

(1) Represents two times the base salary of the executive officer at December 31, 2023, plus "Accrued Amounts."

(2) Represents two times the performance compensation earned for fiscal year 2023 (see "2023 MIPs" below).

(3) Benefit is calculated based on the difference between the exercise price of each option and the market value of the Company's Common Stock per share (as reported on the Nasdaq) at December 31, 2023 times the number of options outstanding at December 31, 2023. Benefit excludes options which were out-of-the-money at December 31, 2023.

(4) Represents a lump-sum payment equal to eighteen times the monthly premium that would be required to be paid to continue group health coverage for the executive officer's eligible covered dependents in effect on the date of the executive officer's termination of employment as defined in the employment agreement,

2023 Executive Compensation Components

For the fiscal year ended December 31, 2023, the principal components of compensation for executive officers were:

- base salary;
- performance-based incentive compensation;
- long term incentive compensation;
- retirement and other benefits; and
- perquisites.

Based on the amounts set forth in the Summary Compensation table, during 2023, salary accounted for approximately 52.4% of the total compensation of our NEOs, while equity option awards, MIP compensation, bonus and other compensation accounted for approximately 47.6% of the total compensation of the NEOs.

Base Salary

The NEOs, other officers, and other employees of the Company receive a base annual salary. Base salary ranges for executive officers are determined for each executive based on his or her position and responsibility by using market data and comparisons to similar companies within the business segments in which the Company operates.

During its review of base salaries for executives, the Compensation Committee primarily considers:

- market data and comparisons to similar companies within the business segments in which the Company operates;
- internal review of the executive's compensation, both individually and relative to other officers; and
- individual performance of the executive.

Salary levels are typically considered annually as part of the performance review process as well as upon a promotion or other change in job responsibility. Merit-based salary increases for executives are based on the Compensation Committee's assessment of the individual's performance. The base salary and potential annual base salary adjustments for the NEOs are set forth in their respective employment agreements. On October 19, 2023, the Compensation Committee and the Board approved a base salary increase adjustment, effective January 1, 2024, of seven percent for the CEO and five percent for each of the CFO, EVP of Strategic Initiatives, and the EVP of Waste Treatment Operations. The following reflects the base salary for each of the NEOs on January 1, 2024, after the base salary increase: $417,155 for the CEO; $332,811 for the CFO; $277,346 for the EVP of Strategic Initiatives; and $285,267 for the EVP of Waste Treatment Operations.

Performance-Based Incentive Compensation

The Compensation Committee has the latitude to design cash and equity-based incentive compensation programs to promote high performance and achievement of our corporate objectives by directors and the NEOs, encourage the growth of stockholder value and enable employees to participate in our long-term growth and profitability. The Compensation Committee may grant stock options and/or performance bonuses. In granting these awards, the Compensation Committee may establish any conditions or restrictions it deems appropriate. In addition, the CEO has discretionary authority to grant stock options to certain high-performing executives or officers, subject to the approval of the Compensation Committee. The exercise price for each stock option granted is at or above the market price of our Common Stock on the date of grant. Stock options may be awarded to newly hired or promoted executives at the discretion of the Compensation Committee. Grants of stock options to eligible newly hired executive officers are generally made at the next regularly scheduled Compensation Committee meeting following the hire date.

2023 MIPs

On January 19, 2023, the Compensation Committee and the Board approved individual MIPs for the calendar year 2023 for each of the NEOs. Each of the MIPs was effective January 1, 2023.

The performance compensation payable under each MIP was based upon meeting certain of the Company's separate target objectives during 2023 as described in each of the MIPs below, provided, however, no performance compensation was to be paid for attaining any of the Company's separate target objectives unless a minimum of 75% of the EBITDA target objective was achieved. The Compensation Committee believes performance compensation payable under each of the MIPs should be based on achievement of at least 75% of EBITDA (earnings before interest, taxes, depreciation and amortization), a non-U.S. GAAP (accounting principles generally accepted in the United States of America) financial measurement, as the Company believes that this target provides a better indicator of operating performance as it excludes certain non-cash items. EBITDA has certain limitations as it does not reflect all items of income or cash flows that affect the Company's financial performance under U.S. GAAP.

In formulating certain targets set forth in the MIPs, the Compensation Committee and the Board considered the Board-approved budget for 2023, economic conditions (continued potential impact of COVID-19), forecasts for 2023 government spending, as well as the Compensation Committee's expectation for performance that in its estimation would warrant payment of incentive cash compensation.

Performance compensation amounts earned under the 2023 MIPs are to be paid on or about 90 days after year-end, or sooner, based on finalization of our audited financial statements for 2023. For 2023, a total of approximately $750,000 was earned by the NEOs under the MIPs. See "Compensation Earned Under 2023 MIPs" below for amount earned by each NEO under his respective MIP.

The Compensation Committee retained the right to modify, change or terminate each MIP and may adjust the various target amounts described below, at any time and for any reason.

The total to be paid to the NEOs under the 2023 MIPs may not exceed 50% of the Company's pre-tax net income prior to the calculation of performance compensation.

The following schedules reflect performance compensation that was payable under each of the 2023 MIPs, along with a description of the target objectives.

CEO MIP:

Annualized Base Pay:	$	374,870
Performance Incentive Compensation Target (at 100% of Plan):	$	187,435
Total Annual Target Compensation (at 100% of Plan):	$	562,305

Perma-Fix Environmental Services, Inc.
2023 Management Incentive Plan
CEO MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 9,372	$ 18,744	$ 32,132	$ 45,520	$ 72,297
EBITDA (2)	56,229	112,461	192,790	273,120	433,778
Health & Safety (3) (6)	14,058	28,115	28,115	28,115	28,115
Permit & License Violations (4) (6)	14,058	28,115	28,115	28,115	28,115
	$ 93,717	$ 187,435	$ 281,152	$ 374,870	$ 562,305

CFO MIP:

Annualized Base Pay:	$	304,772
Performance Incentive Compensation Target (at 100% of Plan):	$	152,386
Total Annual Target Compensation (at 100% of Plan):	$	457,158

Perma-Fix Environmental Services, Inc.
2023 Management Incentive Plan
CFO MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 7,619	$ 15,239	$ 25,035	$ 33,743	$ 40,273
EBITDA (2)	57,146	114,289	150,209	202,455	241,641
Health & Safety (3) (6)	5,714	11,429	11,429	11,429	11,429
Permit & License Violations (4) (6)	5,714	11,429	11,429	11,429	11,429
	$ 76,193	$ 152,386	$ 198,102	$ 259,056	$ 304,772

EVP of Strategic Initiatives MIP:

Annualized Base Pay:	$ 253,980
Performance Incentive Compensation Target (at 100% of Plan):	$ 126,990
Total Annual Target Compensation (at 100% of Plan):	$ 380,970

Perma-Fix Environmental Services, Inc.
2023 Management Incentive Plan
EVP OF STRATEGIC INITIATIVES MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 6,350	$ 12,699	$ 20,863	$ 28,119	$ 33,562
EBITDA (2)	47,621	95,243	125,176	168,716	201,370
Health & Safety (3) (6)	4,762	9,524	9,524	9,524	9,524
Permit & License Violations (4) (6)	4,762	9,524	9,524	9,524	9,524
	$ 63,495	$ 126,990	$ 165,087	$ 215,883	$ 253,980

EVP of Waste Treatment Operations MIP:

Annualized Base Pay:	$ 261,233
Performance Incentive Compensation Target (at 100% of Plan):	$ 130,617
Total Annual Target Compensation (at 100% of Plan):	$ 391,850

Perma-Fix Environmental Services, Inc.
2023 Management Incentive Plan
EVP OF WASTE TREATMENT OPERATIONS MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 6,531	$ 13,062	$ 18,660	$ 26,123	$ 31,721
EBITDA (2)	39,185	78,371	111,958	156,741	190,328
Health & Safety (3) (6)	9,796	19,592	19,592	19,592	19,592
Permit & License Violations (4) (6)	9,796	19,592	19,592	19,592	19,592
	$ 65,308	$ 130,617	$ 169,802	$ 222,048	$ 261,233

EVP of Nuclear and Technical Services MIP:

Annualized Base Pay:	$	304,772
Performance Incentive Compensation Target (at 100% of Plan):	$	152,386
Total Annual Target Compensation (at 100% of Plan):	$	457,158

Perma-Fix Environmental Services, Inc.
2023 Management Incentive Plan
EVP OF NUCLEAR & TECHNICAL SERVICES MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 7,619	$ 15,239	$ 21,769	$ 30,477	$ 37,008
EBITDA (2)	45,716	91,431	130,617	182,863	222,048
Health & Safety (3) (6)	11,429	22,858	22,858	22,858	22,858
Cost Performance Incentive (5) (6)	11,429	22,858	22,858	22,858	22,858
	$ 76,193	$ 152,386	$ 198,102	$ 259,056	$ 304,772

(1) Revenue was defined as the total consolidated third-party top line revenue as publicly reported in the Company's 2023 financial statements. The percentage achieved was determined by comparing the actual consolidated revenue for 2023 to the Board-approved revenue target for 2023.

(2) EBITDA was defined as earnings before interest, taxes, depreciation, and amortization from continuing and discontinued operations. The percentage achieved was determined by comparing the actual EBITDA to the Board-approved EBITDA target for 2023.

(3) The Health and Safety Incentive target was based upon the actual number of Worker's Compensation Lost Time Accidents ("WCLTA"), as provided by the Company's Worker's Compensation carrier. For the EVP of Nuclear and Technical Services and the EVP of Waste Treatment Operations, the incentive target was based on actual number of WCLTA in the Services and Treatment Segments only, respectively. The Corporate Controller submitted a report on a quarterly basis documenting and confirming the number of Worker's Compensation Lost Time Accidents, supported by the Worker's Compensation Loss Report provided by the company's carrier or broker. Such claims were identified on the loss report as "indemnity claims." The following number of Worker's Compensation Lost Time Accidents and corresponding performance target thresholds was established for the annual Incentive Compensation Plan calculation for 2023.

Work Comp. Claim Number	-	Performance Target Achieved
3		75%-89%
2		90%-110%
1		111%-129%
1		130%-150%
1		>150%

(4) Permits or License Violations incentive was earned/determined according to the scale set forth below: An "official notice of non-compliance" was defined as an official communication during 2023 from a local, state, or federal regulatory authority alleging one or more violations of an otherwise applicable Environmental, Health or Safety requirement or permit provision, which resulted in a facility's implementation of corrective action(s) which included a material financial obligation, as determined by the Company's Board of Directors in their sole discretion, to the Company .

Permit and License Violations	Performance Target Achieved
3	75%-89%
2	90%-110%
1	111%-129%
1	130%-150%
1	>150%

(5) CPI incentive was earned/determined by maintaining project performance metrics for all Firm Fixed Price task orders and projects to include monitoring CPI based on recognized earned value calculations. As defined through monthly project reviews, all CPI metrics should exceed 1.0 for Nuclear Services Projects. A cumulative CPI (CCPI) was calculated from all fixed cost contracts. The following CCPI and corresponding performance target thresholds were established for annual incentive compensation plan calculation for 2023.

CPI (if CCPI is)	Performance Target Achieved
0.75-0.89	75%-89%
0.90-1.10	90%-110%
1.11-1.29	111%-129%
1.30-1.50	130%-150%
>1.50	>150%

(6) No performance incentive compensation was payable for the target objective unless a minimum of 75% of the EBITDA target objective was achieved.

Compensation Earned Under 2023 MIPs

The following tables set forth the MIP compensation earned by the CEO, CFO, EVP of Strategic Initiatives, EVP of Nuclear and Technical Services and the EVP of Waste Treatment Operations for fiscal year 2023:

CEO

Target Objectives:	Performance Target Threshold Achieved	MIP Compensation Earned
Revenue	90%-110%	$ 18,744
EBITDA	90%-110%	112,461
Health & Safety	90%-110%	28,115
Permit & License Violations	>150%	28,115
Total Performance Compensation		$ 187,435

CFO

Target Objectives:	Performance Target Threshold Achieved	MIP Compensation Earned
Revenue	90%-110%	$ 15,239
EBITDA	90%-110%	114,289
Health & Safety	90%-110%	11,429
Permit & License Violations	>150%	11,429
Total Performance Compensation		$ 152,386

EVP of Strategic Initiatives

Target Objectives:	Performance Target Threshold Achieved	MIP Compensation Earned
Revenue	90%-110%	$ 12,699
EBITDA	90%-110%	95,243
Health & Safety	90%-110%	9,524
Permit & License Violations	>150%	9,524
Total Performance Compensation		$ 126,990

EVP of Nuclear and Technical Services

Target Objectives:	Performance Target Threshold Achieved	MIP Compensation Earned
Revenue	90%-110%	$ 15,239
EBITDA	90%-110%	91,431
Health & Safety	>150%	22,858
CPI	>150%	22,858
Total Performance Compensation		$ 152,386

EVP of Waste Treatment Operations

Target Objectives:	Performance Target Threshold Achieved	MIP Compensation Earned
Revenue	90%-110%	$ 13,062
EBITDA	90%-110%	78,371
Health & Safety	90%-110%	19,592
Permit & License Violations	>150%	19,592
Total Performance Compensation		$ 130,617

2024 MIPs

On January 18, 2024, the Compensation Committee and the Board (with Mr. Mark Duff and Dr. Louis Centofanti abstaining) approved individual MIPs for the calendar year 2024 for each of the NEOs. Each of the MIPs is effective January 1, 2024.

The performance compensation payable under each MIP is based upon meeting certain of the Company's separate target objectives during 2024 as described in each of the MIPs below, provided, however, no performance compensation will be paid for attaining any of the Company's separate target objectives unless a minimum of 75% of the EBITDA target objective is achieved. In formulating such targets, the Compensation Committee and the Board considered 2023 results, the Board-approved budget for 2024, economic conditions, forecasts for 2024 government spending, as well as the Compensation Committee's expectation for performance that in its estimation would warrant payment of incentive cash compensation

Performance compensation amounts under the 2024 MIPs are to be paid on or about 90 days after year-end, or sooner, based on finalization of our audited financial statements for 2024.

The Compensation Committee retains the right to modify, change or terminate each MIP and may adjust the various target amounts described below, at any time and for any reason.

The total to be paid to the NEOs under the MIPs shall not exceed 50% of the Company's pre-tax net income prior to the calculation of performance compensation.

The following schedules reflect performance compensation payable under each of the MIPs, along with a description of the target objectives.

CEO MIP:

Annualized Base Pay:	$	417,155
Performance Incentive Compensation Target (at 100% of Plan):	$	208,578
Total Annual Target Compensation (at 100% of Plan):	$	625,733

Perma-Fix Environmental Services, Inc.
2024 Management Incentive Plan
CEO MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 10,429	$ 20,858	$ 35,756	$ 50,655	$ 80,451
EBITDA (2)	62,572	125,146	214,537	303,927	482,708
Health & Safety (4) (6)	15,643	31,287	31,287	31,287	31,287
Permit & License Violations (5) (6)	15,643	31,287	31,287	31,287	31,287
	$ 104,287	$ 208,578	$ 312,867	$ 417,156	$ 625,733

CFO MIP:

Annualized Base Pay:	$	332,811
Performance Incentive Compensation Target (at 100% of Plan):	$	166,406
Total Annual Target Compensation (at 100% of Plan):	$	499,217

Perma-Fix Environmental Services, Inc.
2024 Management Incentive Plan
CFO MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 8,320	$ 16,641	$ 27,338	$ 36,847	$ 43,979
EBITDA (2)	62,401	124,805	164,029	221,082	263,872
	70,721	141,446	191,367	257,929	307,851
	Performance Target Achieved				
	100%	100%	100%	100%	100%
Regulatory Filing (3) (6)	24,960	24,960	24,960	24,960	24,960
	$ 95,681	$ 166,406	$ 216,327	$ 282,889	$ 332,811

EVP of Strategic Initiatives MIP:

Annualized Base Pay:	$	277,346
Performance Incentive Compensation Target (at 100% of Plan):	$	138,673
Total Annual Target Compensation (at 100% of Plan):	$	416,019

Perma-Fix Environmental Services, Inc.
2024 Management Incentive Plan
EVP OF STRATEGIC INITIATIVES MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 6,935	$ 13,867	$ 22,782	$ 30,706	$ 36,649
EBITDA (2)	52,002	104,006	136,692	184,237	219,897
Health & Safety (4) (6)	5,200	10,400	10,400	10,400	10,400
Permit & License Violations (5) (6)	5,200	10,400	10,400	10,400	10,400
	$ 69,337	$ 138,673	$ 180,274	$ 235,743	$ 277,346

EVP of Waste Treatment Operations MIP:

Annualized Base Pay:	$ 285,267
Performance Incentive Compensation Target (at 100% of Plan):	$ 142,634
Total Annual Target Compensation (at 100% of Plan):	$ 427,901

Perma-Fix Environmental Services, Inc.
2024 Management Incentive Plan
EVP OF WASTE TREATMENT OPERATIONS MIP MATRIX

Target Objectives	Performance Target Achieved				
	75%-89%	90%-110%	111%-129%	130%-150%	>150%
Revenue (1) (6)	$ 7,132	$ 14,263	$ 20,376	$ 28,527	$ 34,640
EBITDA (2)	42,789	85,581	122,257	171,160	207,837
Health & Safety (4) (6)	10,698	21,395	21,395	21,395	21,395
Permit & License Violations (5) (6)	10,698	21,395	21,395	21,395	21,395
	$ 71,317	$ 142,634	$ 185,423	$ 242,477	$ 285,267

(1) Revenue is defined as the total consolidated third-party top line revenue as publicly reported in the Company's 2024 financial statements. The percentage achieved is determined by comparing the actual consolidated revenue for 2024 to the Board-approved revenue target for 2024.

(2) EBITDA is defined as earnings before interest, taxes, depreciation, and amortization from continuing and discontinued operations. The percentage achieved is determined by comparing the actual EBITDA to the Board-approved EBITDA target for 2024.

(3) Regulatory Filing Incentive Target is based on meeting all deadlines (including allowable extension granted by the SEC) for the Form 10-K, Form 10-Q and 8-Ks required by SEC (Securities and Exchange Commission).

(4) The Health and Safety Incentive target was based upon the actual number of Worker's Compensation Lost Time Accidents ("WCLTA"), as provided by the Company's Worker's Compensation carrier. For the EVP of Waste Treatment Operations, the incentive target is based on actual number of WCLTA in the Treatment Segments only. The Corporate Controller will submit a report on a quarterly basis documenting and confirming the number of Worker's Compensation Lost Time Accidents, supported by the Worker's Compensation Loss Report provided by the company's carrier or broker. Such claims will be identified on the loss report as "indemnity claims." The following number of Worker's Compensation Lost Time Accidents and corresponding performance target thresholds has been established for the annual Incentive Compensation Plan calculation for 2024.

Work Comp. Claim Number	Performance Target Achieved
3	75%-89%
2	90%-110%
1	111%-129%
1	130%-150%
1	>150%

(5) Permits or License Violations incentive is earned/determined according to the scale set forth below: An "official notice of non-compliance" is defined as an official communication during 2024 from a local, state, or federal regulatory authority alleging one or more violations of an otherwise applicable Environmental, Health or Safety requirement or permit provision, which results in a facility's implementation of corrective action(s) which includes a material financial obligation, as determined by the Company's Board of Directors in their sole discretion, to the Company .

Permit and License Violations	Performance Target Achieved
3	75%-89%
2	90%-110%
1	111%-129%
1	130%-150%
1	>150%

(6) No performance incentive compensation will be payable for the target objective unless a minimum of 75% of the EBITDA target objective is achieved.

Long-Term Incentive Compensation

Employee Stock Option Plans
The 2017 Stock Option Plan ("2017 Plan") encourages participants to focus on long-term performance and provides an opportunity for executive officers and certain designated key employees to increase their stake in the Company. Stock options succeed by delivering value to executives only when the value of our stock increases. The 2017 Plan authorizes the grant of Non-Qualified Stock Options ("NQSOs") and Incentive Stock Options ("ISOs") for the purchase of our Common Stock.

The 2017 Plan was adopted to:

- enhance the link between the creation of stockholder value and long-term executive incentive compensation;
- provide an opportunity for increased equity ownership by executives; and
- maintain competitive levels of total compensation;

Stock option award levels are determined based on market data, vary among participants based on their positions with the Company and are granted generally at the Compensation Committee's regularly scheduled July or August meeting. Newly hired or promoted executive officers who are eligible to receive options are generally awarded such options at the next regularly scheduled Compensation Committee meeting following their hire or promotion date.

Options are awarded with an exercise price equal to or not less than the closing price of the Company's Common Stock on the date of the grant as reported on the Nasdaq. In certain limited circumstances, the Compensation Committee may grant options to an executive at an exercise price in excess of the closing price of the Company's Common Stock on the grant date.

The Company's NEOs have outstanding options from the Company's 2017 Plan (See "Item 11 – Executive Compensation – Outstanding Equity Awards at Fiscal Year-End - Outstanding Equity Awards at December 31, 2023," for outstanding options under the 2017 Plan for each of our NEOs).

In cases of termination of an executive officer's employment due to death, by the executive for "good reason," by the Company without cause, and due to a "change of control," all outstanding stock options to purchase common stock held by the executive officer will immediately become exercisable in full (see further discussion of the exercisability term of these options in each of these circumstances in "EXECUTIVE COMPENSATION – Employment Agreements"). Otherwise, vesting of option awards ceases upon termination of employment and exercise right of the vested option amount ceases upon three months from termination of employment except in the case of retirement (subject to a six-month limitation) and disability (subject to a one-year limitation).

Accounting for Stock-Based Compensation

We account for stock-based compensation in accordance with ASC 718, "Compensation – Stock Compensation." ASC 718 establishes accounting standards for entity exchanges of equity instruments for goods or services. It also addresses transactions in which an entity incurs liabilities in exchange for goods or services that are based on the fair value of the entity's equity instruments or that may be settled by the issuance of those equity instruments. ASC 718 requires all stock-based payments to employees, including grants of employee stock options, to be recognized in the income statement based on their fair values. The Company uses 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 options granted include the exercise price of the award, the expected term, the expected volatility of the Company's stock over the option's expected term, the risk-free interest rate over the option's expected term, and the expected annual dividend yield. We recognize stock-based compensation expense using a straight-line amortization method over the requisite period, which is the vesting period of the stock option grant.

Retirement and Other Benefits

401(k) Plan

The Company adopted the Perma-Fix Environmental Services, Inc. 401(k) Plan (the "401(k) Plan") in 1992, which is intended to comply with Section 401 of the Internal Revenue Code and the provisions of the Employee Retirement Income Security Act of 1974. All full-time employees who have attained the age of 18 are eligible to participate in the 401(k) Plan. Eligibility is immediate upon employment but enrollment is only allowed during four quarterly open periods of January 1, Apri1 1, July 1, and October 1. Participating employees may make annual pretax contributions to their accounts up to 100% of their compensation, up to a maximum amount as limited by law. At our discretion, we may make matching contributions based on the employee's elective contributions. Company contributions vest over a period of five years. In 2023, the Company contributed approximately $576,000 in 401(k) matching funds, of which approximately $34,000 was for our NEOs (see the "Summary Compensation" table in this section for 401(k) matching fund contributions made for the NEOs for 2023).

Perquisites and Other Personal Benefits

The Company provides executive officers with limited perquisites and other personal benefits (health/disability/life insurance) that the Company and the Compensation Committee believe are reasonable and consistent with its overall compensation program to better enable the Company to attract and retain superior employees for key positions. The Compensation Committee periodically reviews the levels of perquisites and other personal benefits provided to executive officers. The executive officers are provided an auto allowance.

Compensation of Directors

Directors who are employees receive no additional compensation for serving on the Board or its committee(s). In 2023, the Company provided the following annual compensation to each non-employee director for service on the Board and the committee(s) for which he/she serves:

- a quarterly fee of $11,500;
- an additional quarterly fee of $8,750 to the Chairman of the Board;
- an additional quarterly fee of $6,250 to the Chairman of the Audit Committee;
- an additional quarterly fee of $3,125 to the Chairman of each of the Compensation Committee, the Governance and Nominating Committee, and the Strategic Committee. The Chairman of the Board was not eligible to receive a quarterly fee for serving as the Chairman of any the aforementioned committees;
- an additional $1,250 to each Audit Committee member (excluding the Chairman of the Audit Committee);
- an additional quarterly fee of $500 to each member of the Compensation Committee, the Governance and Nominating Committee, and the Strategic Committee. Such fee was payable only if the member did not also serve as the Chairman of any other standing committees or as the Chairman of the Board; and
- a fee of $1,000 for each in-person board meeting attended and a $500 fee for meeting attendance via conference call;

Under the 2003 Outside Directors Stock Plan ("2003 Outside Directors Plan"), each director may elect to have either 65% or 100% of such fees payable in Common Stock, with the balance, if any, payable in cash. Each non-employee director was also granted a NQSO to purchase up to 10,000 shares of Common Stock upon reelection at the 2023 Annual Meeting of Stockholders, with vesting at 25% per year, beginning on the first anniversary date of the grant, with each option having a 10-year term.

Dr. Louis Centofanti, a current member of the Board, is not eligible to receive compensation for his service as a director of the Company as he is an employee of the Company. As the Company's President and CEO, Mr. Duff, who was elected by the Company's Board as a Board member effective April 20, 2023, also is not eligible to receive compensation for his service as a director of the Company (see "Summary Compensation" table in this section for each of Dr. Centofanti's and Mark Duff's annual salary and other compensation as an employee of the Company).

The table below summarizes the director compensation expenses recognized by the Company for director options and stock awards (resulting from fees earned) for the year ended December 31, 2023. The terms of the 2003 Outside Directors Plan are further described below under "2003 Outside Directors Plan."

Director Compensation

Name	Fees Earned or Paid In Cash	Stock Awards	Option Awards	Non-Equity Incentive Plan Compensation	Nonqualified Deferred Compensation Earnings	All Other Compensation	Total
	($) (1)	($) (2)	($) (4)	($)	($)	($)	($)
Thomas P. Bostick	—	67,994	64,600(3)	—	—	—	132,594
Kerry C. Duggan	18,550	45,930	64,600(3)	—	—	—	129,080
Joseph T. Grumski	—	90,003	64,600(3)	—	—	—	154,603
Joe R. Reeder	—	82,673	64,600(3)	—	—	—	147,273
Larry M. Shelton	31,850	78,861	64,600(3)	—	—	—	175,311
Zach P. Wamp	18,550	45,923	64,600(3)	—	—	—	129,073
Mark A. Zwecker	26,425	65,420	64,600(3)	—	—	—	156,445

(1) Under the 2003 Outside Directors Plan, each director elects to receive 65% or 100% of the director's fees in shares of our Common Stock. The amounts set forth above represent the portion of the director's fees paid in cash and exclude the value of the director's fee elected to be paid in Common Stock under the 2003 Outside Directors Plan, which values are included under "Stock Awards."

(2) The number of shares of Common Stock comprising stock awards granted under the 2003 Outside Directors Plan is calculated based on 75% of the closing market value of the Common Stock as reported on the Nasdaq on the business day immediately preceding the date that the quarterly fee is due. Such shares are fully vested on the date of grant. The value of the stock award is based on the market value of our Common Stock at each quarter end times the number of shares issuable under the award. The amount shown is the fair value of the Common Stock on the date of the award.

(3) Reflects options granted under the Company's 2003 Outside Directors Plan resulting from re-election to the Board on July 20, 2023. Options are for a 10-year period with an exercise price of $9.81 per share and vest 25% per year, beginning on the first anniversary date of the grant. The value of the option award for each outside director is calculated based on the fair value of the option per share (approximately $6.46) on grant date times the number of options granted, which was 10,000 for each director, pursuant to ASC 718, "Compensation – Stock Compensation.".

(4) The following table reflects the aggregate number of outstanding NQSOs held by the Company's directors at December 31, 2023. As an employee of the Company or its subsidiaries, neither Dr. Centofanti nor Mark Duff is eligible to participate in the 2003 Outside Directors Plan. Options reflected below for each of Dr. Centofanti and Mark Duff were granted from the 2017 Plan as discussed previously:

Name	Options Outstanding at December 31, 2023
Dr. Louis Centofanti	65,000
Thomas P. Bostick	36,000
Mark J. Duff	145,000
Kerry C. Duggan	36,000
Joseph T. Grumski	38,400
Joe R. Reeder	30,000
Larry M. Shelton	46,800
Zach P. Wamp	43,200
Mark A. Zwecker	46,800
Total	487,200

2003 Outside Directors Plan

We believe that it is important for our directors to have a personal interest in our success and growth and for their interests to be aligned with those of our stockholders; therefore, under our 2003 Outside Directors Plan, each outside director is granted a 10-year NQSO to purchase up to 20,000 shares of Common Stock on the date such director is initially elected to the Board, and receives on each re-election date a NQSO to purchase up to another 10,000 shares of our Common Stock, with the exercise price being the fair market value of the Common Stock preceding the option grant date. Common Stock shares subject to option granted vest at 25% per year, beginning on the first anniversary date of the grant and no option shall be exercisable after the expiration of ten years from the date the option is granted. As of December 31, 2023, options to purchase 300,000 shares of Common Stock were outstanding under the 2003 Outside Directors Plan, of which 142,500 were vested.

As a member of the Board, each director may elect to receive either 65% or 100% of his or her director's fee in shares of our Common Stock. The number of shares received by each director is calculated based on 75% of the fair market value of the Common Stock determined on the business day immediately preceding the date that the quarterly fee is due. The balance of each director's fee, if any, is payable in cash. In 2023, fees earned by our outside directors totaled approximately $572,000.

In the event of a "change of control" (as defined in the 2003 Outside Directors Plan) or by reason of the director's death or Disability (as defined), each outstanding stock option and stock award shall immediately become exercisable in full notwithstanding the vesting or exercise provisions contained in the stock option agreement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Security Ownership of Certain Beneficial Owners

Schelhammer Capital Bank AG, a banking institution regulated by the banking regulations of Austria, has represented to the Company that as of February 1, 2024, it holds of record as a nominee for, and as an agent of, certain accredited investors, 1,837,572 shares of our Common Stock. None of the Common Stock held by Schelhammer Capital Bank AG for the account of any single investor represents more than 4.9% of our Common Stock and, to the best knowledge of Schelhammer Capital Bank AG, as far as stocks held by such investors in accounts with Schelhammer Capital Bank AG, none of such investors act together as a group or otherwise act in concert for the purpose of voting on matters subject to the vote of our stockholders or for purpose of disposition or investment of such stock. Additionally, the investors for whom Schelhammer Capital Bank AG acts as nominee with respect to such shares maintain full voting and dispositive power over the Common Stock beneficially owned by such investors, and Schelhammer Capital Bank AG has neither voting nor investment power over such shares. Accordingly, Schelhammer Capital Bank AG believes that (i) it is not the beneficial owner, as such term is defined in Rule 13d-3 of the Exchange Act, of the shares of Common Stock registered in Schelhammer Capital Bank AG's name because (a) Schelhammer Capital Bank AG holds the Common Stock as a nominee only, (b) Schelhammer Capital Bank AG has neither voting nor investment power over such shares, and (c) Schelhammer Capital Bank AG has not nominated or sought to nominate, and does not intend to nominate in the future, any person to serve as a member of our Board; and (ii) it is not required to file reports under Section 16(a) of the Exchange Act or to file either Schedule 13D or Schedule 13G in connection with the shares of our Common Stock registered in the name of Schelhammer Capital Bank AG.

Notwithstanding the previous paragraph, if Schelhammer Capital Bank AG's representations to us described above are incorrect or if the investors for whom Schelhammer Capital Bank AG acts as nominee are acting as a group, then Schelhammer Capital Bank AG or a group of such investors could be a beneficial owner of more than 5% of our voting securities. If Schelhammer Capital Bank AG was deemed the beneficial owner of such shares, the following table sets forth information as to the shares of voting securities that Schelhammer Capital Bank AG may be considered to beneficially own on February 1, 2024:

Name of Record Owner	Title Of Class	Amount and Nature of Ownership	Percent Of Class (*)
Schelhammer Capital Bank AG	Common	1,837,572(+)	13.44%

(*) This calculation is based upon 13,671,022 shares of Common Stock outstanding on February 12, 2024, plus the number of shares of Common Stock which Schelhammer Capital Bank AG, as agent for certain accredited investors, has the right to acquire within 60 days, which is none.

(+) This amount is the number of shares that Schelhammer Capital Bank AG has represented to us that it holds of record as nominee for, and as an agent of, certain accredited investors. As of February 1, 2024, the date of Schelhammer Capital Bank AG's representations to us, Schelhammer Capital Bank AG has no warrants or options to acquire, as agent for certain investors, additional shares of our Common Stock. Although Schelhammer Capital Bank AG is the record holder of the shares of Common Stock described in this note, Schelhammer Capital Bank AG has advised us that it does not believe it is a beneficial owner of the Common Stock or that it is required to file reports under Section 16(a) or Section 13(d) of the Exchange Act. Schelhammer Capital Bank AG has advised us that it (a) holds the Common Stock as a nominee only and that it does not exercise voting or investment power over the Common Stock held in its name and that no one investor for which it holds our Common Stock holds more than 4.9% of our issued and outstanding Common Stock and (b) has not nominated, and has not sought to nominate, and does not intend to nominate in the future, any person to serve as a member of our Board. Accordingly, we do not believe that Schelhammer Capital Bank AG is our affiliate. Schelhammer Capital Bank AG's address is Goldschmiedgasse 3, A-1010 Wien, Austria.

Security Ownership of Management

The following table sets forth information as to the shares of voting securities beneficially owned as of February 12, 2024, by each of our directors and NEOs and by all of our directors and NEOs as a group. Beneficial ownership has been determined in accordance with the rules promulgated under Section 13(d) of the Exchange Act. A person is deemed to be a beneficial owner of any voting securities for which that person has the right to acquire beneficial ownership within 60 days.

Name of Beneficial Owner [2]	Amount and Nature of Beneficial Owner [1]	Percent of Class [1]
Thomas P. Bostick [3]	48,323(3)	*
Kerry C. Duggan [4]	32,687(4)	*
Dr. Louis F. Centofanti [5]	298,009(5)	2.18%
Joseph T. Grumski [6]	64,878(6)	*
Joe R. Reeder [7]	234,318(7)	1.71%
Larry M. Shelton [8]	193,943(8)	1.42%
Zack P. Wamp [9]	62,996(9)	*
Mark A. Zwecker [10]	249,415(10)	1.82%
Mark Duff [11]	169,952(11)	1.24%
Richard Grondin [12]	37,427(12)	*
Ben Naccarato [13]	70,877(13)	*
Directors and Executive Officers as a Group (11 persons)	1,462,825(14)	10.51%

*Indicates beneficial ownership of less than one percent (1%).

(1) See footnote (1) of the table under "Security Ownership of Certain Beneficial Owners."

(2) The business address of each person, for the purposes hereof, is c/o Perma-Fix Environmental Services, Inc., 8302 Dunwoody Place, Suite 250, Atlanta, Georgia 30350.

(3) LTG (ret.) Bostick has sole and voting and investment power over all shares shown, which include: (i) 34,823 shares of Common Stock held of record by LTG (ret.) Bostick, and (ii) options to purchase 13,500 shares which are immediately exercisable.

(4) Ms. Duggan has sole and voting and investment power over all shares shown, which include: (i) 19,187 shares of Common Stock held of record by Ms. Duggan, and (ii) options to purchase 13,500 shares which are immediately exercisable.

(5) These shares include (i) 206,209 shares held of record by Dr. Centofanti, (ii) immediately exercisable options to purchase 29,000 shares, and (iii) 62,800 shares held by Dr. Centofanti's wife. Dr. Centofanti has sole voting and investment power over all such shares, except for the shares held by Dr. Centofanti's wife, over which Dr. Centofanti shares voting and investment power.

(6) Mr. Grumski has sole and voting and investment power over all shares shown, which include: (i) 48,978 shares of Common Stock held of record by Mr. Grumski, and (ii) options to purchase 15,900 shares which are immediately exercisable.

(7) Mr. Reeder has sole voting and investment power over all shares shown, which include: (i) 234,318 shares of Common Stock held of record.

(8) Mr. Shelton has sole voting and investment power over all shares shown, which include: (i) 169,643 shares of Common Stock held of record by Mr. Shelton, and (ii) options to purchase 24,300 shares which are immediately exercisable.

[9] Mr. Wamp has sole voting and investment power over all shares shown, which include: (i) 42,296 shares of Common Stock held of record by Mr. Wamp, and (ii) options to purchase 20,700 shares which are immediately exercisable.

[10] Mr. Zwecker has sole voting and investment power over all shares shown, which include: (i) 225,115 shares of Common Stock held of record by Mr. Zwecker, and (ii) options to purchase 24,300 shares which are immediately exercisable.

[11] Mr. Duff has sole voting and investment power over all shares shown, which include: (i) 110,952 shares of Common Stock held of record by Mr. Duff, and (ii) immediately exercisable options to purchase 59,000 shares.

[12] Mr. Grondin has sole voting and investment power over all shares shown, which include: (i) 19,427 shares of Common Stock held of record by Mr. Grondin, and (ii) immediately exercisable options to purchase 18,000 shares.

[13] Mr. Naccarato has sole voting and investment power over all shares shown, which include: (i) 37,877 shares of Common Stock held of record by Mr. Naccarato, and (ii) immediately exercisable options to purchase 33,000 shares.

[14] Amount includes options to purchase 251,200 shares which are immediately exercisable.

Equity Compensation Plans

The following table sets forth information as of December 31, 2023, with respect to our equity compensation plans.

	Equity Compensation Plan		
Plan Category	Number of securities to be issued upon exercise of outstanding options warrants and rights	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)
	(a)	(b)	(c)
Equity compensation plans approved by stockholders	994,500	$ 5.57	1,039,180
Equity compensation plans not approved by stockholders	—	—	—
Total	994,500	$ 5.57	1,039,180

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

We describe below transactions to which we were a party during our last two fiscal years or to which we currently propose to be a party in the future, and in which:

- the amounts involved exceeded or will exceed the lesser of $120,000 or one percent of the average of our total assets at year-end for the last two completed fiscal years; and
- any of our directors, executive officers or beneficial owners of more than 5% of any class of our voting securities, or any member of the immediate family of the foregoing persons, had or will have a direct or indirect material interest.

Audit Committee Review

Our Audit Committee Charter provides for the review by the Audit Committee of any related party transactions, other than transactions involving an employment relationship with the Company, which are reviewed by the Compensation Committee. Although we do not have written policies for the review of related party transactions, the Audit Committee reviews transactions between the Company and its directors, executive officers, holders of more than 5% of any class of the Company's voting securities, and their respective immediate family members. In reviewing a proposed transaction, the Audit Committee takes into account, among other factors it deems appropriate:

(1) the extent of the related person's interest in the transaction;
(2) whether the transaction is on terms generally available to an unaffiliated third-party under the same or similar circumstances;
(3) the cost and benefit to the Company;
(4) the impact or potential impact on a director's independence in the event the related party is a director, an immediate family member of a director or an entity in which a director is a partner, stockholder or executive officer;
(5) the availability of other sources for comparable products or services;
(6) the terms of the transaction; and
(7) the risks to the Company.

In addition, as applicable, the Audit Committee considers Section 144 of the Delaware General Corporation Law ("DGCL") and the Company's Code of Ethics.

The provisions of Section 144 of the DGCL apply to transactions between the Company and any of its officers or directors, or any organization in which any such individual has a financial interest or serves as a director or officer (individually, a "Section 144 Related Party," and, collectively, "Section 144 Related Parties"). Section 144 provides that a transaction between a corporation and any Section 144 Related Party will not be void or voidable solely because such transaction involves the corporation and the Section 144 Related Party, or solely because the Section 144 Related Party is present at or participates or votes in the meeting of the board or committee which authorizes the transaction, if the transaction (a) is approved in good faith after full disclosure of the material facts of the transaction by a majority vote of (i) the disinterested directors, or (ii) the stockholders, and (b) is fair as to the corporation as of the time it is authorized, approved, or ratified by the board, a committee or the stockholders.

Our Code of Ethics, which applies to our Board and all our employees, including the executive officers identified under the heading "Named Executive Officers" and our senior financial officers, provides that such individuals must exhibit and promote honest and ethical conduct in connection with the performance of his or her duties for and on behalf of the Company, including the ethical handling of actual or apparent conflicts of interest involving such individual and the Company, by, among other considerations:

- not entering into a transaction that would result in a conflict of interest with what is in the best interest of the Company and that is reasonably likely to result in material personal gain to any such individuals or their affiliates;
- not having a personal financial interest in any of the Company's suppliers, customers or competitors that could cause divided loyalty as a result of having the ability to influence the Company's decisions with that particular supplier or customer or actions to be taken by the Company that could materially benefit a competitor.

Related party transactions are reviewed by the Audit Committee prior to the consummation of the transaction. With respect to a related party transaction arising between Audit Committee meetings, the CFO may present it to the Audit Committee Chairperson, who will review and may approve the related party transaction subject to ratification by the Audit Committee at the next scheduled meeting. Our Audit Committee shall approve only those transactions that, in light of known circumstances, are not inconsistent with the Company's best interests.

Related Party Transactions

David Centofanti

David Centofanti serves as our Vice President of Information Systems. For such position, he received annual compensation of $191,000 and $187,000 for 2023 and 2022, respectively. David Centofanti is the son of Dr. Louis F. Centofanti, our EVP of Strategic Initiatives and a Board member.

Board Independence

Our Common Stock is listed on the Nasdaq Capital Market. Rule 5605 of the Nasdaq Marketplace Rules requires a majority of a listed company's board of directors to be comprised of independent directors. In addition, the Nasdaq Marketplace Rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent under applicable provisions of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Audit committee members must also satisfy independence criteria set forth in Rule 10A-3 under the Exchange Act, and compensation committee members must also satisfy the independence criteria set forth in Rule 10C-1 under the Exchange Act. Under Nasdaq Rule 5605(a)(2), a director will only qualify as an "independent director" if, in the opinion of our Board, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3 under the Exchange Act, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee, accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or otherwise be an affiliated person of the listed company or any of its subsidiaries. In order to be considered independent for purposes of Rule 10C-1, the board must consider, for each member of a compensation committee of a listed company, all factors specifically relevant to determining whether a director has a relationship to such company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: the source of compensation of the director, including any consulting advisory or other compensatory fee paid by such company to the director; and whether the director is affiliated with the company or any of its subsidiaries or affiliates.

Our Board annually reviews the composition of our Board of Directors and its committees and the independence of each director. Based upon information requested from and provided by each director concerning his/her background, employment and affiliations, including family relationships, our Board of Directors has determined that Ms. Kerry C. Duggan and each of Messrs. Thomas P. Bostick, Joseph T. Grumski, Joe R. Reeder, Larry M. Shelton, Zach P. Wamp and Mark A. Zwecker is an "independent director" as defined under the Nasdaq Marketplace Rules. Our Board of Directors has also determined that each member of our Audit Committee, consisting of Mark A. Zwecker (Chairperson), Joseph T. Grumski, and Larry M. Shelton, and each member of our Compensation and Stock Option Committee, consisting of Joseph T. Grumski (Chairperson), Zach P. Wamp, and Mark A. Zwecker, satisfy the independence standards for such committees established by the Commission and the Nasdaq Marketplace Rules, as applicable. In making such determination, our Board of Directors considered the relationships that each such non-employee director has with our Company and all other facts and circumstances our Board of Directors deemed relevant in determining independence, including the beneficial ownership of our capital stock by each non-employee director.

Our Board of Directors has determined that neither Dr. Louis Centofanti nor Mark J. Duff is deemed to be an "independent director" because of their employment as a senior executive of the Company.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table reflects the aggregate fees for the audit and other services provided by Grant Thornton LLP, the Company's independent registered public accounting firm, for fiscal years 2023 and 2022:

Fee Type	2023	2022
Audit Fees (1)	$ 699,000	$ 743,000
Tax Fees (2)	100,000	113,000
Total	$ 799,000	$ 856,000

[1] Audit fees consist of audit work performed in connection with the annual financial statements, the reviews of unaudited quarterly financial statements, and work generally only the independent registered accounting firm can reasonably provide, such as consents and review of regulatory documents filed with the Securities and Exchange Commission

[2] Fees for income tax planning, filing, and consulting.

Engagement of the Independent Auditor
To ensure that our independent registered public accounting firm is engaged only to provide audit and non-audit services that are compatible with maintaining its independence, the Audit Committee has a policy that requires the Committee to review and approve in advance all services to be provided by the Company's independent accounting firm before the firm is engaged to provide those services. The Audit Committee considers non-audit services and fees when assessing auditor independence, and determined that tax return preparation and other tax compliance services is compatible with maintaining our accounting firm's independence. All services under the headings Audit Fees and Tax Fees were approved by the Audit Committee pursuant to paragraph (c)(7)(i)(C) of Rule 2-01 of Regulation S-X of the Exchange Act. The Audit Committee's pre-approval policy provides as follows:

- The Audit Committee will review and pre-approve on an annual basis all audits, audit-related, tax and other services, along with acceptable cost levels, to be performed by the independent accounting firm and any member of the independent accounting firm's alliance network of firms, and may revise the pre-approved services during the period based on later determinations. Pre-approved services typically include: audits, quarterly reviews, regulatory filing requirements, consultation on new accounting and disclosure standards, employee benefit plan audits, reviews and reporting on management's internal controls and specified tax matters.
- Any proposed service that is not pre-approved on the annual basis requires a specific pre-approval by the Audit Committee, including cost level approval.
- The Audit Committee may delegate pre-approval authority to one or more of the Audit Committee members. The delegated member must report to the Audit Committee, at the next Audit Committee meeting, any pre-approval decisions made.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

The following documents are filed as a part of this report:

(a)(1) Consolidated Financial Statements

See Item 8 for the Index to Consolidated Financial Statements.

(a)(2) Financial Statement Schedule

Schedules are not required, are not applicable or the information is set forth in the consolidated financial statements or notes thereto.

(a)(3) Exhibits

The Exhibits listed in the Exhibit Index are filed or incorporated by reference as a part of this report.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Perma-Fix Environmental Services, Inc.

By	*/s/ Mark Duff* Mark Duff Chief Executive Officer, President and Principal Executive Officer	Date	March 13, 2024
By	*/s/ Ben Naccarato* Ben Naccarato Chief Financial Officer and Principal Financial Officer	Date	March 13, 2024

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

By	*/s/ Thomas P. Bostick* Thomas P. Bostick, Director	Date	March 13, 2024
By	*/s/Dr. Louis F. Centofanti* Dr. Louis F. Centofanti, Director	Date	March 13, 2024
By	*/s/ Mark J. Duff* Mark J. Duff, Director	Date	March 13, 2024
By	*/s/ Kerry C. Duggan* Kerry C. Duggan, Director	Date	March 13, 2024
By	*/s/Joseph T. Grumski* Joseph T. Grumski, Director	Date	March 13, 2024
By	*/s/ Joe R. Reeder* Joe R. Reeder, Director	Date	March 13, 2024
By	*/s/ Larry M. Shelton* Larry M. Shelton, Chairman of the Board	Date	March 13, 2024
By	*/s/ Zach P. Wamp* Zach P. Wamp, Director	Date	March 13, 2024
By	*/s/ Mark A. Zwecker* Mark A. Zwecker, Director	Date	March 13, 2024

EXHIBIT INDEX

Exhibit No.	Description
3(i)	Restated Certificate of Incorporation, as amended, of Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 3(i) to the Company's Form 10-Q for Quarter ended March 31, 2021 filed on May 6, 2021.
3(ii)	Second Amended and Restated Bylaws, as amended effective April 20, 2023, of Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 3(ii) to the Company's 8-K filed on April 26, 2023.
4.1	Fifth Amendment to Second Amended and Restated Revolving Credit, Term Loan and Security Agreement dated August 29, 2022, as incorporated by reference from Exhibit 4.1 to the Company's Form 8-K filed on August 29, 2022.
4.2	Revised Second Amended and Restated Revolving Credit, Term Loan and Security Agreement referenced as Annex A in the Fifth Amendment, as incorporated by reference from Exhibit 4.2 to the Company's Form 8-K filed on August 29, 2022.
4.3	Sixth Amendment to Second Amended and Restated Revolving Credit, Term Loan and Security Agreement dated March 21, 2023, between Perma-Fix Environmental Services, Inc. and PNC Bank, National Association, as incorporated by reference from Exhibit 4.3 to the Company's 2022 Form 10-K filed on March 23, 2023.
4.4	Seventh Amendment to Second Amended and Restated Revolving Credit, Term Loan and Security Agreement dated July 31, 2023, between Perma-Fix Environmental Services, Inc. and PNC Bank, National Association, as incorporated by reference from Exhibit 4.1 to the Company's Form 10-Q for the Quarter ended June 30, 2023 filed on August 3, 2023.
	Term Note dated July 31, 2023, between Perma-Fix between Perma-Fix Environmental Services, Inc. and PNC Bank, National Association, as incorporated by reference from Exhibit 4.2 to the Company's Form 10-Q for the Quarter ended June 30, 2023 filed on August 3, 2023.
10.1	2003 Outside Directors' Stock Plan of the Company, as incorporated by reference from Exhibit 10.1 to the Company's 2019 Form 10-K filed on March 20, 2020.
10.2	First Amendment to 2003 Outside Directors Stock Plan, as incorporated by reference from Exhibit 10.2 to the Company's 2019 Form 10-K filed on March 20, 2020.
10.3	Second Amendment to 2003 Outside Directors Stock Plan.
10.4	Third Amendment to 2003 Outside Directors Stock Plan.
10.5	Fourth Amendment to 2003 Outside Directors Stock Plan.
10.6	Fifth Amendment to 2003 Outside Directors Stock Plan, as incorporated by reference from Exhibit A to the Company's Proxy Statement for its 2021 Annual Meeting of Stockholders filed on June 10, 2021.
10.7	2017 Stock Option Plan,
10.8	First Amendment to 2017 Stock Option Plan, as incorporated by reference from Appendix "A" to the Company's Proxy Statement for its 2020 Annual Meeting of Stockholders filed on June 12, 2020.
10.9	Second Amendment to 2017 Stock Option Plan, as incorporated by reference from Appendix "A" to the Company's Proxy Statement for it 2023 Annual Meeting of Stock holders filed on June 8, 2023.
10.10	Employment Agreement dated April 20, 2023, between Mark Duff, Chief Executive Officer, and Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 99.1 to the Company's Form 8-K filed on April 26, 2023.
10.11	Employment Agreement dated April 20, 2023, between Ben Naccarato, Chief Financial Officer, and Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 99.2 to the Company's Form 8-K filed on April 26, 2023.
10.12	Employment Agreement dated April 20, 2023, between Dr. Louis Centofanti, EVP of Strategic Initiatives, and Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 99.3 to the Company's Form 8-K filed on April 26, 2023.

10.13	Employment Agreement dated April 20, 2023, between Andy Lombardo, EVP of Nuclear and Technical Services, Inc. and Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 99.4 to the Company's Form 8-K filed on April 26, 2023.
10.14	Employment Agreement dated April 20, 2023, between Richard Grondin, EVP of Waste Treatment Operations and Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 99.5 to the Company's Form 8-K filed on April 26, 2023.
10.15	2024 Incentive Compensation Plan for Chief Executive Officer, effective January 1, 2024, as incorporated by reference from Exhibit 99.1 to the Company's Form 8-K filed on January 23, 2024. CERTAIN INFORMATION WITHIN THIS EXHIBIT HAS BEEN EXCLUDED BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.
10.16	2024 Incentive Compensation Plan for Chief Financial Officer, effective January 1, 2024, as incorporated by reference from Exhibit 99.2 to the Company's Form 8-K filed on January 23, 2024. CERTAIN INFORMATION WITHIN THIS EXHIBIT HAS BEEN EXCLUDED BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.
10.17	2024 Incentive Compensation Plan for EVP of Strategic Initiatives, effective January 1, 2024, as incorporated by reference from Exhibit 99.3 to the Company's Form 8-K filed on January 23, 2024. CERTAIN INFORMATION WITHIN THIS EXHIBIT HAS BEEN EXCLUDED BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.
10.18	2024 Incentive Compensation Plan for EVP of Waste Treatment Operations, effective January 1, 2024, as incorporated by reference from Exhibit 99.4 to the Company's Form 8-K filed on January 23, 2024. CERTAIN INFORMATION WITHIN THIS EXHIBIT HAS BEEN EXCLUDED BECAUSE IT IS NOT MATERIAL AND WOULD LLIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.
10.19	Incentive Stock Option Agreement dated January 17, 2019 between Perma-Fix Environmental Services, Inc., and Chief Executive Officer, as incorporated by reference from Exhibit 99.4 to the Company's Form 8-K filed on January 23, 2019.
10.20	Incentive Stock Option Agreement dated January 17, 2019 between Perma-Fix Environmental Services, Inc., and Chief Financial Officer, as incorporated by reference from Exhibit 99.5 to the Company's Form 8-K filed on January 23, 2019.
10.21	Incentive Stock Option Agreement dated January 17, 2019 between Perma-Fix Environmental Services, Inc., and EVP of Strategic Initiatives, as incorporated by reference from Exhibit 99.6 to the Company's Form 8-K filed on January 23, 2019.
10.22	Incentive Stock Option Agreement dated January 17, 2019 between Perma-Fix Environmental Services, Inc., and Richard Grondin, as incorporated by reference from Exhibit 99.12 to the Company's Form 8-K filed July 27, 2020.
10.23	Solicitation, Offer and Award dated September 17, 2021 issued to Perma-Fix Environmental Services, Inc. by Norfolk Naval Shipyard, as incorporated by reference from Exhibit 10.1 to the Company Form 10- for the Quarter Ended September 30, 2021 filed on November 12, 2021.
10.24	Joint Venture Term Sheet between Springfields Fuels Limited, an affiliate of Westinghouse, and the Company, as incorporated by reference from Exhibit 10.42 to the Company's 2021 Form 10-K filed on April 6, 2022. CERTAIN INFORMATION WITHIN THIS EXHIBIT HAS BEEN EXCLUDED BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.
10.25	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and Chief Executive Officer, dated October 14, 2021, as incorporated by reference from Exhibit 99.1 to the Company's Form 8-K/A filed on October 20, 2021.
10.26	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and Chief Financial Officer, dated October 14, 2021, as incorporated by reference from Exhibit 99.2 to the Company's Form 8-K/A filed on October 20, 2021.

10.27	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and EVP of Strategic Initiatives, dated October 14, 2021, as incorporated by reference from Exhibit 99.3 to the Company's Form 8-K/A filed on October 20, 2021.
10.28	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and EVP of Waste Treatment Operations, dated October 14, 2021, as incorporated by reference from Exhibit 99.4 to the Company's Form 8-K/A filed on October 20, 2021.
10.29	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and EVP of Nuclear and Technical Services, dated October 14, 2021, as incorporated by reference from Exhibit 99.5 to the Company's Form 8-K/A filed on October 20, 2021.
10.30	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and Chief Executive Officer, dated January 19, 2023, as incorporated by reference from Exhibit 99.6 to the Company's Form 8-K filed on January 23, 2023.
10.31	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and Chief Financial Officer, dated January 19, 2023, as incorporated by reference from Exhibit 99.7 to the Company's Form 8-K filed on January 23, 2023.
10.32	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and EVP of Strategic Initiatives, dated January 19, 2023, as incorporated by reference from Exhibit 99.8 to the Company's Form 8-K filed on January 23, 2023.
10.33	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and EVP of Nuclear and Technical Services, dated January 19, 2023, as incorporated by reference from Exhibit 99.9 to the Company's Form 8-K filed on January 23, 2023.
10.34	Incentive Stock Option Agreement between Perma-Fix Environmental Services, Inc. and EVP of Waste Treatment Operations, dated January 19, 2023, as incorporated by reference from Exhibit 99.10 to the Company's Form 8-K filed on January 23, 2023.
10.35	Mixed Direct & Framework Contract for Services (Number -945711-IPR-2023), issued by European Commission to Perma-Fix Environmental Services, Inc. and Campoverde Srl, dated December 18, 2023. CERTAIN INFORMATION WITHIN THIS EXHIBIT HAS BEEN EXCLUDED BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED.
21.1	List of Subsidiaries
23.1	Consent of Grant Thornton, LLP
31.1	Certification by Mark Duff, Chief Executive Officer and Principal Executive Officer of the Company pursuant to Rule 13a-14(a) and 15d-14(a).
31.2	Certification by Ben Naccarato, Chief Financial Officer and Principal Financial Officer of the Company pursuant to Rule 13a-14(a) and 15d-14(a).
32.1	Certification by Mark Duff, Chief Executive Officer and Principal Executive Officer of the Company furnished pursuant to 18 U.S.C. Section 1350.
32.2	Certification by Ben Naccarato, Chief Financial Officer and Principal Financial Officer of the Company furnished pursuant to 18 U.S.C. Section 1350.
97	Perma-Fix Clawback Policy
101.INS	Inline XBRL Instance Document*
101.SCH	Inline XBRL Taxonomy Extension Schema Document*
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document*
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document*
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document*
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document*

*Pursuant to Rule 406T of Regulation S-T, the Interactive Data File in Exhibit 101 hereto are deemed not filed or part of a registration statement or prospectus for purposes of Section 11 or 12 of the Securities Act of 1933, as amended, are deemed not filed for purpose of Section 18 of the Securities Exchange Act of 1934, as amended, and otherwise are not subject to liability under those sections.

Exhibit 10.3

SECOND AMENDMENT
to
2003 OUTSIDE DIRECTORS STOCK PLAN

THIS SECOND AMENDMENT TO THE PERMA-FIX ENVIRONMENTAL SERVICES, INC. 2003 OUTSIDE DIRECTORS STOCK PLAN (the "Second Amendment") was approved by the Board of Directors (the "Board") of Perma-Fix Environmental Services, Inc. (the "Company") to be effective on July 12, 2012, subject to the approval of the shareholders of the Company.

WHEREAS, Article IX of the 2003 Outside Directors Stock Plan, effective July 29, 2003 (as amended, the "Plan"), provides that the Board may at any time, and from time to time and, in any respect amend or modify the Plan;

WHEREAS, as of July 9, 2012, the maximum number of shares of our common stock that may be issued under the Plan is 2,000,000 shares (subject to adjustment as provided in the 2003 Plan), of which 1,810,168 have previously been issued or reserved for issuance under the Plan, comprised of 1,054,168 shares previously been issued under the Plan, and 756,800 shares issuable under outstanding options granted under the Plan;

WHEREAS, in order to continue to attract and retain qualified members of the Board who are not employees of the Company, the Board is of the opinion that it is necessary that the maximum number of shares of Common Stock that may be issued under the Plan be increased from 2,000,000 to 3,000,000 shares (subject to adjustment as provided in the Plan); and,

NOW, THEREFORE, the following amendments to the plan are unanimously adopted by the Board, subject to the approval of the shareholders of the Company:

Amendment to Section 4.1:

Section 4.1 of the Plan is hereby amended by deleting the number "2,000,000" from the first full sentence contained therein and substituting in lieu thereof the number "3,000,000."

The Plan is hereby amended and modified only to the extent specifically amended or modified by this Second Amendment to the 2003 Outside Directors Stock Plan. None of the other terms, conditions or provisions of the Plan, is amended or modified by this Second Amendment to the 2003 Outside Directors Stock Plan.

Exhibit 10.4

THIRD AMENDMENT
to
2003 OUTSIDE DIRECTORS STOCK PLAN

THIS THIRD AMENDMENT TO THE PERMA-FIX ENVIRONMENTAL SERVICES, INC. 2003 OUTSIDE DIRECTORS STOCK PLAN (the "Third Amendment") was approved by the Board of Directors (the "Board") of Perma-Fix Environmental Services, Inc. (the "Company") to be effective on July 10, 2014, subject to the approval of the shareholders of the Company.

WHEREAS, Article IX of the 2003 Outside Directors Stock Plan, effective July 29, 2003 (as amended, the "Plan"), provides that the Board may at any time, and from time to time and, in any respect amend or modify the Plan;

WHEREAS, as of July 10, 2014, the maximum number of shares of our common stock that may be issued under the Plan is 600,000 shares (subject to adjustment as provided in the 2003 Plan), of which 509,841 shares have previously been issued or reserved for issuance under the Plan, comprised of 341,898 shares previously issued under the Plan, and 167,943 shares issuable under outstanding options granted under the Plan;

WHEREAS, in order to continue to attract and retain qualified members of the Board who are not employees of the Company, the Board is of the opinion that it is necessary that the maximum number of shares of Common Stock that may be issued under the Plan be increased from 600,000 to 800,000 shares (subject to adjustment as provided in the Plan); and,

NOW, THEREFORE, the following amendments to the plan are unanimously adopted by the Board, subject to the approval of the shareholders of the Company:

1. Amendment to Section 4.1

Section 4.1 of the Plan is hereby amended by deleting the number "600,000" from the first full sentence contained therein and substituting in lieu thereof the number "800,000" (subject to adjustment as provided in the Plan).

2. Amendment to Section 4.2.1

Section 4.2.1 of the Plan is hereby amended by deleting Section 4.2.1 in its entirety and replacing such section with the following:

There shall be a proportionate adjustment of (a) the aggregate number of shares of Stock under the Plan for which Options may be granted or for which Stock Awards may be issued, and (b) the aggregate number of shares of Stock for which Options may be granted pursuant to Section 5.2.1 and Section 5.2.2 hereof.

3. Amendment to Section 5.2.1

Section 5.2.1 of the Plan is hereby amended by deleting Section 5.2.1 in its entirety and replacing such section with the following:

"Each Eligible Director shall automatically be granted an Option to purchase 6,000 shares of Stock on the Initial Election Date to the Board of Directors of the Company, subject to adjustment in accordance with Section 4.2.1 hereof.

4. Amendment to Section 5.2.2

Section 5.2.2 of the Plan is hereby amended by deleting Section 5.2.2 in its entirety and replacing such section with the following:

"Each Eligible Director shall automatically be granted an Option to purchase 2,400 shares of Stock on each Grant Date subsequent to such Eligible Director's Initial Election Date, subject to adjustment in accordance with Section 4.2.1 hereof.

The Plan is hereby amended and modified only to the extent specifically amended or modified by this Third Amendment to the 2003 Outside Directors Stock Plan. None of the other terms, conditions or provisions of the Plan, is amended or modified by this Third Amendment to the 2003 Outside Directors Stock Plan.

Exhibit 10.5

FOURTH AMENDMENT
to
2003 OUTSIDE DIRECTORS STOCK PLAN

THIS FOURTH AMENDMENT TO THE PERMA-FIX ENVIRONMENTAL SERVICES, INC. 2003 OUTSIDE DIRECTORS STOCK PLAN (the "Third Amendment") was approved by the Board of Directors (the "Board") of Perma-Fix Environmental Services, Inc. (the "Company") to be effective on May 30, 2017, subject to the approval of the shareholders of the Company.

WHEREAS, Article IX of the 2003 Outside Directors Stock Plan, effective July 29, 2003 (as amended, the "Plan"), provides that the Board may at any time, and from time to time and, in any respect amend or modify the Plan;

WHEREAS, as of May 30, 2017, the maximum number of shares of our common stock that may be issued under the Plan is 800,000 shares (subject to adjustment as provided in the 2003 Plan), of which 684,551 shares have previously been issued or reserved for issuance under the Plan, comprised of 521,351 shares previously issued under the Plan, and 163,200 shares issuable under outstanding options granted under the Plan;

WHEREAS, in order to continue to attract and retain qualified members of the Board who are not employees of the Company, the Board is of the opinion that it is necessary that the maximum number of shares of Common Stock that may be issued under the Plan be increased from 800,000 to 1,100,000 shares (subject to adjustment as provided in the Plan); and,

NOW, THEREFORE, the following amendments to the plan are unanimously adopted by the Board, subject to the approval of the shareholders of the Company:

Amendment to Section 4.1

Section 4.1 of the Plan is hereby amended by deleting the number "800,000" from the first full sentence contained therein and substituting in lieu thereof the number "1,100,000" (subject to adjustment as provided in the Plan).

The Plan is hereby amended and modified only to the extent specifically amended or modified by this Fourth Amendment to the 2003 Outside Directors Stock Plan. None of the other terms, conditions or provisions of the Plan, is amended or modified by this Fourth Amendment to the 2003 Outside Directors Stock Plan.

Exhibit 10.7

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

2017 STOCK OPTION PLAN

The Board of Directors of Perma-Fix Environmental Services, Inc., a Delaware corporation (the “Company”), has adopted this 2017 Stock Option Plan (the “Plan”) on May 30, 2017, to be effective upon the approval of a majority of the stockholders of the Company present in person or by proxy at any regular or special meeting of the stockholder of the Company (the date of such approval being the “Effective Date”), as follows:

1. Purpose. This Plan allows selected officers, employees, including any employee who is also a member of the Board of Directors, and consultants of the Company or any Subsidiary who bear a large measure of responsibility for the success of the Company to acquire and retain a proprietary interest in the Company and to participate in the future of the Company as stockholders. The purpose of this Plan is to advance the interests of the Company and its stockholders by enabling the Company and the Subsidiaries to offer to its officers, selected employees and selected consultants, equity interests in the Company, thereby enhancing the Company’s ability to attract, retain and reward such individuals, and by providing such individuals an incentive to render outstanding service to the Company and to the Company’s stockholders. The Perma-Fix Environmental Services, Inc. 2010 Stock Option Plan (the “2010 Plan”) continues in full force and effect with respect to all Stock Options issued and unexercised under the 2010 Plan. However, no future Stock Options will be granted under the 2010 Plan. Indeed, 140,000 shares of outstanding and unissued Common Stock under the 2010 Plan will, as of the Effective Date, be included in the number of Shares of Common Stock that may be issued under this Plan, as provided in Section 4.1 of this Plan.

2. Definitions. For purposes of the Plan, the following terms will be defined as set forth below:

2.1 “10% Stockholder” means an individual who owns, at the time a Stock Option is granted, shares of stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Subsidiary (computed in accordance with Section 422(b)(6) of the Code).

2.2 “Act” means the Securities Act of 1933, as amended from time to time, or any successor statute or statutes thereto.

2.3 “Agreement” means the agreement between the Company and the Participant setting forth the terms and conditions of a Stock Option granted under the Plan.

2.4 “Board” means the Board of Directors of the Company.

2.5 “Change of Control” means a change of control of the Company pursuant to paragraph 7.2 hereof.

2.6 “Code” means the Internal Revenue Code of 1986, as amended from time to time, and any successor statute or statutes thereto.

2.7 “Committee” has the meaning set forth in Section 3.1 of this Agreement.

2.8 “Common Stock” means the Common Stock of the Company, par value $.001 per share.

2.9 “Consultant” means an independent contractor or consultant who is not an Employee and who is designated by the Board to be eligible under this Plan.

2.10 “Corporation” means any corporation, limited liability company, partnership or other legal entity.

2.11 “Disability” means termination of employment of a Participant after incurring a “disability” as defined in Section 22(e)(3) of the Code.

2.12 “Employee” means any person, including officers and directors, who is employed on a fulltime basis by the Company or a Subsidiary, including any full-time, salaried officer or employee who is a member of the Board.

2.13 “Exchange Act” means the Securities and Exchange Act of 1934, as amended from time to time, or any successor statutes thereto.

2.14 “Fair Market Value,” unless otherwise required by any applicable provision of the Code or any regulations issued thereunder, on any given date means the value of one share of Common Stock, determined as follows:

(a) if the Common Stock of the Company is listed for trading on one or more national securities exchanges, the reported last sales price on such principal exchange on which such Common Stock was so traded;

(b) if the Common Stock of the Company is not listed for trading on a national securities exchange but is traded in the over-the-counter market, the mean of the highest and lowest bid prices for such Common Stock; or

(c) if the price of such Common Stock is not reported or listed as described in (a) and (b) above, then the “Fair Market Value” of such Common Stock will be determined by the Committee as of the relevant date, and the Committee will utilize any reasonable and prudent method in determining such Fair Market Value and will not be liable for any such determination made in good faith.

2.15 “For Cause” means the occurrence of any of the following events: (a) Participant fails after three day’s written notice to comply or refuses to comply with a reasonable directive of the Board that is consistent with applicable law; or (b) Participant materially neglects Participant’s duties, is grossly negligent in the performance of those duties, or engages in gross misconduct materially injurious the Company; or (c) embezzlement, fraud or theft of Company assets by the Participant; or (d) Participant’s material breach of the Agreement granting Stock Options; or (e) Participant’s indictment or conviction of a felony.

2.16 "Incentive Stock Option" or "ISO" means any option to purchase shares of Common Stock that is granted pursuant to this Plan and which is intended to be, and designated as, an "incentive stock option" within the meaning of Section 422 of the Code.

2.17 "Layoff" means any termination of service (including service by a Consultant) with the Company, other than termination as a result of Retirement, death, voluntary termination, or termination For Cause.

2.18 "Nonqualified Stock Option" means any option to purchase shares of Common Stock that is granted pursuant this Plan, which is not an Incentive Stock Option.

2.19 "Participant" means an eligible Employee of the Company or a Subsidiary and a Consultant who has been granted a Stock Option under the Plan.

2.20 "Retirement" means (a) with respect to an Employee, termination of all service as an employee at or after the normal or early retirement date set forth in any policy adopted by the Company, or if no such policy has been adopted, such time as determined by the Board or the Committee; and (b) with respect to a Consultant, termination of all services as a Consultant under the terms of the consulting arrangement.

2.21 "Stock Option" means any Incentive Stock Option or Nonqualified Stock Option.

2.22 "Subsidiary" means any Corporation (other than the Company) in an unbroken chain of Corporations beginning with the Company, if, at the time of the granting of the option, each of the Corporations other than the last Corporation in the unbroken chain owns stock possessing 50% or more of the total combined voting power of all classes of stock in one of the Corporations in such.

3. Administration.

3.1 Committee. The Plan shall be administered by the Board, which may delegate authority to administer this Plan to the Compensation and Stock Option Committee of the Board, as such Committee is from time to time constituted. If the Board has not designated a Compensation and Stock Option Committee, then the Board may delegate the authority to administer this Plan to any committee consisting solely of at least two "non-employee directors" within the meaning of Rule 16-3 under the Exchange Act. All references in the Plan to the "Committee" shall mean the Board, the Compensation Committee, or any such other committee designated by the Board that is administering this Plan. The membership of the Committee at all times will be constituted so as to not adversely affect the compliance of the Plan with the requirements of Rule 16b-3 under the Exchange Act, to the extent it is applicable, or with the requirements of any other applicable law, rule, or regulation.

3.2 Committee Procedures. The Committee will select one of its members as its Chairman and will hold its meetings at such times and places as it will deem advisable. A majority of its members will constitute a quorum, and all determinations will be made by a majority of such quorum. Any determination reduced to writing and signed by a majority of the members of the Committee will be fully effective and a valid act of the Committee as if it had been made by a majority vote at a meeting duly called and held. The membership of the Committee at all times will be constituted so as to not adversely affect the compliance of the Plan with the requirements of Rule 16b-3 under the Exchange Act, to the extent it is applicable, or with the requirements of any other applicable law, rule, or regulation.

3.3 Power and Authority. The Committee will have full power and authority to do all things necessary or appropriate to administer this Plan according to its terms and provisions (excluding the power to appoint members of the Committee and to terminate, modify, or amend the Plan, except as otherwise authorized by the Board), including, but not limited to, the full power and authority to:

- award Stock Options, pursuant to the terms of this Plan, to eligible individuals described under paragraph 5 hereof;
- select the eligible individuals to whom Stock Options may from time to time be awarded under the Plan;
- determine the Incentive Stock Options, Nonqualified Stock Options, or any combination thereof, to be awarded under the Plan to one or more eligible Employees or, with respect to one or more Employees or eligible Consultants, determine the Nonqualified Stock Options to be awarded;
- determine the number of shares to be covered by each Stock Option granted under the Plan;
- determine the form and content of all Agreements;
- determine the terms and conditions not inconsistent with the terms of the Plan, of any Stock Option granted;
- determine any specified performance goals or such other factors or criteria which need to be attained for the vesting of a Stock Option granted under the Plan;
- determine the terms and conditions under which Stock Options are to operate on a tandem basis and/or in conjunction with or apart from other equity or cash awards made by the Company or any Subsidiary outside of this Plan;
- correct any defect, supply any omission, or reconcile any inconsistency in the Plan or any Stock Option or Agreement in the manner and to the extent it shall deem desirable to carry out the purposes of the Plan; and

- exercise such other powers as may be necessary or desirable to implement the provisions of this Plan and to carry out its purposes.

3.4 Interpretation of Plan. Subject to paragraphs 3.3 and 8 of the Plan, the Committee will have the authority at its discretion to (a) adopt, alter and repeal such general and special administrative rules, regulations, and practices governing this Plan as it will, from time to time, deem advisable, (b) construe and interpret the terms and provisions of this Plan and any Stock Option issued under this Plan, (c) determine and interpret the form and substance of all Agreements relating to Stock Options, and (d) otherwise supervise the administration of this Plan. Anything in this Plan to the contrary notwithstanding, no term of this Plan relating to Incentive Stock Options will be interpreted, amended or altered, nor will any discretion or authority granted under this Plan be exercised, to disqualify this Plan under Section 422 of the Code, or, without the consent of the Participant(s) affected, to disqualify any Incentive Stock Option under Section 422 of the Code. Subject to paragraphs 3.3 and 8 hereof, all decisions made by the Committee pursuant to the provisions of this Plan will be made in the Committee's sole discretion and will be final and binding upon all persons granted Stock Options pursuant to this Plan.

3.5 No Repricing. Subject to paragraph 10 of this Plan, the exercise price for a Stock Option may never be less than (and may not be reduced to less than) 100% of the Fair Market Value of the shares of Common Stock subject to the Stock Option on the date the Stock Option is granted. Except with the approval of the stockholders of the Company, a Stock Option may not be cancelled (a) in exchange for the grant or award of another Stock Option with a lower exercise price, or (b) in exchange for cash or another Plan award, in either event other than in connection with a Change of Control or an adjustment described in paragraph 10 and in all events subject to compliance with the Code Section 409A, the Treasury Regulations thereunder, and applicable guidance under Code Section 409A .

3.6 Limitation on Liability. No member of the Board shall be liable for any action taken or determination made in good faith and in a manner reasonably believed to be in the best interests of the Company with respect to the Plan or any Stock Option granted pursuant to this Plan.

4. Shares Subject to Plan.

4.1 Number of Shares. The maximum number of shares of Common Stock that may be issued under this Plan will be 540,000, subject to adjustment as set forth in Section 10 of this Agreement. Included in such amount are 140,000 shares of outstanding and unissued Common Stock previously available under the 2010 Plan.

4.2 Character of Shares. The Company may elect to satisfy its obligations to a Participant exercising a Stock Option entirely by issuing authorized and unissued shares of Common Stock to the Participant, entirely by transferring treasury shares to the Participant, or in part by issuing authorized and unissued shares and the balance by transferring treasury shares.

5. Eligibility. Incentive Stock Options may be granted only to Employees, including any Employee who is a member of the Board. Nonqualified Stock Options may be granted to Employees of the Company, including an Employee of the Company who is a member of the Board, or to an eligible Consultant.

6. Stock Options.

6.1 Types of Stock Options. Stock Options granted under the Plan may be of two types: (a) Incentive Stock Options and (b) Nonqualified Stock Options. Any Stock Option granted under the Plan will contain such terms, not inconsistent with this Plan, as the Committee may approve. The Committee will have the authority to grant to any eligible Employee either Incentive Stock Options or Nonqualified Stock Options, or both types of Stock Options. The Committee will have the authority to grant to any eligible Consultant only Nonqualified Stock Options. To the extent that any Stock Option (or portion thereof) intended to be an Incentive Stock Option does not qualify for any reason as an Incentive Stock Option, it will constitute a separate Nonqualified Stock Option. The Company shall have no liability to an Employee, or any other party, if a Stock Option (or any part thereof) which is intended to be an Incentive Stock Option is not an Incentive Stock Option. Stock Options will be granted for no consideration other than services to the Company or a Subsidiary.

6.2 Exercise Price.

- Not a 10% Stockholder. The exercise price of any Incentive Stock Option granted under this Plan to an individual who is not a 10% Stockholder at the time the Incentive Stock Option is granted and the exercise price of any Nonqualified Stock Option granted under this Plan will be not less than the Fair Market Value of the shares of Common Stock subject to the Stock Option on the date the Stock Option is granted.

- 10% Stockholder. The exercise price of any Incentive Stock Option granted under the Plan to an individual who is a 10% Stockholder at the time the Stock Option is granted will be not less than 110% of the Fair Market Value of the shares of Common Stock subject to the Incentive Stock Option on the date the Incentive Stock Option is granted.

6.3 Option Term. The term of each Stock Option will be fixed by the Committee, but no Stock Option will be exercisable more than ten years after the date on which the Stock Option is granted or, in the case of an Incentive Stock Option granted to a 10% Stockholder, five years after the date on which the Incentive Stock Option is granted.

6.4 Exercise of Nonqualified Stock Options. Nonqualified Stock Options will be exercisable at such time or times and subject to such terms and conditions as will be determined by the Committee, except as otherwise provided in this Plan.

6.5 Exercise of Incentive Stock Options.

- By an Employee. No Incentive Stock Option granted under this Plan will be exercisable after the expiration of ten years from the date such ISO is granted, except that no ISO granted to a person who is a 10% Stockholder will be exercisable after the expiration of five years from the date such ISO is granted. Unless such requirements are waived by the Committee, the Participant, while still in the employment or consulting services of the Company or any Subsidiary, as the case may be, may exercise the ISO as set forth in the applicable Agreement; provided that the terms of the Agreement are consistent with the terms of this Plan.

- Termination of Employment. No Participant may exercise an ISO after the Participant is no longer an Employee except (a) if a Participant ceases to be an Employee on account of a Disability, the Participant may exercise the ISO within 12 months after the date on which the Participant ceased to be an Employee; (b) if a Participant ceases to be an Employee on account of Retirement, the former Employee may exercise the ISO within six months after the date on which the Employee retired; and (c) if a Participant ceases to be an Employee for any other reason (other than death), the Participant may exercise the ISO within three months after termination of employment. In each case, the ISO may be exercised only for the number of shares for which the Participant could have exercised at the time the Participant ceased to be an Employee.

- In Case of Death. If any Participant who was granted an ISO dies prior to the termination of such ISO, such ISO may be exercised within six months after the death by the personal representative or executor of the estate of the Participant, or by a person who acquired the right to exercise such ISO by bequest, inheritance, or by reason of the death of such Participant, provided that (a) such Participant died while an Employee of the Company or a Subsidiary or (b) such Participant had ceased to be an Employee on account of a Disability or died within three months after the date on which he ceased to be an Employee. The ISO may be exercised only as to the number of shares exercisable by the Participant as of the date of death.

6.6 Termination of Options. A Stock Option granted under this Plan will be considered terminated, in whole or in part, to the extent that it can no longer be exercised for shares originally subject to it, provided that a Stock Option will be considered terminated at an earlier date upon surrender for cancellation by the Participant to whom such Stock Option was granted.

6.7 For Cause Termination. If a Participant's employment or service relationship with the Company or any Subsidiary shall be terminated For Cause as defined in paragraph 2.15 hereof, the Committee may, in its sole discretion, immediately terminate such Participant's right to any further vesting or exercisability with respect to any Stock Option in its entirety. The Committee shall have the power to determine whether the Participant has been terminated For Cause and the date upon which such termination For Cause occurred. Any such determination shall be final, conclusive and binding upon the Participant; provided, however, that for any Participant who is an "executive officer" for purposes of Section 16 of the Exchange Act, such determination shall be subject to the approval of the Board. If the Committee reasonably determines that a Participant has committed or may have committed any act which could constitute the basis for a termination of such Participant's employment or service relationship For Cause, the Committee may suspend the Participant's rights to exercise pending a determination by Board whether an act has been committed which could constitute the basis for a termination For Cause as provided in this paragraph 6.7.

6.8 Exercise. Subject to such terms and conditions as shall be specified in the applicable Agreement, Stock Options granted under this Plan may be exercised as provided in the Agreement, in whole or in part, at any time during the term of the Stock Option, by giving written notice of such exercise to the Company identifying the Stock Option being exercised and specifying the number of shares then being purchased. Such notice will be accompanied by payment in full of the exercise price and applicable withholding taxes. A partial exercise of a Stock Option will not affect the right to exercise the Stock Option from time to time in accordance with this Plan as to the remaining shares of Common Stock subject to the Stock Option.

6.9 Payment of Exercise Price. Subject to the terms of the Agreement with respect to the Stock Option that has been exercised, payment of the exercise price of a Stock Option will consist entirely of:

(a) a cash or wire transfer;

(b) a certified check or bank check;

(c) the surrender of other shares of Common Stock owned by the Participant for at least six months prior to the date of exercise, provided such shares have a Fair Market Value on the date of exercise of the Stock Option equal to the aggregate exercise price for the Common Stock being purchased;

(d) the withholding of such number of Shares then issuable upon exercise of the Option that have an aggregate Fair Market Value equal to the exercise price for the Option being exercised, by request to the Company; or

(e) a combination of the methods described above.

The Company will not be required to deliver certificates for shares of Common Stock with respect to which a Stock Option is exercised until the Company has confirmed the receipt of good and valuable funds, shares of Common Stock, or a combination thereof, as applicable, in payment of the exercise price. A partial exercise of a Stock Option will not affect the right to exercise the Stock Option from time to time in accordance with this Plan as to the remaining shares of Common Stock subject to the Stock Option.

6.10 Issuance of Shares. As soon as reasonably practicable after its receipt of notice of exercise and payment in full of the exercise price, the Company will cause one or more certificates for the shares so purchased to be delivered to the Participant or the Participant's beneficiary or estate, as the case may be. No Participant, beneficiary, or estate will have any of the rights of a stockholder with reference to shares of Common Stock subject to a Stock Option until after the Stock Option has been duly exercised and certificates representing the shares of Common Stock so purchased pursuant to the Stock Option have been delivered to the Participant, the Participant's beneficiary or Participant's estate.

6.11 $100,000 Per Year Limitation. To the extent that the aggregate Fair Market Value of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by a Participant during any calendar year (under all of the Company's plans) exceeds $100,000, such excess Incentive Stock Options will be treated as Nonqualified Stock Options for purposes of Section 422 of the Code.

7. Acceleration.

7.1 Acceleration Upon Change of Control. Unless the award Agreement provides otherwise or unless the Participant waives the application of this paragraph 7.1 prior to a Change of Control (as hereinafter defined), each outstanding Stock Option granted under the Plan will immediately become exercisable in full notwithstanding the vesting or exercise provisions contained in the Agreement immediately prior to a Change of Control.

7.2 Change of Control Defined. A "Change of Control" will be deemed to have occurred upon any of the following events:

- The consummation of any merger, reverse stock split, recapitalization or other business combination of the Company, with or into another corporation or other entity, or an acquisition of securities or assets by the Company, pursuant to which the Company is not the continuing or surviving corporation or pursuant to which shares of Common Stock would be converted into cash, securities or other property, other than a transaction in which the majority of the holders of Common Stock immediately prior to such transaction will own at least 50% of the total voting power of the then-outstanding securities of the surviving corporation immediately after such transaction; or

- A transaction in which any person (as such term is defined in Sections 13(d)(3) and 14(d)(2) of the Exchange Act), corporation or other entity (other than the Company, or any profit-sharing, employee ownership or other employee benefit plan sponsored by the Company or any Subsidiary, or any trustee of or fiduciary with respect to any such plan when acting in such capacity, or any group comprised solely of such entities): (a) will purchase any Common Stock (or securities convertible into Common Stock) for cash, securities or any other consideration pursuant to a tender offer or exchange offer, without the prior consent of the Board, or (b) will become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Exchange Act), directly or indirectly (in one transaction or a series of transactions), of securities of the Company representing 50% or more of the total voting power of the then-outstanding securities of the Company ordinarily (and apart from the rights accruing under special circumstances) having the right to vote in the election of directors (calculated as provided in Rule 13d-3(d) in the case of rights to acquire the Company's securities); or

- If, during any period of two consecutive years, individuals who at the beginning of such period constituted the entire Board and any new director whose election by the Board, or nomination for election by the Company's stockholders was approved by a vote of at least two-thirds of the directors then still in office who either were directors at the beginning of the period or whose election or nomination for election by the stockholders was previously so approved, cease for any reason to constitute a majority thereof; or

- Upon a complete liquidation or dissolution of the Company.

7.3 General Waiver by Board. The Committee may, after the grant of a Stock Option, accelerate the vesting of all or any part of any Stock Option, and/or waive any limitations or restrictions, if any, for all or any part of a Stock Option.

8. Amendments and Termination.

8.1 Amendments to Plan; Termination. The Board may at any time, and from time to time, amend any of the provisions of the Plan, and may at any time suspend or terminate the Plan; provided, however, that no such amendment will be effective unless and until it has been duly approved by the stockholders of the outstanding shares of Common Stock if (a) such amendment materially increases the benefits accruing to Participants under this Plan; (b) such amendment increases the number of securities which may be issued under this Plan (except as provided by paragraph 10 of this Plan); (c) such amendment materially modifies the requirements as to eligibility for participation in this Plan; or, (d) the failure to obtain such approval would adversely affect the compliance of the Plan with the requirements of Rule 16b-3 under the Exchange Act, or with the requirements of any other applicable law, rule or regulation.

8.2 Amendments to Stock Options. The Board may amend the terms of any Stock Option granted under the Plan; provided, however, (a) that subject to paragraph 10.2 hereof, no such amendment may be made by the Board which in any material respect impairs the rights of the Participant without the Participant's consent, and (b) the terms of such amendment are consistent with the Plan.

9. Term of Plan. The Plan will be effective as of the Effective Date. Any Stock Options granted under the Plan prior to such approval will be effective upon, and subject to, approval of the Plan by the Company's stockholders (and no Stock Options will vest or otherwise become free of restrictions prior to such approval). No Stock Options will be granted pursuant to the Plan on or after the 10th anniversary of the Effective Date, but Stock Options granted prior to such 10th anniversary may extend beyond that date. The Plan will terminate after the 10^{th} anniversary of the Effective Date or if later, at such time as all Stock Options granted under the Plan are no longer outstanding.

10. Adjustment Upon Change of Shares.

10.1 Stock Splits, etc. Subject to any required action by the stockholders of the Company, the number of shares of Common Stock for which Stock Options may thereafter be granted, and the number of shares of Common Stock then subject to Stock Options previously granted, and the price per share payable upon exercise of such Stock Option will be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock of the Company resulting from a subdivision or consolidation of shares of Common Stock or the payment of a stock dividend (but only on the Common Stock) or any other increase or decrease in the number of shares of Common Stock effected without receipt of consideration by the Company.

10.2 Merger; Reorganization. If the Company is reorganized or consolidated or merged with another corporation, in which the Company is the non-surviving corporation, a Participant of an outstanding Stock Option granted under this Plan will be entitled (subject to the provisions of this paragraph 10) to receive options covering shares of such reorganized, consolidated or merged corporation in the same proportion as granted to Participant prior to such reorganization, consolidation or merger at an equivalent exercise price, and subject to the same terms and conditions as this Plan. For purposes of the preceding sentence, the excess of the aggregate Fair Market Value of shares subject to the option immediately after the reorganization, consolidation or merger over the aggregate exercise price of such shares will not be more than the excess of the aggregate Fair Market Value of all shares of Common Stock subject to the Stock Option immediately before such reorganization, consolidation or merger over the aggregate exercise price of such shares of Common Stock, and the new Stock Option or assumption of the old Stock Option by any surviving corporation will not give the Participant additional benefits which he did not have under the old Stock Option.

10.3 Determination of Committee. To the extent that the foregoing adjustments relate to the shares of Common Stock of the Company, such adjustments will be made by the Committee, whose determination in that respect will be final, binding and conclusive, provided that each Incentive Stock Option granted pursuant to this Plan will not be adjusted in a manner that causes the Incentive Stock Option to fail to continue to qualify as an incentive stock option within the meaning of Section 422 of the Code.

10.4 No Rights. Except as expressly provided in this paragraph 10, the Participant will have no rights by reason of any subdivision or consolidation of shares of stock of any class or the payment of any stock dividend or any other increase or decrease in the number of shares of stock of any class or by reason of any dissolution, liquidation, merger, consolidation, reorganization or spin-off of assets or stock of another corporation, and any issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, will not affect, and no adjustment by reason thereof will be made with respect to, the number or price of shares of Common Stock subject to Stock Options granted under this Plan.

10.5 Authority of Company. The grant of a Stock Option pursuant to this Plan will not affect in any way the right or power of the Company to make adjustments, reclassifications, reorganizations or changes of its capital or business structure or to merge or to consolidate or to dissolve, liquidate or sell, or transfer all or any part of its business or assets.

11. General Provisions.

11.1 Code Section 409A. To the extent applicable, the Plan and each Agreement shall be interpreted and construed in compliance with Section 409A of the Code and Treasury Department regulations and other interpretive guidance issued thereunder. Notwithstanding the foregoing, the Company shall not be required to assume any increased economic burden in connection therewith. Although the Company intends to administer the Plan so that it will comply with or be excepted from the requirements of Section 409A of the Code, the Company does not represent or warrant that the Plan will comply with or be excepted from Section 409A of the Code or any other provision of federal, state, local, or non-United States law. Neither the Company nor any of its Subsidiaries, nor its or their respective directors, officers, employees or advisers, shall be liable to any Participant (or any other individual claiming a benefit through the Participant) for any tax, interest, or penalties the Participant might owe as a result of participation in the Plan.

11.2 Investment Representations. The Committee may require each person acquiring shares of Common Stock pursuant to a Stock Option under this Plan to represent to and agree with the Company in writing that, among other things, the Participant is acquiring the shares for investment purposes only without a view to distribution thereof.

11.3 Designation of Beneficiary. Notwithstanding any provisions in this Plan to the contrary, the Committee may provide in the terms of an Agreement that the Participant shall have the right to designate a beneficiary or beneficiaries who shall be entitled to any rights or other benefits specified under a Stock Option following the Participant's death. During the lifetime of a Participant, a Stock Option shall be exercised only by such Participant or such Participant's guardian or legal representative. In the event of a Participant's death, a Stock Option may, to the extent permitted by the Agreement, be exercised by the Participant's beneficiary as designated by the Participant in the manner prescribed by the Committee or, in the absence of an authorized beneficiary designation, by the legatee of such Stock Option under the Participant's will or by the Participant's estate in accordance with the Participant's will or the laws of descent and distribution, in each case in the same manner and to the same extent that such Stock Option was exercisable by the Participant on the date of the Participant's death.

11.4 Additional Incentive Arrangements. Nothing contained in this Plan will prevent the Board from adopting such other or additional incentive arrangements as it may deem desirable, including, but not limited to, the granting of Stock Options and the awarding of stock and cash otherwise than under this Plan. Such arrangements may be either generally applicable or applicable only in specific cases.

11.5 No Right of Employment or Continuing Consultancy. Nothing contained in this Plan or in any Stock Option hereunder will be deemed to confer upon any employee of the Company or any Subsidiary any right to continued employment or continuing consultancy, as the case may be, with the Company or any Subsidiary, nor will it interfere in any way with the right of the Company or any Subsidiary to terminate the employment of any of its employees at any time or terminate the consulting arrangement of any Consultant.

11.6 Withholding Taxes. Not later than the date as of which an amount first becomes includible in the gross income of the Participant who is an Employee for federal income tax purposes with respect to any award under the Plan, the Participant who is an Employee will pay to the Company, or make arrangements satisfactory to the Company regarding the payment of, any federal, state and local taxes of any kind required by law to be withheld or paid with respect to such amount. The obligations of the Company under this Plan will be conditional upon such payment or arrangements and the Company will, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the Participant who is an Employee.

11.7 Governing Law. This Plan and all awards made and actions taken thereunder will be governed by and construed in accordance with the laws of the State of Delaware (without regard to choice of law provisions).

11.8 Other Benefit Plans. Any award granted under this Plan will not be deemed compensation for purposes of computing benefits under any retirement plan of the Company or any Subsidiary and will not affect any benefits under any other benefit plan now or subsequently in effect under which the availability or amount of benefits is related to the level of compensation (unless required by specific reference in any such other plan to awards under this Plan).

11.9 Employee Status. With respect to a Participant who is an Employee, the Committee may decide in each case to what extent leaves of absence for government or military service, illness, temporary disability, or other reasons, will not interrupt continuous employment. Any Stock Options granted under this Plan will not be affected by any change of employment, so long as the Participant continues to be an Employee of the Company or any Subsidiary.

11.10 Restrictions on Transfer. A Stock Option may not be transferred except by will or by the laws of descent and distribution, and may not be alienated, sold, assigned, hypothecated, pledged, exchanged, transferred, encumbered or charged, and any attempt to alienate, sell, assign, hypothecate, pledge, exchange, transfer, encumber or charge the same will be void. No right or benefit hereunder will in any manner be liable for or subject to the debts, contracts, liabilities or torts of the person entitled to such benefit. Unless otherwise provided in this Plan or the Agreement, any Stock Option granted under this Plan is only exercisable during the lifetime of the Participant by the Participant or by his guardian or legal representative.

11.11 Applicable Laws. The obligations of the Company with respect to all Stock Options under this Plan will be subject to (a) all applicable laws, rules and regulations, including, without limitation, the requirements of all federal securities laws, rules and regulations and state securities and blue sky laws, rules and regulations, and such approvals by any governmental agencies as may be required, including, without limitation, the effectiveness of a registration statement under the Securities Act, and (b) the rules and regulations of any national securities exchange on which the Common Stock may be listed or the Nasdaq if the Common Stock is designated for quotation thereon.

11.12 Conflicts. If any of the terms or provisions of the Plan conflict with the requirements of Rule 16b-3 under the Exchange Act, or with the requirements of any other applicable law, rule or regulation, and/or with respect to Incentive Stock Options, Section 422 of the Code, then such terms or provisions will be deemed inoperative to the extent they so conflict with the requirements of said Rule 16b-3, and/or with respect to Incentive Stock Options, Section 422 of the Code. With respect to Incentive Stock Options, if this Plan does not contain any provision required to be included herein under Section 422 of the Code, such provision will be deemed to be incorporated herein with the same force and effect as if such provision had been set out at length herein.

11.13 Written Agreements. Each Stock Option granted under this Plan will be evidenced by, and will be subject to the terms of the Agreement approved by the Committee and executed by the Company and the Participant. The Committee may terminate any award made under this Plan if the Agreement relating thereto is not executed and returned to the Company within 30 days after the Agreement has been delivered to the Participant for his or her execution.

11.14 Indemnification of Committee. In addition to such other rights of indemnification as they may have as directors or as members of the Committee, the members of the Committee will be indemnified by the Company against the reasonable expenses, including attorneys' fees actually and necessarily incurred in connection with the defense of any action, suit or proceeding, or in connection with any appeal therein, to which they or any of them may be a party by reason of any action taken or failure to act under or in connection with the Plan or any award granted thereunder, and against all amounts paid by them in settlement thereof (provided such settlement is approved by independent legal counsel selected by the Company) or paid by them in satisfaction of a judgment in any such action, suit or proceeding, except in relation to matters as to which it will be adjudged in such action, suit or proceeding that such Committee member is liable for negligence or misconduct in the performance of his duties; provided that within 60 days after institution of any such action, suit or proceeding a Committee member shall in writing offer the Company the opportunity, at its own expense, to handle and defend the same.

11.15 Common Stock Certificates. All certificates for shares of Common Stock delivered under this Plan will be subject to such stop-transfer orders and other restrictions as the Committee may deem advisable under the rules, regulations, and other requirements of any stock exchange upon which the Common Stock is then listed, any applicable federal or state securities law and any applicable corporate law, and the Committee may cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions.

11.16 Unfunded Status of Plan. This Plan is intended to constitute an "unfunded" plan for incentive and deferred compensation. With respect to any payments not yet made to a Participant by the Company, nothing contained herein will give any such Participant any rights that are greater than those of a general creditor of the Company.

11.17 Liability of the Company. Neither the Company, its directors, officers or employees or the Committee, nor any Subsidiary which is in existence or hereafter comes into existence, shall be liable to any Participant or other person if it is determined for any reason by the Internal Revenue Service or any court having jurisdiction that any Incentive Stock Option granted hereunder does not qualify for tax treatment as an Incentive Stock Option under Section 422 of the Code.

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***CERTAIN INFORMATION IN THIS DOCUMENT HAS BEEN EXCLUDED FROM THIS PUBLIC FILING BECAUSE IT IS NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE COMPANY IF PUBLICLY DISCLOSED**

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With qualified electronic signature(s)

EUROPEAN COMMISSION
Joint Research Centre

JRC J Nuclear Decommissioning and Waste Management
Nuclear Decommissioning and Waste Management

MIXED DIRECT & FRAMEWORK CONTRACT
FOR SERVICES
NUMBER – **945711- IPR- 2023**

The European Atomic Energy Community (hereinafter referred to as “the Community”), represented by the European Commission (hereinafter referred to as “the Contracting Authority”), which is represented for the purposes of the signature of this contract by **Mr Laurent JERRIGE, Director, Directorate J- Nuclear Decommissioning and Waste Management, Joint Research Centre,**

on the one part, and

Perma-fix Environmental services Inc
Official legal form: Incorporated Company
Statutory registration number: Delaware Registration file number 2249849
Full official address: 8302 Dunwoody Place Suite 250 - Atlanta – GA 30350 (USA)
VAT registration number: n/a – Tax ID no. 58-1954497

appointed as the leader of the group by the members of the group that submitted the joint tender and

Campoverde Sri
Official legal form: Societa a responsabilita limitata
Statutory registration number: MI-1200592 - 08056320156]
Full official address: Via Fabio Marco Quintiliano, 30 - 20138 Milano (Italy)
VAT registration number: 08056320156

appointed as the member of the group by the members of the group that submitted the joint tender

(collectively ‘the contractor’), represented for the purposes of the signature of this contract by Mark DUFF, CEO of Penna-Fix Environmental Services Inc and Mr Federico GIANNI, CEO of Campoverde Sri,

on the other part,

HAVE AGREED

to the **special conditions,** the **general conditions for direct and framework contracts for services** and the following annexes:

Annex I – **Part 1: Administrative Annex – tender procedure JRC/IPR/2012/C01/002/CD** including:

- Declarations on honour on the exclusion and selection criteria
- Questions & Answers;

Part 2: Technical Specifications (reference No NE.45.2604.A.004.rev.4 of 11.03.2022 (hereinafter "the Technical Specification");

Annex II – **Contractor's technical and financial tender of 21/10/2022** including:

- Minutes of the meeting held on 12/07/2023 Ares(2023)5950983 dated 01/09/2023
- Mail exchanges dated 22/06/2023 (Ares(2023)5189962) and dated 15/09/2023 Ares(2023)6340649

Annex III - Model for specific contracts
Annex IIIa Gratuitous loan agreement
Annex IV – Acceptance Form;
Annex V – Rules relating to access and presence of external staff on the Ispra site of the Joint Research Centre;
Annex VI – Procedure to introduce materials through the customs;
Annex VII – Safety contractual clauses;
Annex VIII – Environmental Contractual Clauses ;
Annex IX – Contractual Clauses on Radiation protection;
Annex X - DUVRI (Documento Unico di Valutazione dei Risch Interferenziali – Single Document of Assessment of the Interference Risks)

which form an integral part of this contract ('the contract').

This contract sets out the obligations of the parties during and after the duration of this contract.

All documents issued by the contractor (end-user agreements, general terms and conditions, etc.) except its tender are held inapplicable, unless explicitly mentioned in the special conditions of this contract. In all circumstances, in the event of contradiction between this contract and documents issued by the contractor, this contract prevails, regardless of any provision to the contrary in the contractor's documents.

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I. Special Conditions

I.1. Order of priority of provisions

The present mixed Direct and Framework Contract provides for services to be performed as Direct Contract, under Stage 1 and services to be performed as Specific Contract under Stage 2 (framework contract).

A) As regards the services to be performed under direct contract, if there is any conflict between different provisions in this contract, the following rules must be applied:

(a) The provisions set out in the special conditions take precedence over those in the other parts of the contract.
(b) The provisions set out in the general conditions take precedence over those in the other annexes.
(c) The provisions set out in the Technical Specifications (Annex I) take precedence over those in the tender (Annex II).
(d) The provisions set out in specific contract (Annex III) take precedence over those in the other annexes.

B) As regard the services to be performed under the Framework Contract (FWC) part, this contract sets out:

1. the procedure by which the Contracting Authority may order services from the contractor;
2. the provisions that apply to any specific contract, which the Contracting Authority and the contractor may conclude under this FWC; and
3. the obligations of the parties during and after the duration of this FWC.

I.2. Subject matter

I.2.1 The subject matter of this mixed direct and framework contract for services (hereafter:“the Contract”) is the “Treatment of the bituminized drums and other burnable radioactive waste of JRC Ispra” (hereinafter referred to as “the Services”).

I.2.2 The Contractor shall execute the tasks assigned to it in accordance with the Technical Specifications annexed to the contract (Annex I).

I.3. Entry into force and duration of the Contract

I.3.1 The Contract enters into force on the date on which the last party signs it. The Contract Signature Date is the date on which the Contract is signed by the last party.

I.3.2 The implementation of the Contract cannot start before its entry into force.

I.3.3 The Contract is concluded for a period of 12 (twelve) years with effect from the date of release of Stage 1.

The duration of the execution of the tasks as described in Annex I, **is expected to be 12 (twelve) years** as of release of Stage 1 and 10 (ten) years from the date of the release of Stage 2.

The contractor undertakes to accept requests for extension in contract duration by the Contracting Authority should the quantity or type of material to treat be higher than estimated and/or require a longer contractual duration for treatment.

Unless otherwise specified, all periods specified in the contract are calculated in calendar days.

I.3.4 The parties must sign any Specific Contract before this FWC expires.

The FWC continues to apply to such Specific Contracts after its expiry. The services relating to such specific contracts must be performed no later than 24 months after the expiry of this FWC.

I.3.5 The implementation of the contract is into 2 Stages:

a) Stage 1**:** Implementation as a mixed Service Contract

Stage l includes Service Package 1: Engineering and Licensing as described in §5.5 of Annex I to the contract including the optional service for "Support to clarification for licensing during Stage 1" as specified under art I.3.11.4

b) Stage 2: Implementation as a single Framework Service Contract by means of "Specific Contracts" (Annex III).

I.3.6 The execution of the contract shall start on the date on which each Stage is released by the Contracting Authority according to the provisions of art. I.3.11. and I.3.12.

I.3.7 Under no circumstances may execution commence before the date on which the contract enters into force.

I.3.8 The Contractor is obliged to execute those tasks that may not be expressly described or mentioned in the Technical Specifications but that are nevertheless considered as necessary or obviously instrumental to the proper execution of the contract, in conformity with the technical specifications (Technical Specifications) in Annex I. This means that each item, without exceptions, will be deemed to be included in the quoted price, regardless of whatever omission or imprecision in the descriptions and/or project description contained in Annex I.

I.3.9 The quoted prices will comprise and remunerate all the works, materials, installation, instruments, tools, consumables, the manpower and any other elements and resources necessary for the comprehensive execution of the treatment requested by the prescriptions of the Technical Specifications (Annex I) and the Contract, covering as well any expense generated by full compliance with the legislation in force.

I.3.10 The quoted prices of the economic offer shall include the costs of compliance with all the obligations and duties of the Contractor under the applicable legislation.

I.3.11 **Stage 1**

I.3.11.1 Execution of the tasks included in Stage 1 will start as from release of Stage 1 by the Contracting Authority and will be completed within 2 (two) years.

The release shall take place in written form (letter or email) and will be addressed to the contact point under art. I.8.

In the event that the completion of Stage 1 has not occurred due to the lack of decision on the approval of the "Piano Operativo" by the competent Italian Authority (ref. 5.5.2.1.f) and 5.5.6.1), the completion period of 2 years shall be mutually considered as automatically extended for additional 2 (two) years, at the same conditions.

The Contractor shall have no right to claim any damage, including any loss of anticipated profits for uncompleted work, in case of an automatic extension of the Contract as per the preceding paragraph.

I.3.11.2 Early termination clause

If within 24 (twenty-four) months from the Contract Signature Date the Contracting Authority has not released Stage 1, the Contract shall be considered as terminated, unless the contracting parties mutually and in writing decide otherwise before the expiration of the aforesaid 24 months period.

The Contractor shall have no right to claim any damage, including any loss of anticipated profits for uncompleted work, in case of an extension of the Contract as per the preceding paragraph.

I.3.11.3 For the purposes of this contract, it will be considered that the completion of Stage 1 is reached when the Contracting Authority will sign all the "acceptance forms" related to the deliverables for Stage 1 as described under point 4.4 of the Technical Specifications.

I.3.11.4 Support to clarification for licensing during Stage 1 (optional).

Should the Contracting Authority need assistance to reply to Italian Competent Authorities on requests related to deliverables issued by the Contractor during Stage 1, the Contracting Authority may issue a dedicated Specific Contract, as described under point 5.5.2. l.i of the Technical Specifications, Annex I to the contract.

The Specific Contract will be issued according to the procedures specified in art.I.3.14 and paid according to art I.5.1.6.

I.3.12 Stage 2

I.3.12.1 Execution of all the specific Contracts issued during Stage 2 will be completed within 10 (ten) years, according to the provisions of Art I.3.3, as from release of Stage 2.

The release shall take place in written form (letter or email) and will be addressed to the contact point under art. I.8.

I.3.12.2 The execution of each specific contract shall be completed within the maximum duration provided for by any legislation applicable to the subject matter of the specific contract.

In addition, the execution of each specific contract shall comply with the provision of Art. I.3.12.4

I.3.12.3 The Contracting Authority has 9 (nine) months from the formal Acceptance of Stage 1, to authorize or not the release of Stage 2. Should the Contracting Authority not release Stage 2 by the end of this period, the Contractor is entitled to ask the Contracting Authority to take a formal decision.

I.3.12.4 Any specific contract must be signed by the Parties before Stage 2 expires. Specific contracts are regulated by art I.3.4 of the contract.

I.3.12.5 For the purposes of this contract, the completion of each Specific contract issued during Stage 2 is reached when the Contracting Authority will sign the "Acceptance Form" (Annex IV) for each specific contract.

The signature of the acceptance form is subject to the positive verification of the conditions provided in each specific contract.

I.3.13 Implementation of the contract as single Framework contract

The Contracting Authority orders services by sending the contractor a request to sign a Specific Contract by e-mail.

Within 15 working days, the contractor must either:
- send back to the Contracting Authority the specific contract duly signed and dated[scanned copy by e-mail or equivalent]; or
- send an explanation of why it cannot accept the order.

If the contractor repeatedly refuses to sign the specific contracts or repeatedly fails to send them back on time, the contractor may be considered in breach of its obligations under this contract as set out in Article II.18.1 I.

I.3.14 Ordering processes

I.3.14.1 Stage 2 of the contract shall be implemented as per point 4 of the Technical Specifications, Annex I to the FWC, taking into account any applicable legislative obligations.

I.3.14.2 The provision of services and/or supplies subject of the present contract shall follow two categories as per point 4 ("Contract implementation arrangements") of Annex I to the contract (Technical Specifications):

a) Fixed Price: Unit prices or Lump sum
b) Time & Means
and as detailed in the Specific contract models in Annex III to the contract.

I.3.15 Implementation through Specific Contracts (Annex III)

I.3.15.1 The Specific Contracts under which services and/or supplies may be provided, shall specify the implementation category, as described in Article I.3.14.2, for each item within the scope of work.

I.3.15.2 a) The Contracting Authority may directly submit to the Contractor a Specific Contract by applying the price list (Annex II to the contract).

The timing of execution will be agreed informally between the parties, before the formal submission of the Specific Contract to the Contractor. Within 10 working days of a specific contract being sent by the Contracting Authority to the contractor, the contractor shall return it back duly signed and dated.

OR

I.3.15.2 b) Instead of submitting a specific contract directly to the contractor, the Contracting Authority may decide to make a prior request for services. If not otherwise specified, within 10 working days of a request for services being sent by the Contracting Authority to the Contractor, the Contractor shall submit a technical and financial proposal duly signed and dated.

Upon the Contracting Authority's acceptance of the contractor's proposal as per Article I.3.15.2b), a Specific Contract will be sent to the contractor. The Contractor shall return the Specific Contract to the Contracting Authority, duly signed and dated, within 10 (ten) working days.

I.3.15.3 The Specific Contract shall specify the period allowed for the execution of the tasks, taking into account any mandatory deadlines prescribed by applicable legislation.

I.4. PRICE

Maximum price of the contract

I.4.1 The overall maximum total amount to be paid by the Contracting Authority under the contract shall be **EUR 50,000,000.00** (fifty million) covering all tasks executed. However, this does not bind the Contracting Authority to purchase for the maximum amount.

a) The maximum total amount of STAGE 1 to be paid by the Contracting Authority under the contract shall be **EUR [***]** covering the execution of the tasks referred to in Stage 1.

The maximum amount includes:
1) the amount of Service Package 1- Engineering and License, item A1.0.1 *"Support to licensing-lump sum",* **EUR: [***]**

and

2) an estimated maximum amount for the Service Package 1- Engineering and License optional item B.1.0.1 *"Licensing assistance to the contracting authority*" (ref. art I.3.11.4 and art I.5.1.6) of **EUR [***]**

b) The maximum total amount of STAGE 2 to be paid by the Contracting Authority under the contract shall be **EUR [***]** covering the execution of all the Specific Contracts issued during Stage 2.

The Contracting Authority will pay only for the services, supplies, works referred to in the Specific Contracts and accepted by means of the Acceptance Form.

I.4.2 The unit prices for the Services, are defined in Table 2 –Price list reference of the Annex II to the contract covering all tasks executed.

I.4.3 Price revision (in derogation to Article II.20 of the General Conditions)

I.4.3.1 Price revision will be formalised through an amendment to the contract. Price revisions are determined according to articles I.4.3.4 and II.20.

I.4.3.2 The price relating to the Stage 1, as expressed in art I.4.1.a), may be revised at the release of Stage 1 if, on that date, the validity period of the initial offer of the Contractor has expired.

The mentioned price revision must be explicitly requested by the Contractor not later than 30 (thirty) days from the release of Stage 1.

The prices resulting from that price revision will remain fixed and not subject to further revision during the whole duration of the Stage 1.

I.4.3.3 The price relating to Stage 2 may be revised at the release of Stage 2. The mentioned price revision must be explicitly requested by the Contractor not later than 30 (thirty) days after the release of Stage.

At the beginning of the second and every following year of Stage 2 of the contract, each price may be revised upwards or downwards at the request of one of the parties according to the provision of art II.20.

The new prices will be in force after the signature of the related amendment to the contract by all parties.

The Contracting Authority shall release the Specific Contracts on the basis of the prices in force on the date on which the Specific Contract is signed by both parties. Such prices shall not be subject to revision.

I.4.3.4. Price revision index

Price revision is determined by the formula set out in Article II.20 and using the trend in the harmonised indices of consumer prices (HICP) *[Euro Area* published at http://ec.europa.eu/eurostat/web/hicp/data/database under HICP (2015 = 100) - monthly data (index) (pre_hicp_midx).

I.4.4 Reimbursement of expenses

Reimbursement of expenses is not applicable to this contract.

I.4.5 New prices for similar services and/or similar goods

I.4.5.1 Should the execution of services or the supply of goods of similar nature to those in the price list become necessary within the scope of the Contract, for which it is not possible to determine the price by applying the price list in the Annex II to the Contract, the Contractor shall submit its new prices to the Contracting Authority for prior approval.

I.4.5.2 The Contracting Authority will evaluate the submitted prices, taking into account the market prices and professional tariffs for similar services or similar goods.

If, after this assessment, the Contracting Authority considers the offered prices as acceptable, the Contracting Authority will issue a Specific Contract either including only such new prices, or including the new prices among the items deriving from the price list (Annex II to the contract).

I.4.5.3 The acceptance of the new prices shall be considered valid **“una tantum”**, as the new prices will not become part of Annex II.

I.4.6 Gratuitous Loans (Annex III)

I.4.6.1 In case the Contracting Authority lends equipment to the Contractor, the parties shall sign a gratuitous loan agreement (Annex III), if mandatory as per health & safety regulations.

I.5 PAYMENT ARRANGEMENTS

I.5.1 Payment of Stage 1

I.5.1.1 Pre-financing

Pre-financing is not applicable to Stage 1.

I.5.1.2 Interim payment for Stage 1

After the approval of the technical content for Piano Operativo by the Contracting Authority, certified through the signature of the “acceptance form” (Annex IV of the contract), the Contractor shall submit an invoice for interim payment of EUR **[***]** equal to **[***]** of the amount under I.4.1.a)l).

The Contractor (or leader in the case of a joint tender) must send an invoice [in paper format, or electronic format, or via *e-PRIOR]*.

The invoice for interim payment shall be accompanied by the acceptance form already signed by the Contracting Authority

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections or a new document if required by the Contracting Authority.

I.5.1.3 Interim payment for Stage 1

After the issue of an **import/export license** for the treatment of JRC Ispra Waste, certified through the signature of the “acceptance form” (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for interim payment of EUR **[***]** equal to **[***]** of the amount under I.4.1.a)l).

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format, or electronic format, or via *e-PRIOR*.

The invoice for interim payment shall be accompanied by the Acceptance Form already signed by the Contracting Authority

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections or a new document if required by the Contracting Authority.

I.5.1.4 Interim Payment for stage 1

Following the approval of the licensing documentation related to the approval of adaptation/modification/improvement of the Contractor’s facilities by the Contractor’s Competent Authorities, certified through the signature of the “Acceptance Form” (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for interim payment of EUR **[***]** equal to **[***]** of the amount referred to in Article I.4.1.a)l).

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format, or electronic format or via *e-PRIOR*.

The invoice shall be accompanied by the Acceptance Form.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

I.5.1.5 Payment of the balance for Stage 1

Following the approval of the “Piano Operativo” by the Safety Authority certified through the signature of the “acceptance form” (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for payment of the balance of EUR **[***]**.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format or electronic format or via *e-PRIOR*.

The invoice shall be accompanied by the Acceptance Form. The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

I.5.1.6 Payment of optional specific contract related to "Support to clarification for licensing "during Stage 1

Following the approval of the "Piano Operativo" by the Safety Authority certified through the signature of the "acceptance form" (Annex IV of the contract) by the Contracting Authority the Contractor shall submit an invoice for payment of the balance of the amount of the related Specific Contract.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format or electronic format or via *e-PRIOR*.

The invoice shall be accompanied by the Acceptance Form and by the corresponding timesheets countersigned by the Contracting Authority.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

I.5.2 Stage 2

The Contractor (or leader in the case of a joint tender) may claim payments for the services already executed and accepted by the Contracting Authority, for each specific contract, according to the provisions of the Technical Specifications and in accordance with Article II.21.6.

Payments are different depending on the implementation type.

<u>For fixed price services:</u>

<u>a.</u> Lump sum services. The invoice may cover one or more service and it has to be accompanied by acceptance forms certifying the acceptance of the invoiced services. The invoiced amount is pre-defined by the value of the lump sum services.

<u>b.</u> Unit price services. The amount of the invoice is not predefined but depend on the units of service provided, multiplied by the unit prices. For practical reason there are minimum billable quantities, minimum units of services that can be included in an invoice and in a corresponding acceptance forms. Minimum billable quantities are different for each service package and are reported in the description of the different service packages.

<u>For time and means services:</u>

<u>c.</u> Deliverables have been accepted, certified by the signature of one/more acceptance form/s and corresponding timesheet/s countersigned by JRC.

I.5.2.1 Pre-financing

Pre-financing is not applicable to Stage 2.

I.5.2.2 Payment of the balance for specific contracts related to "fixed costs items – lump sum services"

Following the execution of the "fixed costs items referred to in the price list" certified through the signature of the "acceptance form" (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for payment of the balance.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format, or electronic format or via e-PRIOR.

The invoice shall be accompanied by the acceptance form. The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

I.5.2.3 Payments of other Specific Contracts related to "fixed costs items – Unit Prices services

Interim payment[s]

Following the execution of the minimum billable quantity of the "fixed costs items - Unit prices services referred to in the price list", certified through the signature of the "acceptance form" (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for interim payment.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format or electronic format or via *e-PRIOR* for the interim payment as provided for in the tender specifications. The invoice shall be accompanied by the acceptance form.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

Payment of the balance

Following the execution of the last quantity (even less than the minimum billable) of the " fixed costs items - Unit prices services referred to in the price list", certified through the signature of the "acceptance form" (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for the payment of the balance.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format or in electronic format or via e-PRIOR for the interim payment as provided for in the tender specifications. The invoice shall be accompanied by the acceptance form.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

I.5.2.4 Payments of other Specific Contracts related to " time & means" services.

Interim payment[s)

Following the execution of the "time & means services" referred to in the price list, certified through the signature of the "acceptance form" (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for monthly interim payment.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format or electronic format or via e-PRIOR for the monthly interim payment as provided for in the tender specifications. The invoice shall be accompanied by the acceptance form and by the corresponding timesheet countersigned by the Contracting Authority.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

Payment of the balance

Following the execution of the "time & means services" referred to in the price list, certified through the signature of the "acceptance form" (Annex IV of the contract) by the Contracting Authority, the Contractor shall submit an invoice for the payment of the balance.

The Contractor (or leader in the case of a joint tender) must send an invoice in paper format or in electronic format or via *e-PRIOR* for the monthly interim payment as provided for in the tender specifications. The invoice shall be accompanied by the acceptance form and by the corresponding timesheet countersigned by the Contracting Authority.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

I.5.2.5 Reimbursement of contractor's costs in case of "pre-shipment characterization idle periods" as referred to point 5.6.6 of the Technical Specifications

In case of pre-shipment characterization idle periods, as described in point 5.6.6 of the technical specification, after the conclusion of the idle period the Contractor is entitled to submit an invoice for the payment of the balance.

The Contractor must send an invoice in paper format or electronic format or via e-PRIOR for the payment of the balance. The invoice shall be accompanied by the acceptance form and by the communication certifying the conclusion of the idle period.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

I.5.2.6 Recovery or reimbursement deriving from the application of art. I.13.1.b)

The Contracting Authority will send an official communication to the Contractor in case the measurement of the actual final waste package volume, counted by the number of intermediate containers produced and returned to JRC, will be different from the expected volume following the application of the formula under art I.13.1.b.

The result will be positive in case the volume will be lower than the expected one; on the contrary the result will be negative in case the volume will be higher than the expected one.

The contractor will have 30 days to send observations/comments to the Contracting Authority or to approve the submitted result.

I.5.2.6.a) In case of a **negative result** deriving from a higher volume (outside the franchise included in the formula of art.I.13.1.b) than the expected volume, the Contracting Authority will have the right to submit a recovery order to recuperate the amount due.

The recovery order will be issued after 30 days from the date of the communication of the result of the measurement, if no objection has been raised by the contractor within the 30 days.

I.5.2.6.b) In case of a **positive result** deriving from a lower volume than the expected volume (outside the franchise included in the formula of art. I.13.1.b), the Contractor will have the right to submit an invoice for the amount corresponding to the positive result. The contractor will issue the invoice after 30 days of the receipt of the communication on the result of the measurement by the Contracting Authority.

The Contractor must send an invoice [in paper format, electronic format, or via e-PRIOR] for the payment of the positive result. The invoice must make clear reference to the communication exchange.

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

1.5.2.1 Reimbursement of contractor's costs in case of Pre-shipment characterization difformities - Reconciliation mechanism. Art I.13.8

In case the technical arbitrator's assessment confirms the pre-treatment characterization by the contractor the JRC shall reimburse to the Contractor the costs of the technical arbitration

The Contractor must send an invoice [in paper format, electronic format, or via e- PRIOR] for the reimbursement of the costs of the arbitrator, where costs of the arbitrator corresponds to the amount of the invoice submitted by the arbitrator to the contractor.

The invoice must be accompanied by the copy of the invoice submitted by the arbitrator to the contractor and shall make clear reference to the specific contract submitted for such specific event (Annex III).

The Contracting Authority shall make the payment within **30 (thirty)** days from receipt of the invoice. The Contractor shall have **10 (ten)** days in which to submit additional information or corrections, or other documents if it is required by the Contracting Authority.

The Contracting Authority may suspend the time limit for payment in accordance with Article II.21.7. Once the suspension is lifted, the Contracting Authority shall give its approval and pay within the remainder of the time-limit, unless it rejects partially or fully the submitted documents or deliverables.

I.5.2.8 Performance guarantee

Performance guarantee is not applicable to this contract.

I.5.2.9 Retention money guarantee

Retention money guarantee is not applicable to this contract

I.5.3 Reimbursement of the costs incurred by the Contracting Authority

I.5.3.1 According to art I.13.7.2 the Contracting Authority will communicate the Contractor the decision to:

- accept the damaged container and its contents
- deal directly with it
- the amount of the extra costs to refund

The Contractor shall reimburse to the Contracting Authority the amount according to the modalities provided for in article I.5.3.3.

I.5.3.2 According to art I.13.7.3 a) the Contracting Authority will communicate the Contractor the decision to:

- accept the non-conform waste
- deal directly with it
- the amount of the extra costs to refund

I.5.3.3 Following the communication of its decision (I.5.3. l or I.5.3.2), the contracting authority will issue a Recovery order to recuperate the amount due.

I.5.4 VAT provisions

Where VAT is due in Belgium, the provisions of the contract constitute a request for VAT exemption No 450, Article 42, paragraph 3.3 of the VAT code (circular 2/1978), provided the contractor includes the following statement in the invoice(s): “Exonération de la TVA, Article 42, paragraphe 3.3 du code de la TVA (circulaire 2/1978)” or an equivalent statement in the Dutch or German language.

Where VAT is due in Luxembourg, the Contractor shall include the following statement in the invoices: “Commande destinée à l’usage officiel de l’Union européenne. Exonération de la TVA Article 43 § l k 2ième tiret de la loi modifiée du 12.02.79.” In case of intra-Community purchases, the statement to be included in the invoices is: “For the official use of the European Union. VAT Exemption *I* European Union/ Article 151 of Council Directive 2006/112/EC.”

Contractors must attentively read Article II.19. l of the present contract.

a) For Contractors established **in Italy** the corresponding invoices must be sent, without V.A.T., with the following sentence:

“Per la prestazione di servizi, operazione non imponibile ai sensi dell’articolo 72, comma 3, paragrafo 3), del D.P.R. n. 633 del 26/10/1972, come modificato da ultimo dal D.L. n. 323 del 20/6/1996 convertito in Legge n. 425 dell’8/8/l 996. Per la consegna di fomiture, operazione non imponibile ai sensi della Legge l Agosto 1960 n. 906, in particolare l’Allegato F, Articoli 5, 6 e 7 (G.U. n. 212 del 31.08.60) come confermato dall’Articolo 72, comma 1) del DPR n. 633 del 26.10.72”.

b) For Contractors established **in another member state** in which the fiscal legislation allows direct V.A.T. exemption, the corresponding invoices must be sent, without V.A.T., with the following sentence:

"V.A.T. exemption *I* International body / Article 151 of Council Directive 2006/112/EC"

c) For Contractors established **in another Member State** in which the fiscal legislation does not allow direct V.A.T. exemption, the Contractor has to send the corresponding invoices with V.A.T. At the request of the Contracting Authority, the Contractor shall make available to it all the supporting documents which the Contracting Authority might need, in order to apply to the tax authorities for the reimbursement, pursuant to Articles 3 and 4 of the Protocol on the Privileges and Immunities of the European Communities, of any duties and taxes paid in the course of the performance of this contract

I.5.5 Invoices for payment must be sent to the following address:

European Commission
Joint Research Centre
Ricevimento Merci
Via E. Fermi 2709
I-21020 Ispra (VA) Italia
JRC-ISPRA-RICEVIMENTO-MERCI@ec.europa.eu

I.6 Guaranties (Not applicable)

I.7 Bank account

Payments must be made to the contractor's (or leader's in the case of a joint tender) bank account denominated in EURO , identified as follows:

Name of bank: PNC **BANK**
Full address of branch: Two tower center bvld – 08816 East Brunswich, NJ -USA
Exact denomination of account holder: Perma-fix environmental services inc
Full account number including bank codes: **[***]**
SWIFT code: **[***]**
BRANCH code: **[***]**

I.8 Communication details

For the purpose of this contract, communications must be sent to the following addresses:

Contracting authority:
European Commission
Joint Research Centre, Ispra Site
Via Enrico Fermi 2749
21027 Ispra (VA) Italy

For financial and administrative questians:
Directorate R Support Services
Unit R8 Budget Execution
E-mail: jrc-ispra-dir-j-contract-mgt@ec.europa.eu

For technical questions:

Directorate J Nuclear Decommissioning and Waste Management (Ispra)
To the attention of Flavio ZANOVELLO and Hervé BOISSEAU
E-mail: Flavio.Zanovello@ec.europa.eu ; Herve.Boisseau@europa.eu

Contractor (or leader in the case of a joint tender):

[***]
[***]
Perma-fix environmental services inc
1093 Commerce Park Drive- suite 300 Oak Ridge – Tennessee-37830 -USA
E-mail: **[***]**

By derogation from this Article, different contact details for the contracting authority or the contractor may be provided in the specific contracts or order forms.

I.9 Data controller

I.9.1 Processing of personal data by the Contracting Authority

For the purpose of Article II.9.1,

(a) the data controller is the director of the Directorate J;
(b) the data protection notice is available at https://ec.europa.eu/info/data-protection-public-procurement-procedures_en.

I.9.2 Processing of personal data by the contractor

For the purpose of Article II.9.2,

(a) the subject matter and purpose of the processing of personal data by the Contractor are *invoicing and contract management;*

(b) The localisation of and access to the personal data processed by the Contractor shall comply with the following:

i. the personal data shall only be processed within the territory of [the European Union and the European Economic Area][...] and will not leave that territory;
ii. the data shall only be held in data centres located with the territory of [the European Union and the European Economic Area][...];
iii. [no access shall be given to such data outside of [the European Union and the European Economic Area][...]] [access to data may be given on a need to know basis only to authorised persons established in a country which has been recognised by the European Commission as providing adequate protection to personal data];
iv. the contractor may not change the location of data processing without the prior written authorisation of the Contracting Authority;

v. any transfer of personal data under the contract to third countries or international organisations shall fully comply with the requirements laid down in Chapter V of Regulation (EU) 2018/1725[1].]

I.10 Exploitation of the results of the contract

Detailed list of modes of exploitation of the results

In accordance with Article II.13.1 whereby the Union acquires ownership of the results as defined in this contract, including the tender specifications, these results may be used for any of the following modes of exploitation:

(a) use for its own purposes:

- making available to the staff of the Contracting Authority;
- making available to the persons and entities working for the Contracting Authority or cooperating with it, including contractors, subcontractors whether legal or natural persons, Union institutions, agencies and bodies, Member States' institutions;
- installing, uploading, processing;
- arranging, compiling, combining, retrieving;
- copying, reproducing in whole or in part and in unlimited number of copies.]

(b) distribution to the public in hard copies, in electronic or digital format, on the internet **not applicable)**

(c) communication through press information services;(**not applicable)**

(d) inclusion in widely accessible databases or indexes, such as via 'open access' or 'open data' portals, or similar repositories, whether freely accessible or accessible only upon subscription; **(not applicable)**

(e) modifications by the Contracting Authority or by a third party in the name of the Contracting Authority, including:

- shortening;
- summarising;
- modifying the content, the dimensions;
- making technical changes to the content (necessary correction of technical errors), adding new parts or functionalities, changing functionalities, providing third parties with additional information concerning the result (e.g. source code) with a view to making modifications;

1 Regulation (EU) 2018/1725 of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC, OJ L 295/39, 21.11.2018, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1725&from=EN

- addition of new elements, paragraphs, titles, leads, bolds, legend, table of content, summary, graphics, subtitles, sound;
- addition of metadata, for text and data-mining purposes; addition of right management information; addition of technological protection measures;
- preparation in audio form, preparation as a presentation, animation, pictograms story, slide-show, public presentation;
- extracting a part or dividing into parts;
- translating, inserting subtitles, dubbing in different language versions:

  English, French, German;
  all official languages of EU;
  languages used within EU;
  languages of candidate countries;
  [list or name other languages].

(t) rights to authorise, license, or sub-license in case of licensed *pre-existing rights,* the modes of exploitation set out in any of the points (a) to (e) to third parties.

(g) other adaptations which the parties may later agree; in such case, the following rules apply: the Contracting Authority must consult the contractor. If necessary, the contractor must in turn seek the agreement of any *creator* or other right holder and must reply to the Contracting Authority within one month by providing its agreement, including any suggestions of modifications, free of charge. The Contractor may refuse the intended modification only if a *creator* can demonstrate that the intended modification may harm his/her honour or reputation, thereby violating his/her moral rights.

Licence or transfer of pre-existing rights

All *pre-existing rights* incorporated in the *results,* if any, are licensed to the Union as set out in Article II.13.2.

By derogation to Article II.13.2, the Union acquires fully and irrevocably all *pre- existing rights* incorporated in the *results,* if any [except for the following rights *[insert exceptions].]*

Provision of list of pre-existing rights and documentary evidence <u>(not applicable)</u>

The Contractor must provide the Contracting Authority with a list of *pre-existing rights* as set out in Article II.13.4 together with the invoice for payment of the balance at the latest.

In addition, the Contractor must provide the Contracting Authority with relevant and exhaustive evidence of the acquisition of all the necessary *pre-existing rights* together with a presentation of relevant *result.* To this effect, the Contractor must provide [a statement in accordance with Annex *[insert reference]]* [the relevant evidence listed in Article II.13.5 as appropriate or, failing that, third parties' statements in accordance with Annex *[insert reference]*.

I.11.SUSPENSION OR TERMINATION BY THE CONTRACTING AUTHORITY

I.11.1 In addition to the cases listed in Art. II.17.2 and Art. II.18.1 of the General Conditions, in the event of suspension of its license by the national Authorities, the Contracting Authority reserves the right to suspend or terminate the contract.

I.11.2 In addition to the termination cases listed in Art. II.18.1 of the General Conditions, the contract shall be terminated in the event of withdrawal of the Contracting Authority's license by the national Authorities.

I.12.APPLICABLE LAW AND SETTLEMENT OF DISPUTES

I.12.1. The contract is governed by Union and EURATOM law, complemented, where necessary, by the law of Italy.

I.12.2. The EU General Court in Luxembourg shall have exclusive jurisdiction over any dispute regarding the interpretation, application or validity of the contract.

I.13.OTHER SPECIAL CONDITIONS

I.13.1 Price adjustments

I.13.1.a) **Reference final waste package volume**

Proposed final waste package volume is calculated, for each Specific Contract, based on the Contractor's offer (Annex II) and the quantities and types of waste subject to treatment (OBRW and/or BDs). This value will be taken as a reference for price adjustment.

Actual final waste package volume will be measured by counting the number of intermediate containers produced and by calculating FWP volume according to the filling scenario proposed by the Contractor and accepted by the Contracting Authority.

I.13.1.b) Price adaptation formula for FWP volume different than expected

Without prejudice to article II.16, for each Specific Contract the contract price will be adapted for final waste package volume variations according to the following formula:

$$Pr_i = \begin{cases} Pr_i \text{ if } \dfrac{|FWPv_{ai} - FWPv_{ri}|}{FWPv_{ri}} \leq 0.15 \\ Pr_i - (FWPv_{ai} - FWPv_{ri} * 1.15) \cdot k \text{ if } FWPv_{ai} > 1.15 * FWPv_{ri} \\ Pr_i + (FWPv_{ri} * 0.85 - FWPv_{ai}) \cdot k \text{ if } FWPv_{ai} < 0.85 * FWPv_{ri} \end{cases}$$

Where Pr_i is the total amount due for specific contract i, $FWPv_{ai}$ is the actual final waste package volume produced during specific contract i expressed in cubic meters, $FWPv_{ri}$ is the reference final waste package volume for specific contract i expressed in cubic meters and **K** is a constant whose value is **[***]**. K value will be revised according to the procedure set in article I.4.3 for price revision.

I.13.2 JRC Take-back obligation clause

In accordance with licensing and other requirements, the JRC shall take back the treated drums, within the maximum time allowed by the relevant regulations and set in the relevant licensing and transport authorisations.

I.13.2.1 Taking over the returning waste

The formal taking over of the returning waste to the JRC with transfer of responsibility will take place in accordance with par 5.10.4.1 of Annex I.

I.13.2.2 Radioactivity non-compliance of returned waste

For each specific contract including treatment services the total radioactivity of returned waste shall be equal to or less than the amount shipped in the same specific contract; this holds for each single quantified (above MDA) nuclide in the pre- shipment characterisation phase (see §5.9 of Annex I) taking into account global measurement uncertainty. Check of this requirement will be finalised at the end of service package 6. In case the activity should exceed the prescribed value, the Contractor shall retain the waste bearing the excess radioactivity at his own facilities. In case non-conformity to this clause should be ascertained at JRC-Ispra premises, the radioactivity excess bearing waste will be shipped back to the Contractor at his own expenses.

I.13.2.3 Hand over of the drums

The formal hand-over of the drums to the Contractor for the transport to the Contractor's facility with transfer of responsibility will take place according to point 5.7.4.5 of Annex I.

I.13.2.4 Agreement on transfer of responsibilities

For all drums to be transported after characterisation, the Contracting Authority will sign a separate agreement "Convenzione Scritta" with the carrier for the transfer of the third party liability to the transport company, on the basis of the information provided by the Contractor; in respect of possible nuclear incidents occurring in the course of the transport, including loss of drums; in accordance with the provisions of Article 4 d) of the Paris Convention on Third P arty Liability in the Field of Nuclear Energy dated 29th July 1960, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982 (the "Convention"), as transposed by applicable national legislation (Legge 31.12.1962, n°1860 as successively modified, in particular, Article 16 and 21 thereof).

I.13.3 Liability and Insurances

I.13.3.a) To supplement Article II.6., the Contractor undertakes to hold the necessary licenses for the execution of the tasks as defined in article I.2.1 for the whole duration of the contract. The Contractor cannot circumvent this obligation by accelerating the programme without JRC permission.

I.13.3.b) In addition to Art. 11.6. the Contractor shall be responsible for adding necessary licensing in its own country if modification of its facility, as described in Annex I, is deemed necessary for execution of the Services. In case of delay in obtaining this additional license, art. II.15 shall apply.

I.13.3.c) I In addition to Art. II.6, the Contractor shall be responsible for obtaining the necessary transport authorisation in due time. With the exception of the application of art II.14 on force majeure, in case of delay in obtaining the transport authorisation, art II.15 shall apply.

I.13.3.d) The liability limit under Article II.6.3 ("maximum liability of the contractor for loss or damage caused to the contracting authority during or as a consequence of performance of the contract, including in the event of subcontracting") shall be capped to EUR 1,5 Min, to be covered by a professional liability insurance.

A copy of the insurance shall be provided to the Contracting Authority within 30 calendar days from release of Stage 2.

I.13.3.e) A copy of the renewal receipts of the insurance mentioned under the Contract shall be communicated to the Contracting authority within 15 days from its expiry date.

I.13.4 Indemnification of irreversible contamination

I.13.4.1 For all equipment/assets that are leased through third parties by the contractor, an insurance policy covering such material damages is required. Such policy shall cover the residual value of the asset in the event of irreversible contamination.

No additional cost will be borne by the Contracting Authority for the transfer of property.

I.13.4.2 For all equipment/assets of property of the Contractor an insurance policy covering the Contractor's own material damages is required. Such policy shall cover the residual value of the asset in the event of irreversible contamination.

No additional cost will be borne by the Contracting Authority for the transfer of property.

I.13.5 **Amendments**

Notwithstanding Article II.11 of the General Conditions, the following applies:

I.13.5.a) The Contracting Authority, following the recommendations and/or (denial of) authorisation from the Italian competent authorities regarding, in particular, the waste acceptance criteria or the "piano operativo", or in case of modifications or additions that are considered and requested as necessary by the Contracting Authority, reserves the right to amend the contract, so as to modify the Services to make them compliant with the requirements of the authorities, or to integrate the modifications or additions requested by the Contracting Authority.

I.13.5.b) The Contractor may not refuse to consent to the modifications or additions to the Contract requested by the Contracting Authority on the basis of the art I.13.5.a) above.

The provisions of Articles I.3.6 and I.3.7 wholly applies to the modification or addition, once the impact is agreed with the Contracting Authority on the basis of the art. I.13.5.c) below. The modifications will become effective following the signature of a dedicated amendment to the contract. The effects of such changes will impact also on the activities still to be performed of the ongoing Specific Contracts as defined under art. I.13.5.d).

I.13.5.c) To that end, the Contractor must send the Contracting Authority written notification as soon as possible if a modification or addition is likely to affect the amount mentioned in the Contract or its expiry deadlines. In this case, the contracting parties will consult in order to fix new prices and deadlines in accordance with following rules ***1), 2)*** and *3):*

1) The impact on the contractual amount (price) related to any modification or addition shall always be established, by the Contractor, as a balance between the additional costs of the modification or addition and the original costs of the initial Technical specifications (Annex I of the Contract) impacted by the modification or addition.

The same following rule b) shall apply and, if requested by the Contracting Authority, the Contractor shall demonstrate that it has been applied for estimating both the additional and the original costs.

2) The impact on the price, of the modification or addition (also referred as 'New Price'), shall be established as follows:

I. Quantities: the quantities are estimated, consistently with the nature and the extent of the modification or addition; and submitted by the Contractor to the Contracting Authority for agreement;

II. Unit Prices:

i) As a general rule, they shall be based on the unit rates of the Table 2 Price List Reference of Annex II to the contract, in application at the date of the request of modification or addition.

ii) For the items not covered by the Table 2 Price list Reference, the pricing shall be agreed between the Contracting Authority and the Contractor, on the basis of a comprehensive analysis where:

● the costs of additional or modified treatment/undefined drums shall be based on the best offer, in term of "value for money", proposed by the Contractor and accepted by the Contracting Authority;

a total and comprehensive overhead is, by default, included in the offer proposed by the Contractor;

● the pricing of Staff shall be done according to the Contractual rates multiplied by the Quantities;

in particular, the costs of all the support activities are already included as overheads in the Prices of Staff, and shall not be added into the pricing of the modification or addition.

3) The impact on the project duration, of the modification or addition, shall be commonly agreed by the contracting parties, based on an updated proposal of the project time schedule submitted by the Contractor to the Contracting Authority for its approval.

I.13.5.d) If the effect of a modification or addition or reduction as per art I.13.5.a) is to increase or decrease the value or the duration of the activities not yet executed of ongoing Specific Contract(s) the modification or addition or reduction shall become effective following an amendment to the specific contract signed by both parties.

Modifications, additions or reductions performed without signed amendments will be neither recognized nor reimbursed.

I.13.5.e) In case of modifications or additions in the applicable legislation likely to have an impact on the execution of the services, the party affected by the change shall inform the other party without any delay. The parties shall analyse and present the solutions to continue to execute the services in line both with the new requirements of the applicable legislation and the existing obligations.

None of the parties may refuse to consent to the amendments to the Contract if the party proposing the amendment demonstrates its absolute necessity having regard to the existing constraints or obligations. The amendment will be negotiated and drafted in accordance with the procedures set out in art. I.13.5.c) and I.13.5.d).

I.13.6 Performance of the Contract

I.13.6.1 The following provision complements Article II.4 of the General Conditions:

Notwithstanding the rights of the Contracting Authority to terminate the Contract or its other rights under the Contract, where the Contractor fails to fulfil any of the requirements of the Contract (a Contractor Default) the Contractor shall remedy such Contractor Default to the reasonable satisfaction of the Contracting Authority, as follows:

a) Within seven days of being notified of a Contractor's Default by the Contracting Authority, the Contractor shall submit to the Contracting Authority for its approval a plan showing how the Contractor will remedy such default (the Recovery Plan). The Recovery Plan shall be such as to ensure that the Contractor remedies the default so that the requirements of the Contract are complied with and with no adverse effect on the performance of the Services or, where it is not possible to remedy the default with no adverse effect, then with the minimum effect on the performance of the Service. The Recovery Plan shall be in sufficient detail to demonstrate to the reasonable satisfaction of the Contracting Authority that it will remedy the Contractor Default as aforesaid.

b) The Contractor shall implement the Recovery Plan immediately upon its approval by the Contracting Authority and shall remedy the Contractor Default within the timescale set therein.

c) Where the Contractor fails to submit a Recovery Plan to the reasonable satisfaction of the Contracting Authority or fails to remedy the Contractor Default within the timescale set in the Recovery Plan, the Contracting Authority shall have the right to terminate the Contract in accordance with its terms.

d) All costs arising from the preparation and implementation of the Recovery Plan shall be borne by the Contractor.

e) Where a Contractor's Default cannot be remediated or it cannot be remediated to the reasonable satisfaction of the Contracting Authority, the parties to the Contract shall meet to agree the steps to be taken and nothing in any such discussions shall limit either party's rights or obligations under the Contract.

I.13.6.2 Whenever the contractor, will find himself in a period of inactivity during the pre- shipment characterization, as described under point 5.6.6 of the Technical Specifications, Annex I to the contract, following a formal acknowledgment of the Contracting Authority of the period(s) of inactivity, the contractor will be entitled to claim for compensation for the" idle period according to the provisions of art. I.5.2.5. The maximum amount reimbursable per calendar year is € **[***]**, as per point 5.6.6.10 of Annex I.

I.13.7 Minimum Performance Requirements and Deliverables

I.13.7.1 In case of damage detection after receiving the transport back to JRC lspra:

According to the provisions of point 5.10.4.2 a) of the Technical Specifications, Annex I to the draft contract, the Contractor will bear all costs arising from the return of the damaged intermediate container to the contractor's treatment facilities, including the repackaging of the waste and transport.

I.13.7.2 According to the provisions of point 5.10.4.2 b) of the Technical Specifications , Annex I to the draft contract, the Contracting Authority may accept the damaged container and its contents and deal with it himself and the Contractor shall pay the Contracting Authority.

I.13.7.3 In case the Contracting Authority declares not compliant the returned waste, the provisions of article I.3.8 apply, in relation to the non-compliant characteristics of the returned waste.

I.13.7.3.a) In case of confirmation of non compliance, according to the provisions of point 5.10.4.3 a) of the Technical Specifications , Annex I to the draft contract the Contracting Authority may accept the non-conforming waste and deal with it himself and the Contractor shall pay the Contracting Authority's reasonable extra costs incurred. The Contracting Authority will communicate the Contractor the decision to accept the non conforming waste and the amount of the extra costs to refund according to Art. I.5.3.3.

I.13.7.3.b) In case of confirmation of the compliance with JRC Ispra waste acceptance criteria of the returned waste, the Contracting Authority shall accept the returned waste.

I.13.8 Characterization difformities-Reconciliation mechanism

In case, after a characterization steps performed by either the Contractor or the Contracting authority, characterization results obtained are different leading to the non-acceptance of waste items by either the Contracting Authority or the Contractor, the following mechanism shall be activated.

If no reconciliation can be agreed between the technical responsible officers, nor at management level (for the Commission, the staff authorised to sign the contract, AOSD) in one month's time, the following procedure shall apply:

a. The Contractor shall propose to the Commission a technical arbitrator. This has to be a recognised laboratory, in possession of the ISO specification 17025.

b. The Commission shall agree in writing to the chosen arbitrator within three week's time, failing which, the arbitrator shall be deemed accepted by the Commission.

c. The Parties shall conclude a specific contract for the purpose of conditional payment by the Commission following the reconciliation results. To this purpose, the specific contract model under Annex III shall be used.

If, following the technical arbitrator's assessment, the characterization performed by the Contractor is confirmed, JRC shall reimburse to the Contractor the costs of the technical arbitration.

If, following the technical arbitrator's assessment, the characterization performed by the Contractor is not confirmed, the costs of the technical arbitration will be borne by the Contractor.

I.13.9 Liquidated Damages

Liquidated damages referred to in Article II.15 may be applied, at the Contracting Authority's absolute discretion, to each Specific Contract and to Stage 1. Liquidated damages are up to a maximum of 50% of the amount due for each Specific Contract under Stage 2 and to a maximum of 100% of the amount due for Stage 1.

I.13.10 Grounds for termination

In Article II.18.1.b), the words", through its own fault," shall not apply. This Article I.13.10 does not affect any other grounds for termination.

I.13.11 Health and Safety

I.13.11.1 The Contractor is aware of the dangerous nature of the tasks and of the exact nature of the danger. The Contractor shall thus take all necessary precautions to execute the tasks. The Contractor shall ensure that the tasks performed at the Joint Research Centre, Ispra site, will be performed in full compliance with the relevant Contracting Authority safety regulations in force, as set out in Annexes VII, IX and X and national, European and international safety standards.

I.13.11.2 The Contractor will ensure that contract personnel performing on site activities are fit and healthy for undertaking the intended work. For each person, the Contractor will provide to the Contracting Authority a copy of the necessary certificates at least *5* working days before that person commences on site activities.

1.13.11.3 DUVRI (Risks evaluation document) - Annex X

Given that it is a dynamic document, the DUVRI includes the possibility of identifying and quantifying at a later date any interference risks unforeseeable at the time being.

The formalisation of a contract amendment as a consequence of a DUVRI modification may be carried out by a simple exchange of letters.

1.13.12 Subcontracting

Without prejudice to Art.11.10-Subcontracting, the Contractor shall make the DUVRI (see Art.1.13.11.3) available to any subcontractor and shall take the responsibility in respect of the consistency of the safety costs declared by the subcontractor on the specific issue of intrinsic safety aspects.

The Contractor shall make available to the Contracting Authority the supporting documents according to the subcontracting authorisation procedure in force at the JRC and, upon request, the supporting documents related to the subcontractor's technical and professional capacity proportionate to the value and to the nature of the subcontracted activity or any other specific document retained appropriate.

SIGNATURES

For the Contractor,

Consortium:

Perma-Fix Environmental Services
Inc
Mark DUFF
CEO

12/15/23

Signature

and

For the Contractor,
Campoverde Srl
Federico GIANNI
CEO

Signature:

Firmato digitalmente da:
FEDERICO LAMBERTO GIANNI
Data: 18/12/2023 09:45:16

For the Contracting Authority,

Laurent JERRIGE

JRC -Directorate J - Nuclear
Decommissioning and Waste
Management

Signature:

Qualified electronic signature by:
LAURENT LOUIS JERRIGE
Date: 2023-12-18 15:46:09 +01:00

II. GENERAL CONDITIONS FOR THE FRAMEWORK CONTRACT FOR SERVICES

II.1 DEFINITIONS

For the purpose of this FWC, the following definitions (indicated in *italics* in the text) apply:

'Back office': the internal system(s) used by the parties to process electronic invoices;

'Breach of obligations': failure by the contractor to fulfil one or more of its contractual obligations.

'Confidential information or document': any information or document received by either party from the other or accessed by either party in the context of the *implementation of the FWC,* that any of the parties has identified in writing as confidential. It may not include information that is publicly available;

'Conflict of interest': a situation where the impartial and objective *implementation of the FWC* by the contractor is compromised for reasons involving family, emotional life, political or national affinity, economic interest, any other direct or indirect personal interest, or any other shared interest with the contracting authority or any third party related to the subject matter of the FWC;

'Creator': means any natural person who contributes to the production of the *result;*

'EDI message' (electronic data interchange): a message created and exchanged through the electronic transfer, from computer to computer, of commercial and administrative data using an agreed standard;

'e-PRIOR': the service-oriented communication platform that provides a series of web services and allows the exchange of standardized electronic messages and documents between the parties. This is done either through web services, with a machine-to-machine connection between the parties' *back office* systems *(EDI messages),* or through a web application (the *supplier portal).* The Platform may be used to exchange electronic documents (e-documents) such as electronic requests for services, electronic specific contracts, electronic acceptance of services and electronic invoices between the parties.

'Force majeure': any unforeseeable, exceptional situation or event beyond the control of the parties that prevents either of them from fulfilling any of their obligations under the FWC. The situation or event must not be attributable to error or negligence on the part of the parties or on the part of the subcontractors and must prove to be inevitable despite their exercising due diligence. Defaults of service, defects in equipment or material or delays in making them available, labour disputes, strikes and financial difficulties may not be invoked as *force majeure,* unless they stem directly from a relevant case of *force majeure;*

'Formal notification' (or 'formally notify'): form of communication between the parties made in writing by mail or email, which provides the sender with compelling evidence that the message was delivered to the specified recipient;

'Fraud': an act or omission committed in order to make an unlawful gain for the perpetrator or another by causing a loss to the Union's financial interests, and relating to: i) the use or presentation of false, incorrect or incomplete statements or documents, which has as its effect the misappropriation or wrongful retention of funds or assets from the Union budget, ii) the non-disclosure of information in violation of a specific obligation, with the same effect or iii) the misapplication of such funds or assets for purposes other than those for which they were originally granted, which damages the Union's financial interests;

'Grave professional misconduct': a violation of applicable laws or regulations or ethical standards of the profession to which a contractor or a related person belongs, including any conduct leading to sexual or other exploitation or abuse, or any wrongful conduct of the contractor or a related person which has an impact on its professional credibility where such conduct denotes wrongful intent or gross negligence.

'Implementation of the FWC': the purchase of services envisaged in the FWC through the signature and *performance of specific contracts;*

'Interface control document': the guideline document which lays down the technical specifications, message standards, security standards, checks of syntax and semantics, etc. to facilitate machine-to-machine connection. This document is updated on a regular basis;

'Irregularity': any infringement of a provision of Union law resulting from an act or omission by an economic operator, which has, or would have, the effect of prejudicing the Union's budget.

'Notification' (or 'notify'): form of communication between the parties made in writing including by electronic means;

'Order form': a simplified form of specific contract by which the contracting authority orders services under this FWC;

'Performance of a specific contract': the execution of tasks and delivery of the purchased services by the contractor to the contracting authority;

'Personnel': persons employed directly or indirectly or contracted by the contractor to implement the FWC;

'Pre-existing material': any material, document, technology or know-how which exists prior to the contractor using it for the production of a *result* in the *implementation of the FWC;*

'Pre-existing right': any industrial and intellectual property right on *pre-existing material;* it may consist in a right of ownership, a licence right and/or right of use belonging to the contractor, the *creator,* the contracting authority as well as to any other third parties;

'Professional conflicting interest': a situation in which the contractor's previous or ongoing professional activities affect its capacity to implement the FWC or to perform a specific contract to an appropriate quality standard.

'Related person': any natural or legal person who is a member of the administrative, management or supervisory body of the contractor, or who has powers of representation, decision or control with regard to the contractor;

'Request for services': a document from the contracting authority requesting that the contractors in a multiple FWC with re-opening of competition provide a specific tender for services whose terms are not entirely defined under the FWC;

'Result': any intended outcome of the *implementation of the FWC,* whatever its form or nature. A *result* may be further defined in this FWC as a deliverable. A *result* may, in addition to newly created materials produced specifically for the contracting authority by the contractor or at its request, also include *pre-existing materials;*

'Specific contract': a contract implementing the FWC and specifying details of a service to be provided;

'Supplier portal': the *e-PRIOR* portal, which allows the contractor to exchange electronic business documents, such as invoices, through a graphical user interface.

II.2. Roles and responsibilities in the event of a joint tender

In the event of a joint tender submitted by a group of economic operators and where the group does not have legal personality or legal capacity, one member of the group is appointed as leader of the group.

II.3. Severability

Each provision of this FWC is severable and distinct from the others. If a provision is or becomes illegal, invalid or unenforceable to any extent, it must be severed from the remainder of the FWC. This does not affect the legality, validity or enforceability of any other provisions of the FWC, which continue in full force and effect. The illegal, invalid or unenforceable provision must be replaced by a legal, valid and enforceable substitute provision which corresponds as closely as possible with the actual intent of the parties under the illegal, invalid or unenforceable provision. The replacement of such a provision must be made in accordance with Article II.11. The FWC must be interpreted as if it had contained the substitute provision as from its entry into force.

II.4. Provision of services

II.4.1 Signature of the FWC does not guarantee any actual purchase. The contracting authority is bound only by specific contracts implementing the FWC.

II.4.2 The contractor must provide services of high quality standards, in accordance with the state of the art in the industry and the provisions of this FWC, in particular the tender specifications and the terms of its tender. Where the Union has the right to make modifications to the *results,* they must be delivered in a format and with the necessary information which effectively allow such modifications to be made in a convenient manner.

II.4.3 The contractor must comply with the minimum requirements provided for in the tender specifications. This includes compliance with applicable obligations under environmental, social and labour law established by Union law, national law and collective agreements or by the international environmental, social and labour law provisions listed in Annex X to Directive 2014/24/EU[2], compliance with data protection obligations resulting from Regulation (EU) 2016/679[3] and Regulation (EU) 2018/1725[4].

II.4.4 The contractor must obtain any permit or licence required in the State where the services are to be provided.

II.4.5 All periods specified in the FWC are calculated in calendar days, unless otherwise specified.

II.4.6 The contractor must not present itself as a representative of the contracting authority and must inform third parties that it is not part of the European public service.

II.4.7 The contractor is responsible for the *personnel* who carry out the services and exercises its authority over its *personnel* without interference by the contracting authority. The contractor must inform its *personnel* that:

(a) they may not accept any direct instructions from the contracting authority; and

(b) their participation in providing the services does not result in any employment or contractual relationship with the contracting authority.

II.4.8 The contractor must ensure that the *personnel* implementing the FWC and any future replacement personnel possess the professional qualifications and experience required to provide the services, as the case may be on the basis of the selection criteria set out in the tender specifications.

II.4.9 At the contracting authority's reasoned request, the contractor must replace any member of *personnel* who:

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[2] OJ L 94 of 28.03.2014, p. 65

[3] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, OJ L 119, 4.5.2016, p. 1, https://eur- lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L .2016.119.01.0001.01.ENG

[4] Regulation (EU) 2018/1725 of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC, OJ L 295/39, 21.11.2018, https://eur-lex.europa.eu/legal- content/EN/TXT/PDF/?uri=CELEX:320l 8Rl 725&from=EN

(a) does not have the expertise required to provide the services; or

(b) has caused disruption at the premises of the contracting authority.

The contractor bears the cost of replacing its *personnel* and is responsible for any delay in providing the services resulting from the replacement of *personnel*.

II.4.10 The contractor must record and report to the contracting authority any problem that affects its **ability** to provide the services. The report must describe the problem, state when it started and what action the contractor is taking to resolve it.

II.4.11 The contractor must immediately inform the contracting authority of any changes in the exclusion situations as declared, according to Article 137 (1) of Regulation (EU) 2018/1046.

II.5. Communication between the parties

II.5.1.Form and means of communication

Any communication of information, notices or documents under the FWC must:

(a) be made in writing in paper or electronic format in the language of the contract;
(b) bear the FWC number and, if applicable, the specific contract number;
(c) be made using the relevant communication details set out in Article I.8; and
(d) be sent by mail, email or, for the documents specified in the special conditions, via *e- PRIOR*.

If a party requests written confirmation of an e-mail within a reasonable time, the other party must provide an original signed paper version of the communication as soon as possible.

The parties agree that any communication made by email has full legal effect and is admissible as evidence in judicial proceedings.

II.5.2. Date of communications by mail and email

Any communication is deemed to have been made when the receiving party receives it, unless this FWC contract refers to the date when the communication was sent.

E-mail is deemed to have been received by the receiving party on the day of dispatch of that e-mail, provided that it is sent to the e-mail address indicated in Article I.8. The sending party must be able to prove the date of dispatch. In the event that the sending party receives a non-delivery report, it must make every effort to ensure that the other party actually receives the communication by email or mail. In such a case, the sending party is not held in breach of its obligation to send such communication within a specified deadline.

Mail sent to the contracting authority is deemed to have been received by the contracting authority on the date on which the department responsible referred to in Article I.8 registers it.

Formal notifications are considered to have been received by the receiving party on the date of receipt indicated in the proof received by the sending party that the message was delivered to the specified recipient.

II.5.3. Submission of e-documents via e-PRIOR

1. If provided for in the special conditions, the exchange of electronic documents (e- documents) such as requests for services, specific contracts and invoices between the parties is automated through the use of the *e-PRIOR* platform. This platform provides two possibilities for such exchanges: either through web services (machine-to- machine connection) or through a web application (the *supplier portal)*.
2. The contracting authority takes the necessary measures to implement and maintain electronic systems that enable the *supplier portal* to be used effectively.
3. In the case of machine-to-machine connection, a direct connection is established between the parties' *back offices.* In this case, the parties take the measures necessary on their side to implement and maintain electronic systems that enable the machine-to- machine connection to be used effectively. The electronic systems are specified in the *interface control document.* The contractor (or leader in the case of a joint tender) must take the necessary technical measures to set up a machine-to-machine connection and at its own cost.
4. If communication via the *supplier portal* or via the web services (machine-to-machine connection) is hindered by factors beyond the control of one party, it must *notify* the other immediately and the parties must take the necessary measures to restore this communication.
5. If it is impossible to restore the communication within two working days, one party must *notify* the other that alternative means of communication specified in Article II.5. l will be used until the *supplier portal* or the machine-to-machine connection is restored.
6. When a change in the *interface control document* requires adaptations, the contractor (or leader in the case of a joint tender) has up to six months from receipt of the *notification* to implement this change. This period can be shortened by mutual agreement of the parties. This period does not apply to urgent measures required by the security policy of the contracting authority to ensure integrity, confidentiality and non-repudiation of information and the availability of *e-PRIOR,* which must be applied immediately.

II.5.4. Validity and date of e-documents

1. The parties agree that any e-document, including related attachments exchanged via *e- PRIOR:*

   (a) is considered as equivalent to a paper document;
   (b) is deemed to be the original of the document;
   (c) is legally binding on the parties once an *e-PRIOR* authorised person has performed the 'sign' action in *e-PRIOR* and has full legal effect; and
   (d) constitutes evidence of the information contained in it and is admissible as evidence in judicial proceedings.

2. The parties expressly waive any rights to contest the validity of such a document solely on the grounds that communications between the parties occurred through *e- PRIOR* or that the document has been signed through *e-PRIOR.* If a direct connection is established between the parties' *back offices* to allow electronic transfer of documents, the parties agree that an e-document, sent as mentioned in the *interface control document,* qualifies as an *EDI message.*

3. If the e-document is dispatched through the *supplier portal,* it is deemed to have been legally issued or sent when the contractor (or leader in the case of a joint tender) is able to successfully submit the e-document without any error messages. The generated PDF and XML document for the e-document are considered as a proof of receipt by the contracting authority.

4. In the event that an e-document is dispatched using a direct connection established between the parties' *back offices,* the e-document is deemed to have been legally issued or sent when its status is 'received' as defined in the *interface control document.*

5. When using the *supplier portal,* the contractor (or leader in the case of a joint tender) can download the PDF or XML message for each e-document for one year after submission. After this period, copies of the e-documents are no longer available for automatic download from the *supplier portal.*

II.5.5. Authorised persons in e-PRIOR

The contractor submits a request for each person who needs to be assigned the role of 'user' in *e-PRIOR.* These persons are identified by means of the European Communication Authentication Service (ECAS) and authorised to access and perform actions in *e-PRIOR* within the permissions of the user roles that the contracting authority has assigned to them.

User roles enabling these *e-PRIOR* authorised persons to sign legally binding documents such as specific tenders or specific contracts are granted only upon submission of supporting documents proving that the authorised person is empowered to act as a legal representative of the contractor.

II.6. LIABILITY

II.6.1 The contracting authority is not liable for any damage or loss caused by the contractor, including any damage or loss to third parties during or as a consequence of *implementation of the FWC.*

II.6.2 If required by the relevant applicable legislation, the contractor must take out an insurance policy against risks and damage or loss relating to the *implementation of the FWC.* It must also take out supplementary insurance as reasonably required by standard practice in the industry. Upon request, the contractor must provide evidence of insurance coverage to the contracting authority.

II.6.3 The contractor is liable for any loss or damage caused to the contracting authority during or as a consequence of *implementation of the FWC,* including in the event of subcontracting, but only up to an amount not exceeding three times the total amount of the relevant specific contract. However, if the damage or loss is caused by the gross negligence or wilful misconduct of the contractor or of its *personnel* or subcontractors, as well as in the case of an action brought against the contracting authority by a third party for breach of its intellectual property rights, the contractor is liable for the whole amount of the damage or loss.

II.6.4 If a third party brings any action against the contracting authority in connection with the *implementation of the FWC,* including any action for alleged breach of intellectual property rights, the contractor must assist the contracting authority in the legal proceedings, including by intervening in support of the contracting authority upon request.

If the contracting authority's liability towards the third party is established and that such liability is caused by the contractor during or as a consequence of the *implementation of the FWC,* Article II.6.3 applies.

II.6.5 If the contractor is composed of two or more economic operators (i.e. who submitted a joint tender), they are all jointly and severally liable to the contracting authority for the *implementation of the FWC.*

II.6.6 The contracting authority is not liable for any loss or damage caused to the contractor during or as a consequence of *implementation of the FWC,* unless the loss or damage was caused by wilful misconduct or gross negligence of the contracting authority.

II.7. Conflict of interest and professional conflicting interests

II.7.1 The contractor must take all the necessary measures to prevent any situation of *conflict of interest* or *professional conflicting interest.*

II.7.2 The contractor must *notify* the contracting authority in writing as soon as possible of any situation that could constitute a *conflict of interest* or a *professional conflicting interest* during the *implementation of the FWC.* The contractor must immediately take action to rectify the situation.

The contracting authority may do any of the following:

(a) verify that the contractor's action is appropriate;
(b) require the contractor to take further action within a specified deadline;
(c) decide not to award a specific contract to the contractor.

II.7.3 The contractor must pass on all the relevant obligations in writing to:

(a) its *personnel;*
(b) any natural person with the power to represent it or take decisions on its behalf;
(c) third parties involved in the *implementation of the FWC,* including subcontractors.

The contractor must also ensure that the persons referred to above are not placed in a situation which could give rise to conflicts of interest.

II.8. Confidentiality

II.8.1 The contracting authority and the contractor must treat with confidentiality any information or documents, in any format, disclosed in writing or orally, relating to the *implementation of the FWC* and identified in writing as confidential.

II.8.2. Each party must:

(a) not use *confidential information or documents* for any purpose other than to perform its obligations under the FWC or a specific contract without the prior written agreement of the other party;

(b) ensure the protection of such *confidential information or documents* with the same level of protection as its own *confidential information or documents* and in any case with due diligence;

(c) not disclose, directly or indirectly, *confidential information or documents* to third parties without the prior written agreement of the other party.

II.8.3 The confidentiality obligations set out in this Article are binding on the contracting authority and the contractor during the *implementation of the FWC* and for as long as the information or documents remain confidential unless:

(a) the disclosing party agrees to release the receiving party from the confidentiality obligation earlier;

(b) the *confidential information or documents* become public through other means than a breach of the confidentiality obligation;

(c) the applicable law requires the disclosure of the *confidential information or documents*.

II.8.4 The contractor must obtain from any natural person with the power to represent it or take decisions on its behalf, as well as from third parties involved in the *implementation of the FWC* a commitment that they will comply with this Article. At the request of the contracting authority, the contractor must provide a document providing evidence of this commitment.

II.9 PROCESSING OF PERSONAL DATA

II.9.1 Processing of personal data by the contracting authority

Any personal data included in or relating to the FWC, including its implementation, shall be processed in accordance with Regulation (EU) 2018/1725. Such data shall be processed solely for the purposes of the implementation, management and monitoring of the FWC by the data controller.

The contractor or any other person whose personal data is processed by the data controller in relation to this FWC has specific rights as a data subject under Chapter III (Articles 14-25) of Regulation (EU) 2018/1725, in particular the right to access, rectify or erase their personal data and the right to restrict or, where applicable, the right to object to processing or the right to data portability.

Should the contractor or any other person whose personal data is processed in relation to this FWC have any queries concerning the processing of its personal data, it shall address itself to the data controller. They may also address themselves to the Data Protection Officer of the data controller. They have the right to lodge a complaint at any time to the European Data Protection Supervisor. Details concerning the processing of personal data are available in the data protection notice referred to in Article I.9.

II.9.2 Processing of personal data by the contractor

The processing of personal data by the contractor shall meet the requirements of Regulation (EU) 2018/1725 and be processed solely for the purposes set out by the controller.

The contractor shall assist the controller for the fulfilment of the controller's obligation to respond to requests for exercising rights of person whose personal data is processed in relation to this FWC as laid down in Chapter III (Articles 14-25) of Regulation (EU) 2018/1725. The contractor shall inform without delay the controller about such requests.

The contractor may act only on documented written instructions and under the supervision of the controller, in particular with regard to the purposes of the processing, the categories of data that may be processed, the recipients of the data and the means by which the data subject may exercise its rights.

The contractor shall grant personnel access to the data to the extent strictly necessary for the implementation, management and monitoring of the FWC. The contractor must ensure that personnel authorised to process personal data has committed itself to confidentiality or is under appropriate statutory obligation of confidentiality in accordance with the provisions of Article II.8.

The contractor shall adopt appropriate technical and organisational security measures, giving due regard to the risks inherent in the processing and to the nature, scope, context and purposes of processing, in order to ensure, in particular, as appropriate:

(a) the pseudonymisation and encryption of personal data;
(b) the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services;
(c) the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident;
(d) a process for regularly testing, assessing and evaluating the effectiveness of technical and organisational measures for ensuring the security of the processing;
(e) measures to protect personal data from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of or access to personal data transmitted, stored or otherwise processed.

The contractor shall notify relevant personal data breaches to the controller without undue delay and at the latest within 48 hours after the contractor becomes aware of the breach. In such cases, the contractor shall provide the controller with at least the following information:

(a) nature of the personal data breach including where possible, the categories and approximate number of data subjects concerned and the categories and approximate number of personal data records concerned;
(b) likely consequences of the breach;

(c) measures taken or proposed to be taken to address the breach, including, where appropriate, measures to mitigate its possible adverse effects.

The contractor shall immediately inform the data controller if, in its opinion, an instruction infringes Regulation (EU) 2018/1725, Regulation (EU) 2016/679, or other Union or Member State data protection provisions as referred to in the tender specifications.

The contractor shall assist the controller for the fulfilment of its obligations pursuant to Article 33 to 41 under Regulation (EU) 2018/1725 to:

(a) ensure compliance with its data protection obligations regarding the security of the processing, and the confidentiality of electronic communications and directories of users;
(b) notify a personal data breach to the European Data Protection Supervisor;
(c) communicate a personal data breach without undue delay to the data subject, where applicable;
(d) carry out data protection impact assessments and prior consultations as necessary.

The contractor shall maintain a record of all data processing operations carried on behalf of the controller, transfers of personal data, security breaches, responses to requests for exercising rights of people whose personal data is processed and requests for access to personal data by third parties.

The contracting authority is subject to Protocol 7 of the Treaty on the Functioning of the European Union on the privileges and immunities of the European Union, particularly as regards the inviolability of archives (including the physical location of data and services as set out in Article I.9.2) and data security, which includes personal data held on behalf of the contracting authority in the premises of the contractor or subcontractor.

The contractor shall notify the contracting authority without delay of any legally binding request for disclosure of the personal data processed on behalf of the contracting authority made by any national public authority, including an authority from a third country. The contractor may not give such access without the prior written authorisation of the contracting authority.

The duration of processing of personal data by the contractor will not exceed the period referred to in Article II.24.2. Upon expiry of this period, the contractor shall, at the choice of the controller, return, without any undue delay in a commonly agreed format, all personal data processed on behalf of the controller and the copies thereof or shall effectively delete all personal data unless Union or national law requires a longer storage of personal data.

For the purpose of Article II.10, if part or all of the processing of personal data is subcontracted to a third party, the contractor shall pass on the obligations referred to in Articles I.9.2 and II.9.2 in writing to those parties, including subcontractors. At the request of the contracting authority, the contractor shall provide a document providing evidence of this commitment.

II.10. SUBCONTRACTING

II.10.1 The contractor must not subcontract and have the FWC implemented by third parties beyond the third parties already mentioned in its tender without prior written authorization from the contracting authority.

II.10.2 Even if the contracting authority authorises subcontracting, the contractor remains bound by its contractual obligations and is solely responsible for the *implementation of the FWC.*

II.10.3 The contractor must ensure that the subcontract does not affect the rights of the contracting authority under this FWC, particularly those under Articles II.8, II.13 and II.24.

II.10.4 The contracting authority may request the contractor to replace a subcontractor found to be in a situation provided for in points (d) and (e) of Article II.18.1.

II.11. AMENDMENTS

II.11.1 Any amendment to the FWC or a specific contract must be made in writing before all contractual obligations have been fulfilled. A specific contract does not constitute an amendment to the FWC.

II.11.2 Any amendment must not make changes to the FWC or a specific contract that might alter the initial conditions of the procurement procedure or result in unequal treatment of tenderers or contractors.

II.12. ASSIGNMENT

II.12.1 The contractor must not assign any of the rights and obligations arising from the FWC, including claims for payments or factoring, without prior written authorisation from the contracting authority. In such cases, the contractor must provide the contracting authority with the identity of the intended assignee.

II.12.2 Any right or obligation assigned by the contractor without authorisation is not enforceable against the contracting authority.

II.13. INTELLECTUAL PROPERTY RIGHTS

II.13.1. Ownership of the rights in the results

The Union acquires irrevocably worldwide ownership of the *results* and of all intellectual property rights on the newly created materials produced specifically for the Union under the FWC and incorporated in the *results,* without prejudice however to the rules applying to *pre-existing rights* on *pre-existing materials,* as per Article II.13.2.

The intellectual property rights so acquired include any rights, such as copyright and other intellectual or industrial property rights, to any of the *results* and in all technological solutions and information created or produced by the contractor or by its subcontractor in *implementation of the FWC.* The contracting authority may exploit and use the acquired rights as stipulated in this FWC. The Union acquires all the rights as from the moment the contractor has created the *results.*

The payment of the price includes any fees payable to the contractor about the acquisition of ownership of rights by the Union including for all modes of exploitation and of use of the *results*.

II.13.2. Licensing rights on pre-existing materials

Unless provided otherwise in the special conditions, the Union does not acquire ownership of *pre-existing rights* under this FWC.

The contractor licenses the *pre-existing rights* on a royalty-free, non-exclusive and irrevocable basis to the Union, which may use the *pre-existing materials* for all the modes of exploitation set out in this FWC or in specific contracts. Unless otherwise agreed, the licence is non-transferable and cannot be sub-licensed, except as provided hereafter:

(a) the *pre-existing rights* can be sub-licensed by the contracting authority to persons and entities working for it or cooperating with it, including contractors and subcontractors, whether legal or natural persons, but only for the purpose of their mission for the Union;

(b) if the *result* is a “document” such as a report or a study, and it is meant to be published, the existence of *pre-existing materials* in the *result* may not prevent the publication of the document, its translation or its “reuse”, it being understood however that the “reuse” may only be made of the *result* as a whole and not of the *pre-existing materials* taken separately from the *result;* for the sake of this provision, “reuse” and “document” have the meaning given by the Commission Decision of 12 December 2011 on the reuse of Commission documents (2011/833/EU).

All *pre-existing rights* are licensed to the Union from the moment the *results* are delivered and approved by the contracting authority.

The licensing of *pre-existing rights* to the Union under this FWC covers all territories worldwide and is valid for the duration of intellectual property rights protection.

The payment of the price as set out in the specific contracts is deemed to also include any fees payable to the contractor in relation to the licensing of *pre-existing rights* to the Union, including for all forms of exploitation and of use of the *results*.

Where *implementation of the FWC* requires that the contractor uses *pre-existing materials* belonging to the contracting authority, the contracting authority may request that the contractor signs an adequate licence agreement. Such use by the contractor will not entail any transfer of rights to the contractor and is limited to the needs of this FWC.

11.13.3 Exclusive rights

The Union acquires the following exclusive rights:

(a) reproduction: the right to authorise or prohibit direct or indirect, temporary or permanent reproduction of the *results* by any means (mechanical, digital or other) and in any form, in whole or in part;
(b) communication to the public: the exclusive right to authorise or prohibit any display, performance or communication to the public, by wire or wireless means, including the making available to the public of the *results* in such a way that members of the public may access them from a place and at a time individually chosen by them; this also includes the communication on Internet and broadcasting by cable or by satellite;
(c) distribution: the exclusive right to authorise or prohibit any form of distribution of *results or copies of the results to the public, by sale or otherwise;*
(d) rental: the exclusive right to authorise or prohibit rental or lending of the *results* or of copies of the *results;*
(e) adaptation: the exclusive right to authorise or prohibit any modification of the *results;*
(f) translation: the exclusive right to authorise or prohibit any translation, adaptation, arrangement, creation of derivative works based on the *results,* and any other alteration of the *results,* subject to the respect of moral rights of authors, where applicable;
(g) where the *results* are or include a database: the exclusive right to authorise or prohibit the extraction of all or a substantial part of the contents of the database to another medium by any means or in any form; and the exclusive right to authorise or prohibit the re- utilization of all or a substantial part of the contents of the database by the distribution of copies, by renting, by on-line or other forms of transmission;
(h) where the *results* are or include a patentable subject-matter: the right to register them as a patent and to further exploit such patent to the fullest extent;
(i) where the *results* are or include logos or subject-matter which could be registered as a trademark: the right to register such logo or subject-matter as a trademark and to further exploit and use it;
(j) where the *results* are or include know-how: the right to use such know-how as is necessary to make use of the *results* to the full extent provided for by this FWC, and the right to make it available to contractors or subcontractors acting on behalf of the contracting authority, subject to their signing of adequate confidentiality undertakings where necessary;
(k) where the *results* are documents:

    (i) the right to authorise the reuse of the documents in conformity with the Commission Decision of 12 December 2011 on the reuse of Commission documents (2011/833/EU), to the extent it is applicable and the documents fall within its scope and are not excluded by any of its provisions; for the sake of this provision, “reuse” and “document” have the meaning given to them by this Decision;
    (ii) the right to store and archive the *results* in line with the document management rules applicable to the contracting authority, including digitisation or converting the format for preservation or new use purposes;

(1) where the *results* are or incorporate software, including source code, object code and, where relevant, documentation, preparatory materials and manuals, in addition to the other rights mentioned in this Article:

    (i) end-user rights, for all uses by the Union or by subcontractors which result from this FWC and from the intention of the parties;

    (iii) the rights to receive both the source code and the object code;

(m) the right to license to third parties any of the exclusive rights or of the modes of exploitation set out in this FWC; however, for *pre-existing materials* which are only licensed to the Union, the right to sub-license does not apply, except in the two cases foreseen by Article II.13.2.;

(n) to the extent that the contractor may invoke moral rights, the right for the contracting authority, except where otherwise provided in this FWC, to publish the *results* with or without mentioning the *creator*(s)' name(s), and the right to decide when and whether the *results* may be disclosed and published.

The contractor warrants that the exclusive rights and the modes of exploitation may be exercised by the Union on all parts of the *results,* be it via a transfer of ownership of the rights, on those parts which were specifically created by the contractor, or via a licence of the pre-existing rights, on those parts consisting of *pre-existing materials.*

Where *pre-existing materials* are inserted in the *results,* the contracting authority may accept reasonable restrictions impacting on the above list, provided that the said materials are easily identifiable and separable from the rest, that they do not correspond to substantial elements of the *results,* and that, should the need arise, satisfactory replacement solutions exist, at no additional costs to the contracting authority. In such case, the contractor will have to clearly inform the contracting authority before making such choice and the contracting authority has the right to refuse it.

II.13.4. Identification of pre-existing rights

When delivering the *results,* the contractor must warrant that, for any use that the contracting authority may envisage within the limits set in this FWC, the newly created parts and the *pre-existing material* incorporated in the *results* are free of claims from *creators* or from any third parties and all the necessary *pre-existing rights* have been obtained or licensed.

To that effect, the contractor must establish a list of all *pre-existing rights* to the *results* of this FWC or parts thereof, including identification of the rights' owners. If there are no *pre-existing rights* to the *results,* the contractor must provide a declaration to that effect. The contractor must provide this list or declaration to the contracting authority together with the invoice for payment of the balance at the latest.

II.13.5. Evidence of granting of pre-existing rights

Upon request by the contracting authority, the contractor must, in addition to the list mentioned under Article II.13.4., provide evidence that it has the ownership or the right to use all the listed *pre-existing rights,* except for the rights owned or licensed by the Union. The contracting authority may request this evidence even after the end of this FWC.

This provision also applies to image rights and sound recordings.

This evidence may refer, for example, to rights to: parts of other documents, images, graphs, sounds, music, tables, data, software, technical inventions, know-how, IT development tools, routines, subroutines or other programs ('background technology'), concepts, designs, installations or pieces of art, data, source or background materials or any other parts of external origin.

This evidence must include, as appropriate:

(a) the name and version number of a software product;

(b) the full identification of the work and its author, developer, *creator,* translator, data entry person, graphic designer, publisher, editor, photographer, producer;

(c) a copy of the licence to use the product or of the agreement granting the relevant rights to the contractor or a reference to this licence;

(d) a copy of the agreement or extract from the employment contract granting the relevant rights to the contractor where parts of the *results* were created by its *personnel;*

(e) the text of the disclaimer notice if any.

Provision of evidence does not release the contractor from its responsibilities if it is found that it does not hold the necessary rights, regardless of when and by whom this fact is revealed.

The contractor also warrants that it possesses the relevant rights or powers to execute the transfer and that it has paid or has verified payment of all due fees including fees due to collecting societies, related to the final *results.*

II.13.6. Quotation of works in the result

In the *result,* the contractor must clearly point out all quotations of existing works. The complete reference should include as appropriate, the following: name of the author, title of the work, date and place of publication, date of creation, address of publication on the internet, number, volume and other information that allows the origin to be easily identified.

II.13.7. Moral rights of creators

By delivering the *results,* the contractor warrants that the *creators* will not object to the following on the basis of their moral rights under copyright:

(a) that their names be mentioned or not mentioned when the *results* are presented to the public;

(b) that the *results* be divulged or not after they have been delivered in their final version to the contracting authority;

(c) that the *results* be adapted, provided that this is done in a manner which is not prejudicial to the *creator's* honour or reputation.

If moral rights on parts of the *results* protected by copyright may exist, the contractor must obtain the consent of *creators* regarding the granting or waiver of the relevant moral rights in accordance with the applicable legal provisions and be ready to provide documentary evidence upon request.

II.13.8. Image rights and sound recordings

If natural persons appear in a *result* or their voice or any other private element is recorded in a recognisable manner, the contractor must obtain a statement by these persons (or, in the case of minors, by the persons exercising parental authority) giving their permission for the described use of their image, voice or private element and, on request, submit a copy of the permission to the contracting authority. The contractor must take the necessary measures to obtain such consent in accordance with the applicable legal provisions.

II.13.9. Copyright notice for pre-existing rights

When the contractor retains *pre-existing rights* on parts of the *results,* reference must be inserted to that effect when the *result* is used as set out in Article I.10.1, with the following disclaimer: '© -- year -- European Union. All rights reserved. Certain parts are licensed under conditions to the EU', or with any other equivalent disclaimer as the contracting authority may consider best appropriate, or as the parties may agree on a case-by-case basis. This does not apply where inserting such reference would be impossible, notably for practical reasons.

II.13.10. Visibility of Union funding and disclaimer

When making use of the *results,* the contractor must declare that they have been produced under a contract with the Union and that the opinions expressed are those of the contractor only and do not represent the contracting authority's official position. The contracting authority may waive this obligation in writing or provide the text of the disclaimer.

11.14. Force majeure

II.14.1 If a party is affected by *force majeure,* it must immediately *notify* the other party, stating the nature of the circumstances, their likely duration and foreseeable effects.

II.14.2 A party is not liable for any delay or failure to perform its obligations under the FWC if that delay or failure is a *result* of *force majeure.* If the contractor is unable to fulfil its contractual obligations owing to *force majeure,* it has the right to remuneration only for the services actually provided.

II.14.3 The parties must take all necessary measures to limit any damage due to *force majeure.*

II.15. Liquidated damages

II.15.1. Delay in delivery

If the contractor fails to perform its contractual obligations within the applicable time limits set out in this FWC, the contracting authority may claim liquidated damages for each day of delay using the following formula:

0.3 x (*V/d*)

where:

V is the price of the relevant purchase or deliverable or *result;*

d is the duration specified in the relevant specific contract for delivery of the relevant purchase or deliverable or *result* or, failing that, the period between the date specified in Article I.4.2 and the date of delivery or performance specified in the relevant specific contract, expressed in days.

Liquidated damages may be imposed together with a reduction in price under the conditions laid down in Article II.16.

II.15.2. Procedure

The contracting authority must *formally notify* the contractor of its intention to apply liquidated damages and the corresponding calculated amount.

The contractor has 30 days following the date of receipt to submit observations. Failing that, the decision becomes enforceable the day after the time limit for submitting observations has elapsed.

If the contractor submits observations, the contracting authority, taking into account the relevant observations, must *notify* the contractor:

(a) of the withdrawal of its intention to apply liquidated damages; or

(b) of its final decision to apply liquidated damages and the corresponding amount.

II.15.3. Nature of liquidated damages

The parties expressly acknowledge and agree that any amount payable under this Article is not a penalty and represents a reasonable estimate of fair compensation for the damage incurred due to failure to provide the services within the applicable time limits set out in this FWC.

II.15.4. Claims and liability

Any claim for liquidated damages does not affect the contractor's actual or potential liability or the contracting authority's rights under Article II.18.

II.16. REDUCTION IN PRICE

II.16.1. Quality standards

If the contractor fails to provide the service in accordance with the FWC or a specific contract ('unperformed obligations') or if it fails to provide the service in accordance with the expected quality levels specified in the tender specifications ('low quality delivery'), the contracting authority may reduce or recover payments proportionally to the seriousness of the unperformed obligations or low quality delivery. This includes in particular cases where the contracting authority cannot approve a *result,* report or deliverable as defined in Article I.6 after the contractor has submitted the required additional information, correction or new version.

A reduction in price may be imposed together with liquidated damages under the conditions of Article II.15.

II.16.2. Procedure

The contracting authority must *formally notify* the contractor of its intention to reduce payment and the corresponding calculated amount.

The contractor has 30 days following the date of receipt to submit observations. Failing that, the decision becomes enforceable the day after the time limit for submitting observations has elapsed.

If the contractor submits observations, the contracting authority, taking into account the relevant observations, must *notify* the contractor:

(a) of the withdrawal of its intention to reduce payment; or

(b) of its final decision to reduce payment and the corresponding amount,.

II.16.3. Claims and liability

Any reduction in price does not affect the contractor's actual or potential liability or the contracting authority's rights under Article II.18.

II.17. Suspension of the implementation of the FWC

II.17.1. Suspension by the contractor

If the contractor is affected by *force majeure,* it may suspend the provision of the services under a specific contract.

The contractor must immediately *notify* the contracting authority of the suspension. The *notification* must include a description of the *force majeure* and state when the contractor expects to resume the provision of services.

The contractor must *notify* the contracting authority as soon as it is able to resume *performance of the specific contract,* unless the contracting authority has already terminated the FWC or the specific contract.

II.17.2. Suspension by the contracting authority

The contracting authority may suspend the *implementation of the FWC or* performance of a specific contract or any part of it:

(a) if the procedure for awarding the FWC or a specific contract or the *implementation of the FWC* proves to have been subject to *irregularities, fraud or breach of obligations;*

(b) in order to verify whether the presumed *irregularities, fraud* or *breach of obligations* have actually occurred.

The contracting authority must *formally notify* the contractor of the suspension and the reasons for it. Suspension takes effect on the date of *formal notification,* or at a later date if the *formal notification* so provides.

The contracting authority must *notify* the contractor as soon as the verification is completed whether:

(a) it is lifting the suspension; or

(b) it intends to terminate the FWC or a specific contract under Article II.18.1(f) or (j).

The contractor is not entitled to compensation for suspension of any part of the FWC or a specific contract.

The contracting authority may in addition suspend the time allowed for payments in accordance with Article II.21.7.

II.18. Termination of the FWC

II.18.1. Grounds for termination by the contracting authority

The contracting authority may terminate the FWC or any on-going specific contract in the following circumstances:

(a) if provision of the services under an on-going specific contract has not actually started within 15 days of the scheduled date and the contracting authority considers that the new date proposed, if any, is unacceptable, taking into account Article II.11.2;

(b) if the contractor is unable, through its own fault, to obtain any permit or licence required for *implementation of the FWC;*

(c) if the contractor does not implement the FWC or perform the specific contract in accordance with the tender specifications or *request for service* or is in breach of another substantial contractual obligation or repeatedly refuses to sign specific contracts. Termination of three or more specific contracts in these circumstances also constitutes grounds for termination of the FWC;

(d) if the contractor or any person that assumes unlimited liability for the debts of the contractor is in one of the situations provided for in points (a) and (b) of Article 136(1) of the Financial Regulation[5];

(e) if the contractor or any *related person* is in one of the situations provided for in points (c) to (h) of Article 136(1) or to Article 136(2) of the Financial Regulation;

(f) if the procedure for awarding the FWC or the *implementation of the FWC* prove to have been subject to *irregularities, fraud* or *breach of obligations;*

5 Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012, OJ L 193 of 30.7.2018, p.l https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1544791836334&uri=CELEX:32018Rl046

(g) if the contractor does not comply with applicable obligations under environmental, social and labour law established by Union law, national law, collective agreements or by the international environmental, social and labour law provisions listed in Annex X to Directive 2014/24/EU;

(h) if the contractor is in a situation that could constitute a *conflict of interest* or a *professional conflicting interest* as referred to in Article II.7;

(i) if a change to the contractor's legal, financial, technical, organisational or ownership situation is likely to substantially affect the *implementation of the FWC* or substantially modify the conditions under which the FWC was initially awarded or a change regarding the exclusion situations listed in Article 136 of Regulation (EU) 2018/1046 that calls into question the decision to award the contract;

(j) in the event of *force majeure,* where either resuming implementation is impossible or the necessary ensuing amendments to the FWC or a specific contract would mean that the tender specifications are no longer fulfilled or result in unequal treatment of tenderers or contractors;

(k) if the needs of the contracting authority change and it no longer requires new services under the FWC; in such cases ongoing specific contracts remain unaffected;

(l) if the termination of the FWC with one or more of the contractors means that the multiple FWC with reopening of competition no longer has the minimum required level of competition;

(m) if the contractor is in breach of the data protection obligations resulting from Article II.9.2;

(n) if the contractor does not comply with the applicable data protection obligations resulting from Regulation (EU) 2016/679.

II.18.2. Grounds for termination by the contractor

The contractor may terminate the FWC or any on-going specific contract if the contracting authority fails to comply with its obligations, in particular the obligation to provide the information needed for the contractor to implement the FWC or to perform a specific contract as provided for in the tender specifications.

II.18.3. Procedure for termination

A party must *formally notify* the other party of its intention to terminate the FWC or a specific contract and the grounds for termination.

The other party has 30 days following the date of receipt to submit observations, including the measures it has taken or will take to continue fulfilling its contractual obligations. Failing that, the decision to terminate becomes enforceable the day after the time limit for submitting observations has elapsed.

If the other party submits observations, the party intending to terminate must *formally notify* it either of the withdrawal of its intention to terminate or of its final decision to terminate.

In the cases referred to in points (a) to (d), (g) to (i), (k) to (n) of Article II.18.1 and in Article II.18.2, the date on which the termination takes effect must be specified in *the formal notification.*

In the cases referred to in points (e), (f) and (j) of Article II.18.1, the termination takes effect on the day following the date on which the contractor receives *notification* of termination.

In addition, at the request of the contracting authority and regardless of the grounds for termination, the contractor must provide all necessary assistance, including information, documents and files, to allow the contracting authority to complete, continue or transfer the services to a new contractor or internally, without interruption or adverse effect on the quality or continuity of the services. The parties may agree to draw up a transition plan detailing the contractor's assistance unless such plan is already detailed in other contractual documents or in the tender specifications. The contractor must provide such assistance at no additional cost, except if it can demonstrate that it requires substantial additional resources or means, in which case it must provide an estimate of the costs involved and the parties will negotiate an arrangement in good faith.

II.18.4. Effects of termination

The contractor is liable for damage incurred by the contracting authority as a result of the termination of the FWC or a specific contract, including the additional cost of appointing and contracting another contractor to provide or complete the services, except if the damage is a result of a termination in accordance with Article II.18.1(j), (k) or (l) or Article II.18.2. The contracting authority may claim compensation for such damage.

The contractor is not entitled to compensation for any loss resulting from the termination of the FWC or a specific contract, including loss of anticipated profits, unless the loss was caused by the situation specified in Article II.18.2.

The contractor must take all appropriate measures to minimise costs, prevent damage and cancel or reduce its commitments.

Within 60 days of the date of termination, the contractor must submit any report, deliverable or *result* and any invoice required for services that were provided before the date of termination.

In the case of joint tenders, the contracting authority may terminate the FWC or a specific contract with each member of the group separately on the basis of points (d), (e), (g), (m) and (n) of Article II.18.1, under the conditions set out in Article II.11.2.

II.19. Invoices, value added tax and e-invoicing

II.19.1. Invoices and value added tax

Invoices must contain the contractor's (or leader's in the case of a joint tender) identification data, the amount, the currency and the date, as well as the FWC reference and reference to the specific contract.

Invoices must indicate the place of taxation of the contractor (or leader in the case of a joint tender) for value added tax (VAT) purposes and must specify separately amounts not including VAT and amounts including VAT.

The contracting authority is exempt from all taxes and duties, including VAT, in accordance with Articles 3 and 4 of the Protocol 7 of the Treaty on the Functioning of the European Union on the privileges and immunities of the European Union.

The contractor (or leader in the case of a joint tender) must complete the necessary formalities with the relevant authorities to ensure that the supplies and services required for *implementation of the FWC* are exempt from taxes and duties, including VAT.

II.19.2. E-invoicing

If provided for in the special conditions, the contractor (or leader in the case of a joint tender) submits invoices in electronic format if the conditions regarding electronic signature specified by Directive 2006/112/EC on VAT are fulfilled, i.e. using a qualified electronic signature or through electronic data interchange.

Reception of invoices by standard format (pdf) or email is not accepted.

II.20. PRICE REVISION

If a price revision index is provided in Article I.5.2, this Article applies to it. Prices are fixed and not subject to revision during the first year of the FWC.

At the beginning of the second and every following year of the FWC, each price may be revised upwards or downwards at the request of one of the parties.

A party may request a price revision in writing no later than three months before the anniversary date of entry into force of the FWC. The other party must acknowledge the request within 14 days of receipt.

At the anniversary date, the contracting authority must communicate the final index for the month in which the request was received, or failing that, the last provisional index available for that month. The contractor establishes the new price on this basis and communicates it as soon as possible to the contracting authority for verification.

The contracting authority purchases on the basis of the prices in force at the date on which the specific contract enters into force.

The price revision is calculated using the following formula:

$$Pr = Po \times \left(\frac{Ir}{Io}\right)$$

where: Pr = revised price;

Po = price in the tender;

Io= index for the month in which the FWC enters into force;

Ir = index for the month in which the request to revise prices is received.

II.21. Payments and guarantees

II.21.1. Date of payment

The date of payment is deemed to be the date on which the contracting authority's account is debited.

II.21.2. Currency

Payments are made in euros, unless another currency is provided for in Article I.4.

II.21.3. Conversion

The contracting authority makes any conversion between the euro and another currency at the daily euro exchange rate published in the Official Journal of the European Union, or failing that, at the monthly accounting exchange rate, as established by the European Commission and published on the website indicated below, applicable on the day when it issues the payment order.

The contractor makes any conversion between the euro and another currency at the monthly accounting exchange rate, established by the Commission and published on the website indicated below, applicable on the date of the invoice.

http://ec.europa.eu/budget/contracts grants/info_contracts/inforeuro/inforeuro_en.cf m

II.21.4. Costs of transfer

The costs of the transfer are borne as follows:

(a) the contracting authority bears the costs of dispatch charged by its bank;

(b) the contractor bears the costs of receipt charged by its bank;

(c) the party causing repetition of the transfer bears the costs for repeated transfer.

II.21.5. Pre-financing, performance and money retention guarantees

If, as provided for in Article I.6, a financial guarantee is required for the payment of pre-financing, as performance guarantee or as retention money guarantee, it must fulfil the following conditions:

(a) the financial guarantee is provided by a bank or a financial institution approved by the contracting authority or, at the request of the contractor and with the agreement of the contracting authority, by a third party; and

(b) the guarantee shall have the effect of making the bank or financial institution or the third party provide irrevocable collateral security, or stand as first-call guarantor of the contractor's obligations without requiring that the contracting authority has recourse against the principal debtor (the contractor).

The contractor bears the cost of providing such guarantee.

Pre-financing guarantees must remain in force until the pre-financing is cleared against interim payments or payment of the balance. Where the payment of the balance takes the form of a debit note, the pre-financing guarantee must remain in force for three months after the debit note is sent to the contractor. The contracting authority must release the guarantee within the following month.

Performance guarantees cover compliance with substantial contractual obligations until the contracting authority has given its final approval for the service. The performance guarantee must not exceed 10 % of the total price of the specific contract. The contracting authority must release the guarantee fully after final approval of the service, as provided for in the specific contract.

Retention money guarantees cover full delivery of the service in accordance with the specific contract including during the contract liability period and until its final approval by the contracting authority. The retention money guarantee must not exceed 10 % of the total price of the specific contract. The contracting authority must release the guarantee after the expiry of the contract liability period as provided for in the specific contract.

The contracting authority must not request a retention money guarantee for a specific contract where it has requested a performance guarantee.

II.21.6. Interim payments and payment of the balance

The contractor (or leader in the case of a joint tender) must send an invoice for interim payment, as provided for in Article I.5 or in the tender specifications or in the specific contract.

The contractor (or leader in the case of a joint tender) must send an invoice for payment of the balance within 60 days of the end of the period of provision of the services, as provided for in Article I.6, in the tender specifications or in the specific contract.

Payment of the invoice and approval of documents does not imply recognition of the regularity, authenticity, completeness and correctness of the declarations and information they contain.

Payment of the balance may take the form of recovery.

II.21.7. Suspension of the time allowed for payment

The contracting authority may suspend the payment periods specified in Article I.5 at any time by *notifying* the contractor (or leader in the case of a joint tender) that its invoice cannot be processed. The reasons the contracting authority may cite for not being able to process an invoice are:

(a) because it does not comply with the FWC;

(b) because the contractor has not produced the appropriate documents or deliverables; or

(c) because the contracting authority has observations on the documents or deliverables submitted with the invoice.

The contracting authority must *notify* the contractor (or leader in the case of joint tender) as soon as possible of any such suspension, giving the reasons for it. In cases b) and c) referred above, the contracting authority shall notify the contractor (or leader in case of a joint tender) the time limits to submit additional information or corrections or a new version of the documents or deliverables if the contracting authority requires it.

Suspension takes effect on the date the contracting authority sends the *notification.* The remaining payment period resumes from the date on which the requested information or revised documents are received or the necessary further verification, including on-the-spot checks, is carried out. Where the suspension period exceeds two months, the contractor (or leader in the case of a joint tender) may request the contracting authority to justify the continued suspension.

Where the payment periods have been suspended following rejection of a document referred to in the first paragraph of this Article and the new document produced is also rejected, the contracting authority reserves the right to terminate the specific contract in accordance with Article II.18.1(c).

II.21.8 Interest on late payment

On expiry of the payment periods specified in Article I.6, the contractor (or leader in the case of a joint tender) is entitled to interest on late payment at the rate applied by the European Central Bank for its main refinancing operations in euros (the reference rate) plus eight points. The reference rate is the rate in force, as published in the C series of the *Official Journal of the European Union,* on the first day of the month in which the payment period ends.

Suspension of the payment period as provided for in Article II.21.7 is not considered as giving rise to late payment.

Interest on late payment covers the period running from the day following the due date for payment up to and including the date of payment as defined in Article II.21.1.

However, when the calculated interest is EUR 200 or less, it must be paid to the contractor (or leader in the case of a joint tender) only if it requests it within two months of receiving late payment.

II.22. REIMBURSEMENTS

II.22.1 If provided for in the special conditions or in the tender specifications, the contracting authority must reimburse expenses directly connected with the provision of the services either when the contractor provides it with supporting documents or on the basis of flat rates.

II.22.2 The contracting authority reimburses travel and subsistence expenses on the basis of the shortest itinerary and the minimum number of nights necessary for overnight stay at the destination.

II.22.3 The contracting authority reimburses travel expenses as follows:

(a) travel by air: up to the maximum cost of an economy class ticket at the time of the reservation;

(b) travel by boat or rail: up to the maximum cost of a first class ticket;

(c) travel by car: at the rate of one first class rail ticket for the same journey and on the same day; In addition, the contracting authority reimburses travel outside Union territory if it has given its prior written approval for the expenses.

II.22.4 The contracting authority reimburses subsistence expenses on the basis of a daily subsistence allowance as follows:

(a) for journeys of less than 200 km for a return trip, no subsistence allowance is payable;

(b) the daily subsistence allowance is payable only on receipt of supporting documents proving that the person concerned was present at the destination;

(c) the daily subsistence allowance takes the form of a flat rate- payment to cover all subsistence expenses, including meals, local transport including transport to and from the airport or station, insurance and sundries;

(d) the daily subsistence allowance is reimbursed at the flat rates specified in Article I.5.3;

(e) accommodation is reimbursed on receipt of supporting documents proving the necessary overnight stay at the destination, up to the flat-rate ceilings specified in Article I.5.3.

II.22.5 The contracting authority reimburses the cost of shipment of equipment or unaccompanied luggage if it has given its prior written approval for the expense.

II.23. RECOVERY

II.23.1 If an amount is to be recovered under the terms of the FWC, the contractor must repay the contracting authority the amount in question.

II.23.2. Recovery procedure

Before recovery, the contracting authority must *formally notify* the contractor of its intention to recover the amount it claims, specifying the amount due and the reasons for recovery and inviting the contractor to make any observations within 30 days of receipt.

If no observations have been submitted or if, despite the observations submitted, the contracting authority decides to pursue the recovery procedure, it must confirm recovery by *formally notifying* a debit note to the contractor, specifying the date of payment. The contractor must pay in accordance with the provisions specified in the debit note.

If the contractor does not pay by the due date, the contracting authority may, after informing the contractor in writing, recover the amounts due:

(a) by offsetting them against any amounts owed to the contractor by the Union or by the European Atomic Energy Community or by an executive agency when it implements the Union budget;

(b) by calling in a financial guarantee if the contractor has submitted one to the contracting authority;

(c) by taking legal action.

II.23.3. Interest on late payment

If the contractor does not honour the obligation to pay the amount due by the date set by the contracting authority in the debit note, the amount due bears interest at the rate indicated in Article II.21.8. Interest on late payments will cover the period starting on the day after the due date for payment and ending on the date when the contracting authority receives the full amount owed.

Any partial payment is first entered against charges and interest on late payment and then against the principal amount.

II.23.4. Recovery rules in the case of joint tender

If the contract is signed by a group (joint tender), the group is jointly and severally liable under the conditions set out in Article II.6 (liability). The contracting authority shall send the debit note first to the leader of the group.

If the leader does not pay by the due date the whole amount, and if the amount due cannot be offset or can only be offset partially in accordance with Article II.23.2 (a), then the contracting authority may claim the amount still due to any other member or members of the group by respectively *notifying* them with a debit note in conformity with the provisions laid down in Article II.23.2.

II.24. CHECKS AND AUDITS

II.24.1 The contracting authority and the European Anti-Fraud Office may check or require an audit on the *implementation of the FWC.* This may be carried out either by OLAF's own staff or by any outside body authorized to do so on its behalf.

Such checks and audits may be initiated at any moment during the provision of the services and up to five years starting from the payment of the balance of the last specific contract issued under this FWC

The audit procedure is initiated on the date of receipt of the relevant letter sent by the contracting authority. Audits are carried out on a confidential basis.

II.24.2 The contractor must keep all original documents stored on any appropriate medium, including digitised originals if authorised under national law, for a period of five years starting from the payment of the balance of the last specific contract issued under this FWC.

II.24.3 The contractor must grant the contracting authority's staff and outside personnel authorised by the contracting authority the appropriate right of access to sites and premises where the FWC is implemented and to all the information, including information in electronic format, needed to conduct such checks and audits. The contractor must ensure that the information is readily available at the moment of the check or audit and, if so requested, that information is handed over in an appropriate format.

II.24.4 On the basis of the findings made during the audit, a provisional report is drawn up. The contracting authority or its authorised representative must send it to the contractor, who has 30 days following the date of receipt to submit observations. The contractor must receive the final report within 60 days following the expiry of the deadline to submit observations.

On the basis of the final audit findings, the contracting authority may recover all or part of the payments made in accordance with Article II.23 and may take any other measures which it considers necessary.

II.24.5 In accordance with Council Regulation (Euratom, EC) No 2185/96 of 11 November 1996 concerning on-the-spot checks and inspection carried out by the Commission in order to protect the European Communities' financial interests against *fraud* and other *irregularities* and Regulation (EU, Euratom) No 883/2013 of the European Parliament and of the Council of 11 September 2013 concerning investigations conducted by the European Anti-Fraud Office, the European Anti Fraud Office may carry out investigations, including on the spot checks and inspections, to establish whether there has been *fraud,* corruption or any other illegal activity under the contract affecting the financial interests of the Union. Findings arising from an investigation may lead to criminal prosecution under national law.

The investigations may be carried out at any moment during the provision of the services and up to five years starting from the payment of the balance of the last specific contract issued under this FWC.

II.24.6 The Court of Auditors and the European Public Prosecutor's Office established by Council Regulation (EU) 2017/1939[6] ('the EPPO') have the same rights as the contracting authority, particularly right of access, for the purpose of checks, audits and investigations.

6 Council Regulation (EU) 2017/1939 of 12 October 2017 implementing enhanced cooperation on the establishment of the European Public Prosecutor's Office

III. CLAUSES SUBJECT TO SPECIFIC APPROVAL

Articles 1341 of the Italian Civil Code

for the purpose of Articles 1341 of the Italian Civil code, the contractor specifically declares that it accepts the following provisions:

Article I.3. Special Conditions (Entry into force and duration of the contract)

Article I.3.l l.l Special conditions (Stage l)- 3rd and 4th paragraphs

Article I.11 Special Conditions (Termination by either party)

Article I.12 Special Conditions (Applicable law and settlement of disputes)

Article I.13 Special Conditions (Other special conditions)

I.13.1 – Price adjustments
I.13.2.4 – Agreement on transfer of responsibilities
I.13.3 – Liability and insurances
I.13.7 – Minimum Performance requirements and deliverables
I.13.8 – Characterization difformities - reconciliation mechanism
I.13.9 – Liquidated damages
I.13.10 – Grounds for termination
I.13.12 – Subcontracting

Article II.6 General Conditions (Liability) Article II.10 General Conditions (Subcontracting)

Article II.12 General Conditions (Assignment)

Article II.15 General Conditions (Liquidated damages)

Article II.17 General Conditions (Suspension of the performance of the contract)

Article II.18 General Conditions (Termination of the contract)

For the Contractor,
Consortium:

Perma-Fix Environmental Services Inc
Mark DUFF
CEO

Signature: 12/15/23

Campoverde Sri
Federico GIANNI
CEO
Signature:

Firmato digitalmente da:
FEDERICO LAMBERTO GIANNI
Data: 18/12/2023 09:45:17

EXHIBIT 21.1

LIST OF SUBSIDIARIES OF PERMA-FIX ENVIRONMENTAL SERVICES, INC.
(THE “COMPANY”)

Treatment

Perma-Fix of Florida, Inc. (“PFF”), a Florida Corporation, is a 100% owned subsidiary of the Company.

Diversified Scientific Services, Inc., (“DSSI”) a Tennessee Corporation, is a 100% owned subsidiary of the Company.

East Tennessee Materials and Energy Corporation, (“M&EC”) a Tennessee Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Northwest Richland, Inc. (“PFNWR”), a Washington Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix Northwest, Inc. (“PFNW”), a Washington Corporation, is a 100% owned subsidiary of the Company.

Services

Safety and Ecology Corporation (“SEC”), a Nevada corporation, is a 100% owned subsidiary of the Company.

SEC Radcon Alliance, LLC (“SECRA”), a Tennessee corporation, is a 100% owned subsidiary of the Company.

Perma-Fix Environmental Services UK Limited, a United Kingdom corporation, is a 100% owned subsidiary of the Company.

Safety and Ecology Holdings Corporation (“SEHC”), a Nevada corporation, is a 100% owned subsidiary of the Company.

SEC Federal Services Corporation, a Nevada corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Canada, a Canadian corporation, is a 100% owned subsidiary of the Company.

Medical

Perma-Fix Medical LLC, is a 100% owned subsidiary of the Company.

Discontinued Operations

Perma-Fix of South Georgia, Inc. (“PFSG”), a Georgia Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Michigan, Inc. (“PFMI”), a Michigan Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Memphis, Inc. (“PFM”), a Tennessee Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Dayton, Inc. (“PFD”), an Ohio Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix Treatment Services, Inc. (“PFTS”), an Oklahoma Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Orlando, Inc. (“PFO”), a Florida Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Maryland, Inc. (“PFMD”), a Maryland Corporation, is a 100% owned subsidiary of the Company.

Perma-Fix of Pittsburgh, Inc. (“PFP), a Maryland Corporation, is a 100% owned subsidiary of the Company.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 13, 2024, with respect to the consolidated financial statements included in the Annual Report of Perma-Fix Environmental Services, Inc. on Form 10-K for the year ended December 31, 2023. We consent to the incorporation by reference of said report in the Registration Statements of Perma-Fix Environmental Services, Inc. on Form S-3 (File No. 333-272074) and Forms S-8 (File No. 333-272075, File No. 333-254907, File No. 333-223917, File No. 333-203137, File No. 333-153086, and File No. 333-110995).

/s/ GRANT THORNTON LLP

Atlanta, Georgia
March 13, 2024

EXHIBIT 31.1

CERTIFICATIONS

I, Mark Duff, certify that:

1. I have reviewed this annual report on Form 10-K of Perma-Fix Environmental Services, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of the internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 13, 2024

/s/ Mark Duff

Mark Duff
Chief Executive Officer, President and Principal Executive Officer

EXHIBIT 31.2

CERTIFICATIONS

I, Ben Naccarato, certify that:

1. I have reviewed this annual report on Form 10-K of Perma-Fix Environmental Services, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of the internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 13, 2024

/s/ Ben Naccarato

Ben Naccarato
Chief Financial Officer and Principal Financial Officer

EXHIBIT 32.1

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

In connection with the Annual Report of Perma-Fix Environmental Services, Inc. (“PESI”) on Form 10-K for the year ended December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the “Form 10-K”), I, Mark Duff, Chief Executive Officer, President and Principal Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Form 10-K fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §78m or §78o(d)); and

(2) The information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 13, 2024

/s/ Mark Duff

Mark Duff
Chief Executive Officer, President and
Principal Executive Officer

This certification is furnished to the Securities and Exchange Commission solely for purpose of 18 U.S.C. §1350 subject to the knowledge standard contained therein, and not for any other purpose.

EXHIBIT 32.2

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

In connection with the Annual Report of Perma-Fix Environmental Services, Inc. ("PESI") on Form 10-K for the year ended December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Form 10-K"), I, Ben Naccarato, Chief Financial Officer and Principal Financial Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Form 10-K fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §78m or §78o(d)); and

(2) The information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 13, 2024

/s/ Ben Naccarato
Ben Naccarato
Chief Financial Officer and Principal Financial Officer

This certification is furnished to the Securities and Exchange Commission solely for purpose of 18 U.S.C. §1350 subject to the knowledge standard contained therein, and not for any other purpose.

A Nuclear Services and Waste Management Company

CLAWBACK POLICY

The Board of Directors (the "Board") of Perma-Fix Environmental Services, Inc. (the "Company") believes that it is in the best interests of the Company and its shareholders to adopt this Clawback Policy (the "Policy"), which provides for the recovery of certain incentive compensation in the event of an Accounting Restatement (as defined below). This Policy is designed to comply with, and shall be interpreted to be consistent with, Section 10D of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), Rule 10D-1 promulgated under the Exchange Act ("Rule 10D-1") and Nasdaq Listing Rule 5608 (the "Listing Standards").

Section 1 – Administration

Except as specifically set forth herein, this Policy shall be administered by the Board or, if so, designated by the Board, a committee thereof (the Board or such committee charged with administration of this Policy, the "**Administrator**"). The Administrator is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate or advisable for the administration of this Policy. Any determinations made by the Administrator shall be final and binding on all affected individuals and need not be uniform with respect to each individual covered by the Policy. Subject to any limitation at applicable law, the Administrator may authorize and empower any officer or employee of the Company to take any and all actions necessary or appropriate to carry out the purpose and intent of this Policy (other than with respect to any recovery under this Policy involving such officer or employee).

The Administrator may amend, modify, supplement, rescind or replace all or any portion of this Policy at any time and from time to time in its discretion, and shall amend this Policy as it deems necessary to comply with applicable law or any rules or standards adopted by a national securities exchange on which the Company's securities are listed.

Section 2 – Definition

As used in this Policy, the following definitions shall apply:

- "**Accounting Restatement**" means an accounting restatement of the Company's financial statements that either:

  a) corrects an error in previously issued financial statements that is material to the previously issued financial statements ("Big R" restatement); or
  b) corrects errors that are not material to previously issued financial statements, but would result in a material misstatement if (1) the errors were left uncorrected in the current period, or (2) the error correction was recognized in the current period ("little r" restatement).

- “**Administrator**” has the meaning set forth in Section 1 hereof.

- **“Covered Executive Officer(s)”** means the Company’s current and former named executive officers, as defined in Rule 16a-1(f) under the Exchange Act. For the avoidance of doubt, the identification of a named executive officer for purpose of this Policy shall include each named executive officer who is or was identified pursuant to Item 401(b) of Regulation S-K.

- **“Recoverable Awarded Compensation”** has the meaning set forth in Section 5 of this Policy.

- A “**Financial Reporting Measure**” is any measure that is determined and presented in accordance with the accounting principles used in preparing the Company’s financial statements, and any measure that is derived wholly or in part from such measure. Financial Reporting Measures include but are not limited to the following (and any measures derived from the following): Company stock price; total shareholder return; revenues; net income; operating income; profitability of one or more reportable segments; financial ratios (e.g., accounts receivable turnover rates); earnings before interest, taxes, depreciation and amortization (“EBITDA”); funds from operations and adjusted funds from operations; liquidity measures (e.g., working capital, operating cash flow); return measures (i.e., return on invested capital, return on assets); and earnings measures (e.g., earnings per share).

- “**Incentive-Based Compensation**” **includes** any compensation, including cash and equity, which is granted, earned or vested based wholly or in part upon the attainment of any Financial Reporting Measures. Incentive-Based Compensation is deemed “received” in the fiscal period during which the applicable Financial Reporting Measure is attained, even if the payment or grant occurs after the end of that fiscal period. At the time of the approval of the Incentive-Based Compensation plan by the Company for a Covered Executive Officer, the Company shall identify to the Covered Executive, what, if any, portion of the Incentive-Based Compensation under the plan is based upon the attainment of any Financial Reporting Measure.

  Incentive-Based Compensation **does not include** base annual salary, compensation which is awarded based purely on service to the Company (i.e., a time-vested award, including time-vesting stock options) or compensation which is awarded solely at the discretion of the Board, nor does it include compensation which is awarded based on subjective standards and strategic measures (i.e., completion of a merger).

Section 3 - Covered Executives; Incentive-Based Compensation

This policy applies to Incentive-Based Compensation received by a Covered Executive Officer (a) after beginning services as a Covered Executive Officer and (b) if that person served as a Covered Executive Officer at any time during the performance period for such Incentive-Based Compensation.

Section 4 – Time Period Covered by the Policy

This Policy applies to any Incentive-Based Compensation paid to a Covered Executive during any of the **three (3) fiscal completed years** immediately preceding the date the Company is required to restate its financial results (the “**Clawback Period**”), meaning the earlier of:

(a) the date that the Company’s Board (or a Board committee) concludes that the Company’s previously issued financial statements contain a material error; or

(b) the date on which a court, regulator or other similarly authorized body causes the Company to restate its financial information to correct a material error.

<u>Section 5 – Calculation and Recovery of Recoverable Awarded Compensation</u>

The Recoverable Awarded Compensation under this Policy is ***"the amount of Incentive-Based Compensation received by the Covered Executive Officer that exceeds the amount of Incentive-Based Compensation that otherwise would have been received had it been determined based on the Restatement"*** (the "**Recoverable Awarded Compensation**").

Applying this definition, after an Accounting Restatement, the Company will recalculate the applicable Financial Reporting Measure and the amount of Incentive-Based Compensation based thereon for the applicable period(s). The Company will determine whether, based on that Financial Reporting Measure as calculated relying on the original financial statements, a Covered Executive Officer received a greater amount of Incentive-Based Compensation than would have been received applying the recalculated Financial Reporting Measure. The Recoverable Awarded Compensation will be calculated on a pre-tax basis to ensure that the Company recovers the full amount of Incentive-Based Compensation that was erroneously awarded.

If equity compensation is recoverable due to being granted to the Covered Executive Officer (when the accounting results were the reason the equity compensation was granted) or vested by the Covered Executive Officer (when the accounting results were the reason the equity compensation was vested), in each case in the Clawback Period, the Company will recover the excess portion of the equity award that would not have been granted or vested based on the Restatement, as follows:

i. if the equity award is still outstanding, the Executive Officer will forfeit the excess portion of the award;

ii. if the equity award has been exercised or settled into shares (the "Underlying Shares"), and the Covered Executive Officer still holds the Underlying Shares, the Company will recover the number of Underlying Shares relating to the excess portion of the award (less any exercise price paid for the Underlying Shares); and

iii. if the Underlying Shares have been sold by the Covered Executive Officer, the Company will recover the proceeds received by the Covered Executive Officer from the sale of the Underlying Shares relating to the excess portion of the award (less any exercise price paid for the Underlying Shares).

The Administrator will take such action as it deems appropriate, in its sole and absolute discretion, to "reasonably and promptly" recover the Recoverable Awarded Compensation unless:

- the direct cost of recovery to third parties, including reasonable legal expenses and consulting fees, would exceed the amount of the Recoverable Awarded Compensation; or
- the recovery would violate home-country law that was effective prior to the date the final rules are published in the Federal Register, and only if the issuer obtained an opinion of home-country counsel establishing that recovery would result in such violation; or
- such recovery would jeopardize the qualified status of a tax-qualified retirement plan.

Section 6 – No indemnification of Covered Executive Officers

Notwithstanding the terms of any indemnification or insurance policy or any contractual arrangement with any Covered Executive Officers that may be interpreted to the contrary, the Company shall not indemnify any Covered Executive Officers against the loss of any Recoverable Awarded Compensation.

Section 7 - Administrator Indemnification

Any members of the Administrator, and any other members of the Board who assist in the administration of this Policy, shall not be personally liable for any action, determination or interpretation made with respect to this Policy and shall be fully indemnified by the Company to the fullest extent under applicable law and Company policy with respect to any such action, determination or interpretation. The foregoing sentence shall not limit any other rights to indemnification of the members of the Board under applicable law or Company policy.

Section 8 – General

The provisions of this Policy are intended to be applied to the fullest extent of the law; provided however, to the extent that any provisions of this Policy are found to be unenforceable or invalid under any applicable law, such provision will be applied to the maximum extent permitted, and shall automatically be deemed amended in a manner consistent with its objectives to the extent necessary to conform to any limitations required under applicable law.

This Policy is in addition to (and not in lieu of) any right of repayment, forfeiture or right of offset against any Covered Executive Officer that is required pursuant to any statutory repayment requirement (regardless of whether implemented at any time prior to or following the adoption of this Policy). Nothing in this Policy in any way detracts from or limits any obligation that those subject to it have in law or pursuant to a management, employment, consulting or other agreement with the Company or any of its Subsidiaries.

Section 9 - Exhibit Filing Requirement

A copy of this Policy and any amendments thereto shall be posted on the Company's website and filed as an exhibit to the Company's annual report on Form 10-K.