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

Form 10-Q

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

For the quarterly period ended September 30, 2022

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. 001-11596

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, Suite 250, Atlanta, GA	**30350**
(Address of principal executive offices)	*(Zip Code)*

(770) 587-9898
(Registrant's telephone number)

N/A
(Former name, former address and former fiscal year, if changed since last report)

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 Markets

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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" and "smaller reporting 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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Indicate the number of shares outstanding of each of the issuer's classes of Common Stock, as of the close of the latest practical date.

Class	Outstanding at November 1, 2022
Common Stock, $.001 Par Value	13,324,756 shares

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

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PART I - FINANCIAL INFORMATION
ITEM 1. – Financial Statements

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
Consolidated Balance Sheets

(Amounts in Thousands, Except for Share and Per Share Amounts)	September 30, 2022 (Unaudited)	December 31, 2021 (Audited)
ASSETS		
Current assets:		
Cash	$ 1,858	$ 4,440
Accounts receivable, net of allowance for doubtful accounts of $31 and $85, respectively	9,993	11,372
Unbilled receivables	6,306	8,995
Inventories	1,057	680
Prepaid and other assets	6,209	4,472
Current assets related to discontinued operations	17	15
Total current assets	25,440	29,974
Property and equipment:		
Buildings and land	24,048	20,631
Equipment	22,956	22,131
Vehicles	439	443
Leasehold improvements	23	23
Office furniture and equipment	1,320	1,316
Construction-in-progress	600	2,997
Total property and equipment	49,386	47,541
Less accumulated depreciation	(29,871)	(28,932)
Net property and equipment	19,515	18,609
Property and equipment related to discontinued operations	81	81
Operating lease right-of-use assets	2,087	2,460
Intangibles and other long term assets:		
Permits	9,558	9,476
Other intangible assets - net	719	894
Finite risk sinking fund (restricted cash)	11,540	11,471
Deferred tax assets	3,801	3,527
Other assets	448	809
Total assets	$ 73,189	$ 77,301

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
Consolidated Balance Sheets, Continued

(Amounts in Thousands, Except for Share and per Share Amounts)	September 30, 2022 (Unaudited)	December 31 2021 (Audited)
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 10,370	$ 11,975
Accrued expenses	6,436	5,078
Disposal/transportation accrual	1,291	1,065
Deferred revenue	3,145	5,580
Accrued closure costs - current	712	578
Current portion of long-term debt	469	393
Current portion of operating lease liabilities	431	406
Current portion of finance lease liabilities	154	333
Current liabilities related to discontinued operations	927	506
Total current liabilities	23,935	25,914
Accrued closure costs	7,306	6,613
Long-term debt, less current portion	681	600
Long-term operating lease liabilities, less current portion	1,673	2,029
Long-term finance lease liabilities, less current portion	357	884
Long-term liabilities related to discontinued operations	267	677
Total long-term liabilities	10,284	10,803
Total liabilities	34,219	36,717
Commitments and Contingencies (Note 9)		
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; 13,305,750 and 13,222,552 shares issued, respectively;13,298,108 and 13,214,910 shares outstanding, respectively	13	13
Additional paid-in capital	114,993	114,307
Accumulated deficit	(75,744)	(73,620)
Accumulated other comprehensive loss	(204)	(28)
Less Common Stock in treasury, at cost; 7,642 shares	(88)	(88)
Total stockholders' equity	38,970	40,584
Total liabilities and stockholders' equity	$ 73,189	$ 77,301

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
Consolidated Statements of Operations
(Unaudited)

(Amounts in Thousands, Except for Per Share Amounts)	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
Net revenues	$ 18,472	$ 15,797	$ 53,842	$ 55,075
Cost of goods sold	15,402	13,573	46,252	49,529
Gross profit	3,070	2,224	7,590	5,546
Selling, general and administrative expenses	3,929	3,348	11,035	9,550
Research and development	69	243	245	538
Loss on disposal of property and equipment	—	1	1	1
Loss from operations	(928)	(1,368)	(3,691)	(4,543)
Other income (expense):				
Interest income	29	2	69	23
Interest expense	(47)	(77)	(123)	(209)
Interest expense-financing fees	(16)	(11)	(44)	(28)
Other (Note 13)	1,965	(1)	1,960	—
Gain on extinguishment of debt	—	—	—	5,381
Income (loss) from continuing operations before taxes	1,003	(1,455)	(1,829)	624
Income tax expense (benefit)	179	(2,836)	(147)	(2,840)
Income (loss) from continuing operations, net of taxes	824	1,381	(1,682)	3,464
Loss from discontinued operations, net of taxes (Note 10)	(160)	(43)	(442)	(285)
Net income (loss)	664	1,338	(2,124)	3,179
Net loss attributable to non-controlling interest	—	(64)	—	(123)
Net income (loss) attributable to Perma-Fix Environmental Services, Inc. common stockholders	$ 664	$ 1,402	$ (2,124)	$ 3,302
Net income (loss) per common share attributable to Perma-Fix Environmental Services, Inc. stockholders - basic:				
Continuing operations	$ .06	$ .12	$ (.13)	$ .29
Discontinued operations	(.01)	(.01)	(.03)	(.02)
Net income (loss) per common share	$ .05	$ .11	$ (.16)	$ .27
Net income (loss) per common share attributable to Perma-Fix Environmental Services, Inc. stockholders - diluted:				
Continuing operations	$ .06	$ .12	$ (.13)	$ .29
Discontinued operations	(.01)	(.01)	(.03)	(.02)
Net income (loss) per common share	$ .05	$ .11	$ (.16)	$ .27
Number of common shares used in computing net income (loss) per share:				
Basic	13,297	12,198	13,265	12,181
Diluted	13,447	12,406	13,265	12,416

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
Consolidated Statements of Comprehensive Income (Loss)
(Unaudited)

(Amounts in Thousands)	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
Net income (loss)	$ 664	$ 1,338	$ (2,124)	$ 3,179
Other comprehensive (loss) income:				
Foreign currency translation adjustment	(135)	(22)	(176)	18
Comprehensive income (loss)	529	1,316	(2,300)	3,197
Comprehensive loss attributable to non-controlling interest	—	(64)	—	(123)
Comprehensive income (loss) attributable to Perma-Fix Environmental Services, Inc. stockholders	$ 529	$ 1,380	$ (2,300)	$ 3,320

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC
Consolidated Statement of Stockholders' Equity
(Unaudited)
(Amounts in thousands, except for share amounts)

	Common Stock		Additional Paid-In	Common Stock Held In	Accumulated Other Comprehensive	Non-controlling Interest in	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Treasury	Loss	Subsidiary	Deficit	Equity
Balance at December 31, 2021	13,222,552	$ 13	$ 114,307	$ (88)	$ (28)	$ —	$ (73,620)	$ 40,584
Net loss	—	—	—	—	—	—	(1,343)	(1,343)
Foreign currency translation	—	—	—	—	26	—	—	26
Issuance of Common Stock for services	19,520	—	123	—	—	—	—	123
Stock-Based Compensation	—	—	102	—	—	—	—	102
Balance at March 31, 2022	13,242,072	$ 13	$ 114,532	$ (88)	$ (2)	$ —	$ (74,963)	$ 39,492
Net loss	—	—	—	—	—	—	(1,445)	(1,445)
Foreign currency translation	—	—	—	—	(67)	—	—	(67)
Issuance of Common Stock upon exercise of options (cashless)	16,526	—	—	—	—	—	—	—
Issuance of Common Stock for services	21,667	—	120	—	—	—	—	120
Stock-Based Compensation	—	—	103	—	—	—	—	103
Balance at June 30, 2022	13,280,265	$ 13	$ 114,755	$ (88)	$ (69)	$ —	$ (76,408)	$ 38,203
Net income	—	—	—	—	—	—	664	664
Foreign currency translation	—	—	—	—	(135)	—	—	(135)
Issuance of Common Stock upon exercise of options	2,400	—	13	—	—	—	—	13
Issuance of Common Stock for services	23,085	—	120	—	—	—	—	120
Stock-Based Compensation	—	—	105	—	—	—	—	105
Balance at September 30, 2022	13,305,750	$ 13	$ 114,993	$ (88)	$ (204)	$ —	$ (75,744)	$ 38,970

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC
Consolidated Statement of Stockholders' Equity, Continued
(Unaudited)
(Amounts in thousands, except for share amounts)

	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Common Stock Held In Treasury	Stock Sub-scriptions	Accumulated Other Comprehensive Loss	Non-controlling Interest in Subsidiary	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2020	12,161,539	$ 12	$ 108,931	$ (88)	$ —	$ (207)	$ (1,742)	$ (74,455)	$ 32,451
Net loss	—	—	—	—	—	—	(30)	(1,123)	(1,153)
Foreign currency translation	—	—	—	—	—	20	—	—	20
Issuance of Common Stock for services	11,837	—	79	—	—	—	—	—	79
Stock-Based Compensation	—	—	45	—	—	—	—	—	45
Balance at March 31, 2021	12,173,376	$ 12	$ 109,055	$ (88)	$ —	$ (187)	$ (1,772)	$ (75,578)	$ 31,442
Net (loss) income	—	—	—	—	—	—	(29)	3,023	2,994
Foreign currency translation	—	—	—	—	—	20	—	—	20
Issuance of Common Stock upon exercise of options	290	—	—	—	—	—	—	—	—
Issuance of Common Stock for services	14,590	—	109	—	—	—	—	—	109
Stock-Based Compensation	—	—	42	—	—	—	—	—	42
Balance at June 30, 2021	12,188,256	$ 12	$ 109,206	$ (88)	$ —	$ (167)	$ (1,801)	$ (72,555)	$ 34,607
Net (loss) income	—	—	—	—	—	—	(64)	1,402	1,338
Foreign currency translation	—	—	—	—	—	(22)	—	—	(22)
Issuance of Common Stock for services	16,009	—	116	—	—	—	—	—	116
Sale of Common Stock	100,000	—	570(1)	—	—	—	—	—	570
Stock Subscriptions	—	—	—	—	4,387(2)	—	—	—	4,387
Stock-Based Compensation	—	—	62	—	—	—	—	—	62
Balance at September 30, 2021	12,304,265	$ 12	$ 109,954	$ (88)	$ 4,387	$ (189)	$ (1,865)	$ (71,153)	$ 41,058

(1) Net of offering costs incurred of approximately $50.

(2) Net of stock subscription receivables of $744 and offering costs incurred of approximately $449.

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

PERMA-FIX ENVIRONMENTAL SERVICES, INC.
Consolidated Statements of Cash Flows
(Unaudited)

(Amounts in Thousands)	Nine Months Ended September 30, 2022	2021
Cash flows from operating activities:		
Net (loss) income	$ (2,124)	$ 3,179
Less: loss from discontinued operations, net of taxes (Note 10)	(442)	(285)
(Loss) income from continuing operations, net of taxes	(1,682)	3,464
Adjustments to reconcile (loss) income from continuing operations to cash used in operating activities:		
Depreciation and amortization	1,433	1,208
Interest on finance lease with purchase option	—	7
Gain on extinguishment of debt	—	(5,381)
Amortization of debt issuance costs	44	28
Deferred tax benefit	(147)	(2,931)
(Recovery of) provision for bad debt reserves	(47)	1
Loss on disposal of property and equipment	1	1
Issuance of common stock for services	363	304
Stock-based compensation	310	149
Changes in operating assets and liabilities of continuing operations		
Accounts receivable	1,426	(2,158)
Unbilled receivables	2,689	8,757
Prepaid expenses, inventories and other assets	829	1,700
Accounts payable, accrued expenses and unearned revenue	(5,553)	(9,180)
Cash used in continuing operations	(334)	(4,031)
Cash used in discontinued operations	(559)	(296)
Cash used in operating activities	(893)	(4,327)
Cash flows from investing activities:		
Purchases of property and equipment	(947)	(1,132)
Proceeds from sale of property and equipment	25	1
Cash used in investing activities of continuing operations	(922)	(1,131)
Cash flows from financing activities:		
Repayments of revolving credit borrowings	(54,414)	(59,900)
Borrowing on revolving credit	54,414	59,900
Proceeds from capital line	524	—
Principal repayments of finance lease liabilities	(821)	(281)
Principal repayments of long term debt	(375)	(330)
Payment of debt issuance costs	(35)	(40)
Proceeds from sale of Common Stock, net of Offering costs paid	—	618
Proceeds from stock subscription, net of Offering costs paid	—	4,816
Proceeds from issuance of common stock upon exercise of options	13	—
Cash (used in) provided by financing activities of continuing operations	(694)	4,783
Effect of exchange rate changes on cash	(4)	(4)
Decrease in cash and finite risk sinking fund (restricted cash)	(2,513)	(679)
Cash and finite risk sinking fund (restricted cash) at beginning of period	15,911	19,370
Cash and finite risk sinking fund (restricted cash) at end of period	$ 13,398	$ 18,691
Supplemental disclosure:		
Interest paid	$ 125	$ 163
Income taxes paid	6	15
Equipment purchase subject to finance lease	114	319
Equipment purchase subject to financing	—	29

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

Reference is made herein to the notes to consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2021.

1. Basis of Presentation

The consolidated financial statements included herein have been prepared by the Company (which may be referred to as we, us or our), without an audit, pursuant to the rules and regulations of the Securities and Exchange Commission ("the Commission"). Certain information and note disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") have been condensed or omitted pursuant to such rules and regulations, although the Company believes the disclosures which are made are adequate to make the information presented not misleading. Further, the consolidated financial statements reflect, in the opinion of management, all adjustments (which include only normal recurring adjustments) necessary to present fairly the financial position and results of operations as of and for the periods indicated. The results of operations for the nine months ended September 30, 2022 are not necessarily indicative of results to be expected for the fiscal year ending December 31, 2022.

The Company suggests that these consolidated financial statements be read in conjunction with the consolidated financial statements and the notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

The consolidated financial statements include the accounts of our wholly-owned subsidiaries and the account of a variable interest entity ("VIE"), Perma-Fix ERRG, for which we are the primary beneficiary (See "Note 15 - VIE" for a discussion of this VIE). The consolidated financial statements for 2021 also included the accounts of the Company's majority-owned Polish subsidiary, Perma-Fix Medical S.A ("PFM Poland") and PFM Poland's wholly-owned subsidiary, Perma-Fix Medical Corporation ("PFMC"), which comprised of the Company's Medical Segment. As previously discussed, the Company made the strategic decision to cease all research and development ("R&D") activities under the Medical Segment and sold 100% of its interest in PFM Poland in December 2021. As a condition precedent to the sale of PFM Poland, the Company acquired PFMC after its conversion to a Delaware limited liability company. As a result of the sale of PFM Poland, the Company deconsolidated PFM Poland from its consolidated financial statements in December 2021. The Company's Medical Segment had not generated any revenue.

Information for the Medical Segment is presented for the quarter and nine months ended September 30, 2021. The Medical Segment was disposed of as of December 31, 2021 and is not relevant for the quarter and nine month ended September 30, 2022. Prior period segment information is not required to be restated for the disposal of the segment.

2. Summary of Significant Accounting Policies

Our accounting policies are set forth in the notes to the December 31, 2021 consolidated financial statements referred to above.

Recently Adopted Accounting Standards

In May 2021, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2021-04, "Earnings Per Share (Topic 206), Debt-Modifications and Extinguishments (Subtopic 470-50), Compensation-Stock Compensation (Topic 718), and Derivatives and Hedging-Contracts in Entity's Own Equity (Subtopic 815-40): Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options (a consensus of the FASB Emerging Issues Task Force)." ASU 2021-04 addresses issuer's accounting for certain modifications or exchanges of freestanding equity-classified written call options. This ASU is effective for all entities, for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption is permitted. The adoption of this ASU by the Company effective January 1, 2022 did not have a material impact on its financial statements.

In March 2020, the FASB issued ASU 2020-04, "Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting," which provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships and other transactions affected by the discontinuation of the London Interbank Offered Rate ("LIBOR") or by another reference rate expected to be discontinued because of reference rate reform. The guidance was effective beginning March 12, 2020 and can be applied prospectively through December 31, 2022. In January 2021, the FASB issued ASU No. 2021-01, "Reference Rate Reform (Topic 848): Scope," which clarified the scope and application of the original guidance. The Company has determined that only its obligations under its credit facility are impacted by these ASUs at this time. During the third quarter of 2022, the Company entered into an amendment dated August 29, 2022 to its loan agreement which replaced the LIBOR option with the Secured Overnight Finance Rate ("SOFR") option under its credit facility. The adoption of these ASUs by the Company during the third quarter of 2022 did not have a material impact to its financial statements (see "Note 8 – Long Term Debt" for a discuss of the Company's credit facility and the amendment dated August 29, 2022).

Recently Issued Accounting Standards – Not Yet Adopted

In June 2016, the FASB issued ASU No. 2016-13, "Credit Losses (Topic 326) - Measurement of Credit Losses on Financial Instruments," and various subsequent amendments to the initial guidance (collectively, "Topic 326"). Topic 326 introduces an approach, based on expected losses, to estimate credit losses on certain types of financial instruments and modifies the impairment model for available-for-sale debt securities. The new approach to estimating credit losses (referred to as the current expected credit losses model) applies to most financial assets measured at amortized cost and certain other instruments, including trade and other receivables and loans. Entities are required to apply the standard's provisions as a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is adopted. In November 2019, FASB issued ASU 2019-10, "Financial Instruments – Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842)," which defers the effective date of ASU 2016-13 for public companies that are considered smaller reporting companies ("SRC") as defined by the Commission to fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. These ASUs are effective January 1, 2023 for the Company as an SRC. Under new guidance issued by the Commission in March 2020, the Company continued to qualify as a SRC but became an accelerated filer for its 2021 Form 10-K and its 2022 quarterly 10-Q filings. The Company will remain a SRC but will become a non-accelerated filer for its 2022 Form 10-K and subsequent filings. The Company is currently evaluating the impact of these ASU on its consolidated financial statements; however, based on historical credit losses and as a significant amount of the Company's receivables are generated from government entities, the Company does not expect the adoption of these ASUs to have a material impact to the Company's financial statements.

In August 2020, the FASB issued ASU No. 2020-06, "Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity." ASU 2020-06 simplifies the accounting for convertible instruments by removing major separation models and removing certain settlement condition qualifiers for the derivatives scope exception for contracts in an entity's own equity, and simplifies the related diluted net income per share calculation for both Subtopics. ASU 2020-06 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2023, for the Company as an SRC. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. The Company is currently evaluating the impact of this ASU on its consolidated financial statements and disclosures.

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 nature of the Company's performance obligations within our Treatment and Services Segments result in the recognition of our revenue primarily over time. The following tables present further disaggregation of our revenues by different categories for our Services and Treatment Segments:

Revenue by Contract Type (In thousands)	Three Months Ended September 30, 2022			Three Months Ended September 30, 2021		
	Treatment	Services	Total	Treatment	Services	Total
Fixed price	$ 8,877	$ 6,892	$ 15,769	$ 8,893	$ 3,031	$ 11,924
Time and materials	—	2,703	2,703	—	3,873	3,873
Total	$ 8,877	$ 9,595	$ 18,472	$ 8,893	$ 6,904	$ 15,797

Revenue by Contract Type (In thousands)	Nine Months Ended September 30, 2022			Nine Months Ended September 30, 2021		
	Treatment	Services	Total	Treatment	Services	Total
Fixed price	$ 24,749	$ 20,569	$ 45,318	$ 24,094	$ 7,094	$ 31,188
Time and materials	—	8,524	8,524	—	23,887	23,887
Total	$ 24,749	$ 29,093	$ 53,842	$ 24,094	$ 30,981	$ 55,075

Revenue by generator (In thousands)	Three Months Ended September 30, 2022			Three Months Ended September 30, 2021		
	Treatment	Services	Total	Treatment	Services	Total
Domestic government	$ 5,728	$ 9,264	$ 14,992	$ 6,725	$ 4,552	$ 11,277
Domestic commercial	2,806	313	3,119	1,956	399	2,355
Foreign government	287	—	287	36	1,931	1,967
Foreign commercial	56	18	74	176	22	198
Total	$ 8,877	$ 9,595	$ 18,472	$ 8,893	$ 6,904	$ 15,797

Revenue by generator (In thousands)	Nine Months Ended September 30, 2022			Nine Months Ended September 30, 2021		
	Treatment	Services	Total	Treatment	Services	Total
Domestic government	$ 17,786	$ 28,158	$ 45,944	$ 16,962	$ 24,172	$ 41,134
Domestic commercial	6,045	859	6,904	6,284	1,185	7,469
Foreign government	532	12	544	577	5,556	6,133
Foreign commercial	386	64	450	271	68	339
Total	$ 24,749	$ 29,093	$ 53,842	$ 24,094	$ 30,981	$ 55,075

Contract Balances

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 liabilities balances:

(In thousands)	September 30, 2022	December 31, 2021	Year-to-date Change ($)	Year-to-date Change (%)
Contract liabilities				
Deferred revenue	$ 3,145	$ 5,580	$ (2,435)	(43.6)%

The decrease was attributed primarily to revenue recognized in connection with a Services Segment contract.

During the three and nine months ended September 30, 2022, the Company recognized revenue of $494,000 and $6,138,000, respectively, related to untreated waste that was in the Company's control as of the beginning of the year. During the three and nine months ended September 30, 2021, the Company recognized revenue of $561,000 and $6,635,000, respectively, related to untreated waste that was in the Company's control as of the beginning of the year. All revenue recognized in each period related to performance obligations satisfied within the respective period.

Variable Consideration

The Company's revenue for the three months ended September 30, 2022 included approximately $384,000 recognized within the Company's Treatment Segment and $148,000 recognized within the Company's Services Segment that resulted from cumulative catch-up adjustments in transaction price from performance obligations satisfied or partially satisfied in the prior periods that had been constrained. During the three months ended September 30, 2021, the Company recognized approximately $1,286,000 in revenue from a request for equitable adjustment ("REA") in its Treatment Segment that resulted in cumulative catch-up adjustment in transaction price that had been constrained in prior period.

Remaining Performance Obligations

The Company applies the practical expedient in paragraph 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.

4. Leases

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 represent primarily leases for office and warehouse spaces used to conduct our business. Finance leases consist primarily of processing and transport equipment used by our facilities' operations.

The components of lease cost for the Company's leases for the three and nine months ended September 30, 2022 and 2021 were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Operating Leases:				
Lease cost	$ 157	$ 115	$ 471	$ 341
Finance Leases:				
Amortization of ROU assets	42	53	133	170
Interest on lease liability	9	50	30	85
	51	103	163	255
Short-term lease rent expense	—	4	7	10
Total lease cost	$ 208	$ 222	$ 641	$ 606

The weighted average remaining lease term and the weighted average discount rate for operating and finance leases at September 30, 2022 were:

	Operating Leases	Finance Leases
Weighted average remaining lease terms (years)	6.4	3.4
Weighted average discount rate	7.8%	5.3%

The following table reconciles the undiscounted cash flows for the operating and finance leases at September 30, 2022 to the operating and finance lease liabilities recorded on the balance sheet (in thousands):

	Operating Leases	Finance Leases
2022 (Remaining)	$ 144	$ 47
2023	556	174
2024	416	170
2025	324	147
2026	301	18
2027 and thereafter	942	—
Total undiscounted lease payments	2,683	556
Less: Imputed interest	(579)	(45)
Present value of lease payments	$ 2,104	$ 511
Current portion of operating lease obligations	$ 431	$ —
Long-term operating lease obligations, less current portion	$ 1,673	$ —
Current portion of finance lease obligations	$ —	$ 154
Long-term finance lease obligations, less current portion	$ —	$ 357

Supplemental cash flow and other information related to our leases were as follows for the three and nine months ended September 30, 2022 and 2021 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flow used in operating leases	$ 144	$ 103	$ 430	$ 307
Operating cash flow used in finance leases	$ 9	$ 50	$ 30	$ 85
Financing cash flow used in finance leases	$ 103	$ 76	$ 821	$ 281
ROU assets obtained in exchange for lease obligations for:				
Finance liabilities	$ —	$ 323	$ 147	$ 323
Operating liabilities	$ —	184	$ —	$ 350
Reduction to ROU assets resulting from reassessment for:				
Finance liabilities	$ —	$ (364)	$ —	$ (364)

5. <u>Intangible Assets</u>

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

		September 30, 2022			December 31, 2021		
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	8.6	$ 744	$ (369)	$ 375	$ 787	$ (351)	$ 436
Software	3	636	(453)	183	592	(415)	177
Customer relationships	10	3,370	(3,209)	161	3,370	(3,089)	281
Total		$ 4,750	$ (4,031)	$ 719	$ 4,749	$ (3,855)	$ 894

The intangible assets noted above are amortized on a straight-line basis over their useful lives with the exception of customer relationships which are being 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)
2022(Remaining)	$ 57
2023	187
2024	61
2025	11
2026	11

Amortization expense relating to the definite-lived intangible assets as discussed above was $65,000 and $176,000 for the three and nine months ended September 30, 2022, respectively, and $51,000 and $152,000 for the three and nine months ended September 30, 2021, respectively.

6. <u>Capital Stock, Stock Plans and Stock-Based Compensation</u>

The Company has certain stock option plans under which it may award incentive stock options ("ISOs") and/or non-qualified stock options ("NQSOs") to employees, officers, outside directors, and outside consultants.

On July 21, 2022, the Company issued a NQSO to each of the Company's seven reelected outside directors for the purchase, under the Company's 2003 Outside Directors Stock Plan (the "2003 Plan"), of up to 10,000 shares of the Company's common stock, par value $0.001 per share (the "Common Stock"). Dr. Louis Centofanti, the Company's Executive Vice President ("EVP") of Strategic Initiatives and also a member of the Company's Board of Directors (the "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 for purchase under the Company's 2017 Stock Option Plan, as amended (the "2017 Plan"), of up to an aggregate of 24,000 shares of the 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 was $5.34 per share, which was equal to the fair market value of the Company's Common Stock on the date of grant.

The Company granted a NQSO to Robert Ferguson on July 27, 2017 from the Company's 2017 Stock Option Plan ("2017 Plan") for the purchase of up to 100,000 shares of the Company's Common Stock ("Ferguson Stock Option") in connection with his work as a consultant to the Company's Test Bed Initiative ("TBI") at our Perma-Fix Northwest Richland, Inc. ("PFNWR") facility 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 term of the Ferguson Stock Option is seven years from the grant date. The vesting of the Ferguson Stock Option is subject to the achievement of three separate milestones by certain dates. The first milestone was met and the 10,000 shares under the first milestone were issued to Robert Ferguson in May 2018. The Company had previously entered into amendments whereby the vesting dates for the second and third milestones for the purchase of up to 30,000 and 60,000 shares of the Company's Common Stock were extended to December 31, 2021 and December 31, 2022, respectively. On January 20, 2022, the Company's Compensation and Stock Option Committee ("Compensation Committee") and the Board further amended the vesting dates of the second and third milestones to December 31, 2022 and December 31, 2023, respectively. This amendment was approved by the Compensation Committee and the Board to take effect December 31, 2021. The Company has not recognized compensation costs (fair value of approximately $289,000 at September 30, 2022) for the remaining 90,000 Ferguson Stock Option under the remaining two milestones since achievement of the performance obligation under each of the two remaining milestones is uncertain at September 30, 2022. All other terms of the Ferguson Stock Option remain unchanged. Upon Mr. Ferguson's death, the remaining Ferguson Stock Options are now held by Mr. Ferguson's estate.

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 as discussed above and the related assumptions used in the Black-Scholes option model used to value the options granted for the nine months ended September 30, 2022 were as follows:

	Outside Director Stock Option Granted	Employee Stock Option Granted
	Nine Months Ended September 30, 2022	
Weighted-average fair value per share	$ 3.61	$ 2.71
Risk-free interest rate (1)	2.91%	3.00%
Expected volatility of stock (2)	55.04%	55.72%
Dividend yield	None	None
Expected option life (3)	10.0 years	5.0 years

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

The following table summarizes stock-based compensation recognized for the three and nine months ended September 30, 2022 and 2021 for our employee and director stock options.

Stock Options	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Employee Stock Options	$ 76,000	$ 34,000	$ 248,000	$ 100,000
Director Stock Options	29,000	28,000	62,000	49,000
Total	$ 105,000	$ 62,000	$ 310,000	$ 149,000

At September 30, 2022, the Company has approximately $1,396,000 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 3.8 years.

The summary of the Company's total stock option plans as of September 30, 2022 and September 30, 2021, and changes during the periods then ended, are presented below. The Company's plans consist/consisted of the 2010 Stock Option Plan, the 2017 Plan and the 2003 Plan:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (3)
Options outstanding January 1, 2022	1,019,400	$ 4.91		
Granted	94,000	$ 5.20		
Exercised	(52,400)	$ 4.04		$ 97,856
Forfeited/expired	(9,600)	$ 5.50		
Options outstanding end of period (1)	1,051,400	$ 4.98	4.0	$ 492,939
Options exercisable at September 30, 2022(1)	453,900	$ 3.93	2.4	$ 354,709

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (3)
Options outstanding January 1, 2021	658,400	$ 3.87		
Granted	76,000	$ 6.05		
Exercised	(500)	$ 3.15		$ 2,175
Forfeited/expired	(19,500)	$ 6.75		
Options outstanding end of period (1)	714,400	$ 4.02	3.6	$ 1,888,695
Options exercisable at September 30, 2021 (2)	416,400	$ 3.91	2.9	$ 1,146,320

(1)Options with exercise prices ranging from $2.79 to $7.50

(2)Options with exercise prices ranging from $2.79 to $7.29

(3)The intrinsic value of a stock option is the amount by which the market value of the underlying stock exceeds the exercise price.

During the nine months ended September 30, 2022, the Company issued a total of 64,272 shares of its Common Stock under the 2003 Plan to its outside directors as compensation for serving on our Board. The Company has recorded approximately $359,000 in compensation expenses (included in selling, general and administration ("SG&A") expenses) in connection with the issuance of shares of its Common Stock to outside directors.

During the nine months ended September 30, 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.

In connection with a $2,500,000 loan that the Company entered into with Mr. Robert Ferguson (the "Ferguson Loan") on April 1, 2019, the Company issued a warrant to Mr. Ferguson for the purchase of up to 60,000 shares of our Common Stock at an exercise price of $3.51 per share. The warrant expires on April 1, 2024 and remains outstanding at September 30, 2022. Upon Mr. Ferguson's death, the warrant is now held by Mr. Ferguson's estate. The Ferguson Loan was paid-in-full in December 2020.

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

	Three Months Ended September 30, (Unaudited)		Nine Months Ended September 30, (Unaudited)	
(Amounts in Thousands, Except for Per Share Amounts)	2022	2021	2022	2021
Net income (loss) attributable to Perma-Fix Environmental Services, Inc., common stockholders:				
Income (loss) from continuing operations, net of taxes	$ 824	1,381	(1,682)	3,464
Net loss attributable to non-controlling interest	—	(64)	—	(123)
Income (loss) from continuing operations attributable to Perma-Fix Environmental Services, Inc. common stockholders	$ 824	$ 1,445	$ (1,682)	$ 3,587
Loss from discontinuing operations attributable to Perma-Fix Environmental Services, Inc. common stockholders	(160)	(43)	(442)	(285)
Net income (loss) attributable to Perma-Fix Environmental Services, Inc. common stockholders	$ 664	$ 1,402	$ (2,124)	$ 3,302
Basic income (loss) per share attributable to Perma-Fix Environmental Services, Inc. common stockholders	$ .05	$ .11	$ (.16)	$ .27
Diluted income (loss) per share attributable to Perma-Fix Environmental Services, Inc. common stockholders	$ .05	$ .11	$ (.16)	$ .27
Weighted average shares outstanding:				
Basic weighted average shares outstanding	13,297	12,198	13,265	12,181
Add: dilutive effect of stock options	131	183	—	206
Add: dilutive effect of warrant	19	25	—	29
Diluted weighted average shares outstanding	13,447	12,406	13,265	12,416
Potential shares excluded from above weighted average share calculations due to their anti-dilutive effect include:				
Stock options	499	30	405	30
Warrant	—	—	—	—

8. Long Term Debt

Long-term debt consists of the following:

(Amounts in Thousands)	September 30, 2022		December 31, 2021
Revolving Credit facility dated May 8, 2020, borrowings based upon eligible accounts receivable, subject to monthly borrowing base calculation, balance due on May 15, 2024. Effective interest rate for first nine month of 2022 was 0%. (1)	$ —		$ —
Term Loan dated May 8, 2020, payable in equal monthly installments of principal, balance due on May 15, 2024. Effective interest rate for the first nine month of 2022 was 4.8%. (1)	642	(2)	954(2)
Capital Line dated May 4, 2021, payable in equal monthly installments of principal, balance due on May 15, 2024. Effective interest rate for the first nine month of 2022 was 5.3%. (1)	480		—
Notes Payable to 2023 and 2025, annual interest rate of 5.6% and 9.1%.	28		39
Total debt	1,150		993
Less current portion of long-term debt	469		393
Long-term debt	$ 681		$ 600

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

(2)Net of debt issuance costs of ($104,000) and ($112,000) at September 30, 2022 and December 31, 2021, respectively.

Revolving Credit, Term Loan and Capital Line 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”), acting as agent and lender. The Loan Agreement provided the Company with the following credit facility with a maturity date of March 15, 2024: (a) up to $18,000,000 revolving credit (“revolving credit”) and (b) a term loan (“term loan”) of approximately $1,742,000, requiring monthly installments of $35,547. The maximum that the Company can borrow under the revolving credit is based on a percentage of eligible receivables (as defined) at any one time reduced by outstanding standby letters of credit and borrowing reductions that the Company’s lender may impose from time to time. The Loan Agreement, as amended (the “Amended Loan Agreement”), also provides a capital expenditure 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”). Only interest is payable on advances during the Borrowing Period. At the end of the Borrowing Period, the total amount advanced under the line will amortize equally based on a five-year amortization schedule with principal payment due monthly plus interest. At the maturity date of the Amended Loan Agreement, any unpaid principal balance plus interest, if any, will become due. Amount advanced under the capital line totaled approximately $524,000 which requires monthly installments in principal of approximately $8,700 plus interest, starting June 1, 2022. The advance was used to purchase the underlying asset under a previous finance lease.

On March 29, 2022, the Company entered into an amendment to its Amended Loan Agreement with its lender which provided, among other things, the following:

- waived the Company's failure to meet the minimum quarterly fixed charge coverage ratio ("FCCR") requirement for the fourth quarter of 2021;
- removes the quarterly FCCR testing requirement for the first quarter of 2022;
- reinstates the quarterly FCCR testing requirement starting for the second quarter of 2022 and revises the methodology to be used in calculating the FCCR for the quarters ending June 30, 2022, September 30, 2022, and December 31, 2022 (with no change to the minimum 1.15:1 ratio requirement for each quarter);
- requires 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, 2022 has been met and certified to the lender; and
- revises the annual rate used to calculate the Facility Fee (as defined in the Loan Agreement) on the revolving credit, with addition of the capital expenditure line, from 0.375% to 0.500%. Upon meeting the minimum FCCR requirement of 1.15:1 on a twelve month trailing basis, the Facility Fee rate of 0.375% will be reinstated.

In connection with the amendment, the Company paid PNC a fee of $15,000 which is being amortized over the remaining term of the Amended Loan Agreement as interest expense-financing fees.

On August 2, 2022, the Company entered into an amendment to its Amended Loan Agreement with its lender which provided the following, among other things:

- waived the Company's failure to meet the minimum quarterly FCCR requirement for the second quarter of 2022;
- removes the quarterly FCCR testing requirement for the third quarter of 2022;
- reinstates the quarterly FCCR testing requirement starting for the fourth quarter of 2022 and revises the methodology to be used in calculating the FCCR for the quarters ending December 31, 2022 and March 31, 2023 (with no change to the minimum 1.15:1 ratio requirement for each quarter);
- requires maintenance of a minimum of $3,000,000 in borrowing availability under the revolving credit until the minimum FCCR requirement for the quarter ended December 31, 2022 has been met and certified to the lender.

In connection with the amendment, the Company paid PNC a fee of $15,000 which is being amortized over the remaining term of the Amended Loan Agreement as interest expense-financing fees.

The Company's credit facility under its Amended Loan Agreement 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 was not required to perform testing of the FCCR requirement in the first and third quarters of 2022 pursuant to the March 29, 2022 and August 2, 2022 amendments, respectively, as discussed above. The Company failed to meet its FCCR requirement in the second quarter of 2022; however, this non-compliance was waived by the Company's lender pursuant to the August 2, 2022 amendment as discussed above. Other than the FCCR covenant discussion above, the Company met all of its other financial covenant requirements in the first, second and third quarters of 2022.

On August 29, 2022, the Company entered into an amendment to its Amended Loan Agreement with its lender which set forth certain revisions to the Amended Loan Agreement, with the amended terms set forth in a revised Loan Agreement. The new revisions to the Amended Loan Agreement (the "Revised Loan Agreement"), among other things, replace the LIBOR based interest rate benchmark with the SOFR and add certain additional anti-terrorism provisions to the covenants contained in the Amended Loan Agreement. As a result of this amendment, payment of annual rate of interest due on the revolving credit is at prime (6.25% at September 30, 2022) plus 2% or Term SOFR Rate (as defined in the Revised Loan Agreement) plus 3.00% plus an SOFR Adjustment applicable for an interest period selected by the Company and payment of annual rate of interest due on the term loan and the capital expenditure line is at prime plus 2.50% or Term SOFR Rate plus 3.50% plus an SOFR Adjustment applicable for an interest period selected by the Company. Pursuant to the Revised Loan Agreement, 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.

After May 7, 2022, the Company may terminate its Revised Loan Agreement upon 90 days' prior written notice upon payment in full of our obligations under the Revised Loan Agreement with no early termination fees.

At September 30, 2022, the borrowing availability under the Company's revolving credit was approximately $4,548,000 based on our eligible receivables and is net of approximately $3,016,000 in outstanding standby letters of credit.

9. 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, we may be involved in various litigation. We are not a party to any litigation or governmental proceeding which our management believes could result in any judgments or fines against us that could 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 United States 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.

Our 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 does not have any liability to Tetra Tech.

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 September 30, 2022, PF Canada has approximately $2,385,000 in unpaid receivables due from CNL as a result of work performed under the TOA. Additionally, CNL has approximately $1,044,000 in contractual holdback under the TOA that is payable to PF Canada. CNL also established a bond securing approximately $1,900,000 (CAD) to cover certain issue raised in connection with the TOA. Under the TOA, CNL may be entitled to set off certain costs and expenses incurred by CNL in connection with the termination of the TOA, including the bond as discussed above, against amounts owed to PF Canada for work performed by PF Canada or its subcontractors. PF Canada continues to be in discussions with CNL to finalize the amounts due to PF Canada under the TOA and continues to believe these amounts are due and payable.

Insurance

The Company has a 25-year finite risk insurance policy entered into in June 2003 ("2003 Closure Policy") with AIG Specialty Insurance Company ("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 $21,175,000 at September 30, 2022. At September 30, 2022 and December 31, 2021, 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 $11,540,000 and $11,471,000, respectively, which included interest earned of $2,069,000 and $2,000,000 on the finite risk sinking funds as of September 30, 2022 and December 31, 2021, respectively. Interest income for the three and nine months ended September 30, 2022 was approximately $29,000 and $69,000, respectively. Interest income for the three and nine months ended September 30, 2021 was approximately $2,000 and $23,000, respectively. If we so elect, 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.

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 September 30, 2022, the total amount of standby letters of credit outstanding was approximately $3,016,000 and the total amount of bonds outstanding was approximately $59,322,000.

10. <u>Discontinued Operations</u>

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

The Company's discontinued operations had net losses of $160,000 and $43,000 for the three months ended September 30, 2022 and 2021, respectively (net of tax benefits of $46,000 and $98,000 for the three month ended September 30, 2022 and 2021, respectively) and net losses of $442,000 and $285,000 for the nine months ended September 30, 2022 and 2021, respectively, (net of tax benefits of $127,000 and $98,000 for the nine month ended September 30, 2022 and 2021, respectively). The losses (excluding the tax benefits) were primarily due to costs incurred in the administration and continued monitoring/evaluation of our discontinued operations. The Company's discontinued operations had no revenues for any of the periods noted above.

The following table presents the major class of assets of discontinued operations as of September 30, 2022 and December 31, 2021. No assets and liabilities were held for sale at each of the periods noted.

(Amounts in Thousands)	September 30, 2022	December 31, 2021
Current assets		
Other assets	$ 17	$ 15
Total current assets	17	15
Long-term assets		
Property, plant and equipment, net (1)	81	81
Total long-term assets	81	81
Total assets	$ 98	$ 96
Current liabilities		
Accounts payable	$ 23	$ 3
Accrued expenses and other liabilities	153	154
Environmental liabilities	751	349
Total current liabilities	927	506
Long-term liabilities		
Closure liabilities	157	150
Environmental liabilities	110	527
Total long-term liabilities	267	677
Total liabilities	$ 1,194	$ 1,183

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

11. Operating Segments

In accordance with ASC 280, "Segment Reporting", the Company defines an operating segment as a business activity: (1) from which we may earn revenue and incur expenses; (2) whose operating results are regularly reviewed by the chief operating decision maker ("CODM") to make decisions about resources to be allocated to the segment and assess its performance; and (3) for which discrete financial information is available.

Our reporting segments are defined as below:

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 industrial hygiene ("IH") assessments; hazardous materials surveys, e.g., exposure monitoring; lead and asbestos management/abatement oversight; indoor air quality evaluations; health risk and exposure assessments; health & safety plan/program development, compliance auditing and training services; and Occupational Safety and Health Administration ("OSHA") citation assistance;
  - global technical services providing consulting, engineering, project management, waste management, environmental, and decontamination and decommissioning field, technical, and management personnel and services to commercial and government customers; and
  - on-site waste management services to commercial and governmental customers.

- Nuclear services, which include:

  - technology-based services including engineering, decontamination and decommissioning ("D&D"), specialty services 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 nuclear, environmental, and occupational safety and health ("NEOSH") instrumentation.

The Company's segment also included the Medical Segment in 2021. As previously discussed, the Company made the strategic decision to cease all R&D activities under the Medical Segment and sold 100% of its interest in PFM Poland (which comprised the Medical Segment) in December 2021. The Company's Medical Segment had not generated any revenue and was involved in the Company's medical isotope production technology.

Our reporting segments exclude our corporate headquarters and our discontinued operations (see "Note 10 – Discontinued Operations") which do not generate revenues.

The table below presents certain financial information of our operating segments for the three and nine months ended September 30, 2022 and 2021 (in thousands).

Segment Reporting for the Quarter Ended September 30, 2022

	Treatment	Services	Segments Total	Corporate [1]	Consolidated Total
Revenue from external customers	$ 8,877	$ 9,595	$ 18,472	$ —	$ 18,472
Intercompany revenues	28	16	44	—	—
Gross profit	1,967	1,103	3,070	—	3,070
Research and development	55	—	55	14	69
Interest income	—	—	—	29	29
Interest expense	(20)	(2)	(22)	(25)	(47)
Interest expense-financing fees	—	—	—	(16)	(16)
Depreciation and amortization	387	87	474	23	497
Segment income (loss) before income taxes	1,792	725	2,517	(1,514)	1,003(2)
Income tax expense	164	15	179	—	179
Segment income (loss)	1,628	710	2,338	(1,514)	824
Expenditures for segment assets	149	39	188	1	189(3)

Segment Reporting for the Nine Months Ended September 30, 2022

	Treatment	Services	Segments Total	Corporate [1]	Consolidated Total
Revenue from external customers	$ 24,749	$ 29,093	$ 53,842	$ —	$ 53,842
Intercompany revenues	28	43	71	—	—
Gross profit	4,168	3,422	7,590	—	7,590
Research and development	179	23	202	43	245
Interest income	—	—	—	69	69
Interest expense	(53)	—	(53)	(70)	(123)
Interest expense-financing fees	—	—	—	(44)	(44)
Depreciation and amortization	1,139	244	1,383	50	1,433
Segment income (loss) before income taxes	1,675	1,524	3,199	(5,028)	(1,829)(2)
Income tax benefit	(91)	(56)	(147)	—	(147)
Segment income (loss)	1,766	1,580	3,346	(5,028)	(1,682)
Expenditures for segment assets	819	127	946	1	947(3)

Segment Reporting for the Quarter Ended September 30, 2021

	Treatment	Services	Medical	Segments Total	Corporate (1)	Consolidated Total
Revenue from external customers	$ 8,893	$ 6,904	—	$ 15,797	$ —	$ 15,797
Intercompany revenues	220	5	—	225	—	—
Gross profit (negative gross profit)	2,487	(263)	—	2,224	—	2,224
Research and development	52	18	162	232	11	243
Interest income	—	—	—	—	2	2
Interest expense	(51)	(1)	—	(52)	(25)	(77)
Interest expense-financing fees	—	—	—	—	(11)	(11)
Depreciation and amortization	319	85	—	404	5	409
Segment income (loss) before income taxes	1,317	(984)	(162)	171	(1,626)	(1,455)
Income tax expense (benefit)	1	—	—	1	(2,837)	(2,836)(4)
Segment income (loss)	1,316	(984)	(162)	170	1,211	1,381
Expenditures for segment assets	482	—	—	482	—	482(6)

Segment Reporting for the Nine Months Ended September 30, 2021

	Treatment	Services	Medical	Segments Total	Corporate (1)	Consolidated Total
Revenue from external customers	$ 24,094	$ 30,981	—	$ 55,075	$ —	$ 55,075
Intercompany revenues	1,199	44	—	1,243	—	—
Gross profit	4,845	701	—	5,546	—	5,546
Research and development	142	50	311	503	35	538
Interest income	—	—	—	—	23	23
Interest expense	(88)	(9)	—	(97)	(112)	(209)
Interest expense-financing fees	—	—	—	—	(28)	(28)
Depreciation and amortization	939	255	—	1,194	14	1,208
Segment income (loss) before income taxes	1,669	(1,721)	(311)	(363)	987(5)	624
Income tax (benefit) expense	(13)	10	—	(3)	(2,837)	(2,840)(4)
Segment income (loss)	1,682	(1,731)	(311)	(360)	3,824	3,464
Expenditures for segment assets	1,109	14	—	1,123	9	1,132(6)

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

(2) Includes approximately $1,975,000 recorded as other income under the Employee Retention Credit program under the CARES Act, as amended (see "Note 13 – Employee Retention Credit ("ERC") below for a discussion of this expected refund amount).

(3) Net of financed amount of $0 and $114,000 for the three and nine months ended September 30, 2022, respectively.

(4) Includes tax benefit recorded in amount of approximately $2,351,000 resulting from release of valuation allowance on the Company's deferred tax assets.

(5) Includes approximately $5,381,000 of "Gain on extinguishment of debt" recorded in connection with the Company's Paycheck Protection Program ("PPP") Loan which was forgiven by the U.S. Small Business Administration effective June 15, 2021.

(6) Net of financed amount of $271,000 and $348,000 for the three and nine months ended September 30, 2021, respectively.

12. Asset Retirement Obligations ("ARO") and Accrued Closure Costs

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. During the nine months ended September 30, 2022, the Company recorded a total of $465,000 in additional estimated closure liabilities (within long-term liabilities) and ARO in connection with the footprint expansion at one of our facilities and an update to a processing enclosure area at another facility. Additionally, the Company recorded approximately $662,000 in additional estimated closure liabilities (within current liabilities) and ARO for our EWOC (Oak Ridge Environmental Waste Operations Center) facility. The ARO is reported as a component of "Net property and equipment" in the Consolidated Balance Sheets at September 30, 2022.

13. Employee Retention Credit (“ERC”)

The Coronavirus Aid, Relief and Economic Securities Act (“CARES Act”), which was enacted on March 27, 2020, provides 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, is 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 are 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 is 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, we account 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 has 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.

14. Income Taxes

The Company had income tax expense of $179,000 and income tax benefit of $2,836,000 for continuing operations for the three months ended September 30, 2022 and 2021, respectively, and income tax benefits of $147,000 and $2,840,000 for the nine months ended September 30, 2022 and 2021, respectively. The Company’s effective tax rates were approximately 17.8% and 194.9% for the three months ended September 30, 2022 and 2021, respectively, and 8.0% and (455.1%) for the nine months ended September 30, 2022 and 2021, respectively. The Company’s effective tax rates for the three and nine months ended September 30, 2022 were impacted by non-deductible expenses and state taxes. The Company’s effective tax rates for the three and nine months ended September 30, 2021 were substantially impacted by the release of the Company’s valuation allowance during the third quarter of 2021. For the three and nine months ended September 30, 2021, the primary reasons for the differences between the Company’s effective tax rate and statutory tax rate were due to the release of valuation allowance and the forgiveness of the Company’s PPP Loan which was included in the Company’s Consolidated Statement of Operations as “Gain on extinguishment of debt” but is exempt from income taxes.

15. Variable Interest Entities (“VIE”)

The Company and Engineering/Remediation Resources Group, Inc. (“ERRG”) previously entered into an unpopulated joint venture agreement for project work bids within the Company’s Services Segment with the joint venture doing business as Perma-Fix ERRG, a general partnership. The Company has a 51% partnership interest in the joint venture and ERRG has a 49% partnership interest in the joint venture.

The Company determines whether joint ventures in which it has invested meet the criteria of a VIE at the start of each new venture and when a reconsideration event has occurred. A VIE is a legal entity that satisfies any of the following characteristics: (a) the legal entity does not have sufficient equity investment at risk; (b) the equity investors at risk as a group, lack the characteristics of a controlling financial interest; or (c) the legal entity is structured with disproportionate voting rights.

The Company consolidates a VIE if it is determined to be the primary beneficiary of the VIE. The primary beneficiary has both the power to direct the activities of the VIE that most significantly impact the entity’s economic performance and the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE.

Based on the Company’s evaluation of Perma-Fix ERRG and related agreements with Perma-Fix ERRG, the Company determined that Perma-Fix ERRG continues to be a VIE in which the Company is the primary beneficiary. At September 30, 2022, Perma-Fix ERRG had total assets of $91,000 and total liabilities of $91,000 which are all recorded as current.

16. Subsequent Events

Management evaluated events occurring subsequent to September 30, 2022 through November 3, 2022, the date these consolidated financial statements were available for issuance, and determined that no material recognizable subsequent events occurred.

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

Forward-looking Statements

Certain statements contained within this report may be deemed "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (collectively, the "Private Securities Litigation Reform Act of 1995"). All statements in this report other than a statement of historical fact are forward-looking statements that are subject to known and unknown risks, uncertainties and other factors, which could cause actual results and performance of the Company to differ materially from such statements. The words "believe," "expect," "anticipate," "intend," "will," and similar expressions identify forward-looking statements. Forward-looking statements contained herein relate to, among other things,

- demand for our services;
- reductions and improvement in the level of government funding in future years;
- reducing operating costs and non-essential expenditures;
- ability to meet loan agreement quarterly financial covenant requirements;
- cash flow requirements;
- Canadian receivable;
- sufficient liquidity to continue business;
- future results of operations and liquidity;
- effect of economic disruptions on our business;
- government funding for our services;
- may not have liquidity to repay debt if our lender accelerates payment of our borrowings;
- manner in which the applicable government will be required to spend funding to remediate various sites;
- funding operations;
- continued increases in pricing and/or further tightening supply chain;
- fund capital expenditures from cash from operations and/or financing;
- impact from COVID-19 and economic conditions;
- continue improvement in waste receipts and project work;
- submitted bid;
- fund remediation expenditures for sites from funds generated internally;
- ownership percentage interest upon finalization of partnership agreement;
- investment requirement upon finalization of joint venture;

- positive trends;
- collection of accounts receivables;
- compliance with environmental regulations;
- potential effect of being a PRP;
- potential sites for violations of environmental laws and remediation of our facilities;
- ERC refund;
- remediation of material weakness;
- future price increases; and
- continuation of contracts with federal government.

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;
- public not accepting our new technology;
- inability to develop new and existing technologies in the conduct of operations;
- inability to maintain and obtain closure and operating insurance requirements;
- inability to retain or renew certain required permits;
- discovery of additional contamination or expanded contamination at any of the sites or facilities leased or owned by us or our subsidiaries which would result in a material increase in remediation expenditures;
- delays at our third-party disposal site can extend collection of our receivables greater than twelve months;
- refusal of third-party disposal sites to accept our waste;
- changes in federal, state and local laws and regulations, especially environmental laws and regulations, or in interpretation of such;
- requirements to obtain permits for TSD activities or licensing requirements to handle low level radioactive materials are limited or lessened;
- potential increases in equipment, maintenance, operating or labor costs;
- management retention and development;
- financial valuation of intangible assets is substantially more/less than expected;
- the requirement to use internally generated funds for purposes not presently anticipated;
- inability to continue to be profitable on an annualized basis;
- inability of the Company to maintain the listing of its Common Stock on the NASDAQ;
- terminations of contracts with government agencies or subcontracts involving government agencies or reduction in amount of waste delivered to the Company under the contracts or subcontracts;
- renegotiation of contracts involving government agencies;
- federal government's inability or failure to provide necessary funding to remediate contaminated federal sites;
- disposal expense accrual could prove to be inadequate in the event the waste requires re-treatment;
- inability to raise capital on commercially reasonable terms;
- inability to increase profitable revenue;
- impact of the COVID-19 and economic uncertainties;

- new governmental regulations;
- lender refuses to waive non-compliance or revise our covenant so that we are in compliance;
- continued supply chain interruptions;
- continued inflationary pressures;
- recession;
- challenge by regulatory authorities of our claim to the ERTC; and
- risk factors and other factors set forth in "Special Note Regarding Forward-Looking Statements" contained in the Company's 2021 Form 10-K and the "Forward-Looking Statements" contained in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" ("MD&A") of the first and second quarters 2022 Form 10-Qs and this third quarter 2022 Form 10-Q.

Overview

Revenue increased by $2,675,000 or 16.9% to $18,472,000 for the three months ended September 30, 2022 from $15,797,000 for the corresponding period of 2021. Services Segment revenue increased to $9,595,000 from $6,904,000 or approximately 39.0%. The increase was primarily due to achievement of full operational status on certain projects which had been delayed due to COVID-19 impact and/or administrative delays experienced by certain customers since the award of the projects to us late in the second quarter of 2021. As previously disclosed, starting in the second quarter of 2022, work under these projects had resumed/increased as the pandemic impacts began to subside and has since reached full operational status. Treatment Segment revenue decreased slightly by $16,000 or 0.2% for the third quarter of 2022 as compared to the corresponding period of 2021. Treatment Segment revenue for the three months ended September 30, 2021 included approximately $1,286,000 recognized from a significant request for equitable adjustment ("REA") under a government waste generator contract resulting from certain pricing provisions of the contract. Excluding this REA, Treatment Segment revenue increase approximately $1,270,000 or 16.7% in the third quarter of 2022 primarily due to higher waste volume which was offset by lower averaged price waste due to revenue mix. As previously disclosed, starting in the latter part of the second quarter of 2022, our Treatment Segment began to see improvements in waste receipt from certain customers who had previously delayed waste shipments due, in part, from the impact of COVID-19 which is reflected in our Treatment Segment waste backlog of $7,088,000 at September 30, 2022, an increase of approximately $967,000 or 15.8% from the balance of $6,121,000 at March 31, 2022. Our Treatment Segment revenue was negatively impacted by delays in waste shipments from certain customers at our Florida facility due to Hurricane Ian. We continue to have bids currently submitted in both segments and are awaiting awards. At this time, we expect to see continued steady improvements in waste receipts and increase work from projects, subject to potential impact of COVID-19 and other impacts (See "COVID-19 and Other Impacts" below for a discussion of uncertainties that COVID-19 and other economic impacts may have on the Company's future results of operations).

Overall gross profit increased by $846,000 or 38.0%. Excluding the REA recorded in the third quarter of 2021 as discussed above, gross profit increased in both segments where Treatment Segment gross profit increased by approximately $766,000 primarily due to higher revenue from higher waste volume which was partially offset by lower averaged priced waste from revenue mix and Services Segment gross profit increased by approximately $1,366,000 due to higher revenue from increased work. Selling, General, and Administrative ("SG&A") expenses increased $581,000 or 17.4% for the three months ended September 30, 2022 as compared to the corresponding period of 2021.

During the third quarter of 2022, we recorded approximately $1,975,000 in other income and other receivables (within current assets in our Consolidated Balance Sheets), which represent an employee retention credit that we are eligible for under the CARES Act (as amended) as result of the COVID-19 pandemic (see "Employee Retention Credit ("ERC")") within this MD&A for a discussion of this refund that we are expecting resulting from this tax credit).

Revenue decreased by $1,233,000 or 2.2% to $53,842,000 for the nine month ended September 30, 2022 from $55,075,000 for the corresponding period of 2021. The decrease was entirely within our Services Segment where revenue decreased to $29,093,000 from $30,981,000 or approximately 6.1%. As previously disclosed, work under certain of the new projects awarded to our Services Segment at the end of the second quarter of 2021 continued to be delayed/curtailed into most of the first quarter of 2022 due to COVID-19 impact and/or administrative delays experienced by certain customers. However, as discussed above, work under these projects had resumed/increased starting in the second quarter of 2022 and has since reached full operational status. The lower revenue in the first nine months of 2022 was further exacerbated by the completion of a large project in the second quarter of 2021 which was not replaced with a similar size contract because of delays in contract awards and procurement from COVID-19 impact in the first half of 2021. Our Treatment Segment revenue increased by $655,000 or 2.7%. As discussed above, our Treatment Segment revenue for the three months ended September 30, 2021 included approximately $1,286,000 recognized from a significant REA under a government waste generator contract resulting from certain pricing provisions of the contract. Excluding this REA, the increase in revenue of $1,941,000 or 8.5% for the nine months ended September 30, 2022 was primarily due to higher waste volume which was offset by lower averaged price waste due to revenue mix.

Overall gross profit for the nine months ended September 30, 2022 increased $2,044,000 or 36.9%. Excluding the REA recorded in the third quarter of 2021 as discussed above, gross profit increased in both segments where Treatment Segment gross profit increased by approximately $609,000 primarily due to higher revenue from higher waste volume which was partially offset by lower averaged priced waste from revenue mix and Services Segment gross profit increased by approximately $2,721,000 due to higher revenue from increased work. SG&A expenses increased $1,485,000 or 15.5% for the nine months ended September 30, 2022 as compared to the corresponding period of 2021.

COVID-19 and Other Impacts

Since the start of the COVID-19 pandemic, our financial results have been impacted by delays in waste shipments from certain customers, delays in procurement actions and contract awards, and delays/curtailment in work under projects. However, as disclosed above, we continue to see steady waste receipt improvements and work under projects resume/increase as our customers continue to ease up on COVID-19 restrictions. We continue to have submitted bids awaiting awards in both segments. At this time, we expect these positive trends to continue; however, such may not be the case based on the uncertainty of COVID-19 and how our customers respond to COVID-19. Even if the pandemic continues to subside, we may continue to experience adverse effect on our business and financial results because of economic impacts, including labor shortages, supply chain disruptions, as well as continued inflation or potential recession (see “Known Trends and Uncertainties” – “Supply Chain” and “Inflation and Cost Increases” within this MD&A).

We believe we have sufficient liquidity on hand to continue business operations during the next twelve months. At September 30, 2022, we had borrowing availability under our revolving credit facility of approximately $4,548,000 which was based on a percentage of eligible receivables and subject to certain reserves. As a result of an amendment to our Loan Agreement that we entered into with our lender in August 2022, we are required to maintain a minimum of $3,000,000 in borrowing availability under our revolving credit until the minimum FCCR requirement for the quarter ended December 31, 2022 has been met and certified to our lender (see “Financing Activities” within this MD&A for a discussion of this amendment). We continue to assess ways to improve our liquidity and the need in reducing operating costs during this volatile time. Reducing operating costs may include curtailing certain capital expenditures and eliminating non-essential expenditures.

We continue to closely monitor our customers’ payment performance. However, since a significant portion of our revenues is derived from government related contracts, we do not expect our accounts receivable collections to be materially impacted due to COVID-19.

As the situations surrounding COVID-19 and the countries’ economic conditions continue to remain fluid, the full impact and extent of the pandemic and the countries’ economic conditions on our financial results and liquidity cannot be estimated with any degree of certainty. We continue to closely monitor the impact of both the COVID-19 pandemic and the countries’ economic conditions on all aspects of our business.

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, the manner in which the applicable government will be required to spend funding to remediate various sites, and/or potential further impact from COVID-19. 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, and our governmental contracts/task orders with the Canadian government authorities also allow the authorities to terminate the contract/task orders at any time for convenience. Work under all of our contracts/task order agreements with Canadian government authorities has substantially been completed. A significant account receivable due to PF Canada is subject to continuing negotiations. See "Known Trends and Uncertainties – Perma-Fix Canada, Inc. ("PF Canada")" for additional discussion as to a terminated Canadian TOA. 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.

Based upon current regulations, for the Company's 2022 Form 10-K, we will continue to be a SRC but no longer an accelerated filer.

Results of Operations

The reporting of financial results and pertinent discussions are tailored to our two reportable segments: The Treatment and Services. Our financial results for 2021 also included our Medical Segments. As previously disclosed, we made the strategic decision to cease all R&D activities under the Medical Segment and sold 100% of our interest in PFM Poland (which comprised the Medical Segment) in December 2021. Our Medical Segment had not generated any revenue and was involved in our medical isotope production technology. All costs previously incurred by the Medical Segment were included within R&D.

Summary – Three and Nine Months Ended September 30, 2022 and 2021

	Three Months Ended September 30,				Nine Months Ended September 30,			
Consolidated (amounts in thousands)	2022	%	2021	%	2022	%	2021	%
Net revenues	$ 18,472	100.0	$ 15,797	100.0	$ 53,842	100.0	$ 55,075	100.0
Cost of goods sold	15,402	83.4	13,573	85.9	46,252	85.9	49,529	89.9
Gross profit	3,070	16.6	2,224	14.1	7,590	14.1	5,546	10.1
Selling, general and administrative	3,929	21.3	3,348	21.2	11,035	20.5	9,550	17.3
Research and development	69	.3	243	1.5	245	.5	538	1.0
Loss on disposal of property and equipment	—	—	1	—	1	—	1	—
Loss from operations	(928)	(5.0)	(1,368)	(8.6)	(3,691)	(6.9)	(4,543)	(8.2)
Interest income	29	.2	2	—	69	.1	23	—
Interest expense	(47)	(.2)	(77)	(.5)	(123)	(.2)	(209)	(.4)
Interest expense-financing fees	(16)	(.1)	(11)	(.1)	(44)	—	(28)	(.1)
Other	1,965	10.6	(1)	—	1,960	3.6	—	—
Gain on extinguishment of debt	—	—	—	—	—	—	5,381	9.8
Income (loss) from continuing operations before taxes	1,003	5.5	(1,455)	(9.2)	(1,829)	(3.4)	624	1.1
Income tax expense (benefit)	179	1.0	(2,836)	(17.9)	(147)	(.3)	(2,840)	(5.2)
Income (loss) from continuing operations, net of taxes	$ 824	4.5	$ 1,381	8.7	$ (1,682)	(3.1)	$ 3,464	6.3

Revenues

Consolidated revenues increased $2,675,000 for the three months ended September 30, 2022, compared to the three months ended September 30, 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change	% Change
Treatment						
Government waste	$ 5,475	29.7	$ 6,164	39.0	$ (689)	(11.2)
Hazardous/non-hazardous [(1)]	1,150	6.2	1,094	6.9	56	5.1
Other nuclear waste	2,252	12.2	1,635	10.4	617	37.7
Total	8,877	48.1	8,893	56.3	(16)	(0.2)
Services						
Nuclear services	9,360	50.7	6,505	41.2	2,855	43.9
Technical services	235	1.2	399	2.5	(164)	(41.1)
Total	9,595	51.9	6,904	43.7	2,691	39.0
Total	$ 18,472	100.0	$ 15,797	100.0	$ 2,675	16.9

[(1)] Includes wastes generated by government clients of $540,000 and $597,000 for the three month ended September 30, 2022 and the corresponding period of 2021, respectively.

Treatment Segment revenue decreased by $16,000 or 0.2% for the three months ended September 30, 2022 over the same period in 2021. Treatment Segment revenue for the three months ended September 30, 2021 included a significant REA in the amount of approximately $1,286,000 recognized under a government waste generator contract resulting from certain pricing provisions of the contract. Excluding this REA, the overall increase in revenue of $1,270,000 or 16.7% was primarily due to higher waste volume which was partly offset by lower averaged price waste due to revenue mix. As previously disclosed, since the latter part of the second quarter of 2022, our Treatment Segment began to see improvement in waste receipts from certain customers who had previously delayed waste shipments due, in part, to impact of COVID-19. This improvement has continued in the third quarter but was partly negatively impacted by some delays in waste shipment from certain customers at our Florida facility from Hurricane Ian. Services Segment revenue increased by approximately $2,691,000 or 39.0% primarily due to achievement of full operational status on certain projects which had previously been delayed/curtailed due to COVID-19 impact and/or administrative delays experienced by certain customers since the award of these projects to us late in the second quarter of 2021. Since the second quarter of 2022, work under these projects had resumed/increased and has since reached full operational status. 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.

Consolidated revenues decreased $1,233,000 for the nine months ended September 30, 2022, as compared to the nine months ended September 30, 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change	% Change
Treatment						
Government waste	$ 16,666	31.0	$ 15,653	28.4	$ 1,013	6.5
Hazardous/non-hazardous [(1)]	3,515	6.5	3,722	6.8	(207)	(5.6)
Other nuclear waste	4,568	8.5	4,719	8.5	(151)	(3.2)
Total	24,749	46.0	24,094	43.7	655	2.7
Services						
Nuclear services	28,320	52.6	29,832	54.2	(1,512)	(5.1)
Technical services	773	1.4	1,149	2.1	(376)	(32.7)
Total	29,093	54.0	30,981	56.3	(1,888)	(6.1)
Total	$ 53,842	100.0	$ 55,075	100.0	$ (1,233)	(2.2)

[(1)] Includes wastes generated by government clients of $1,652,000 and $1,886,000 for the nine month ended September 30, 2022 and the corresponding period of 2021, respectively.

Treatment Segment revenue increased by $655,000 or 2.7% for the nine months ended September 30, 2022 over the same period in 2021. Excluding the significant REA of $1,286,000 recorded in the third quarter of 2021 as discussed above, the overall increase in revenue of $1,941,000 or 8.5% was primarily due to higher waste volume as we continue to see steady improvements in waste receipts as our customers continue to ease up on COVID-19 restrictions. As disclosed above, this steady improvement in waste receipts was negatively impacted by some delays in waste shipment from certain customers at our Florida facility from Hurricane Ian. The higher revenue from higher waste volume was offset by lower averaged price waste from revenue mix. Services Segment revenue decreased by approximately $1,888,000 or 6.1%. As previously disclosed, work under certain of the new projects awarded to our Services Segment at the end of the second quarter of 2021 continued to be delayed/curtailed into most of the first quarter of 2022 due to COVID-19 impact and/or administrative delays experienced by certain customers. However, as previously disclosed, since the second quarter of 2022, work under these projects had resumed/increased and has since reached full operational status. The lower revenue in the first nine months of 2022 was further exacerbated by the completion of a large project in the second quarter of 2021 which was not replaced with a similar size contract because of delays in contract awards and procurement from COVID-19 impact in the first half of 2021. Our Services Segment revenues are project based; as such, the scope, duration and completion of each project vary. As a result, our Services Segment revenues are subject to differences relating to timing and project value.

Cost of Goods Sold

Cost of goods sold increased $1,829,000 for the quarter ended September 30, 2022, as compared to the quarter ended September 30, 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change
Treatment	$ 6,910	77.8	$ 6,406	72.0	$ 504
Services	8,492	88.5	7,167	103.8	1,325
Total	$ 15,402	83.4	$ 13,573	85.9	$ 1,829

Cost of goods sold for the Treatment Segment increased by approximately $504,000 or 7.9%. Treatment Segment's variable costs increased by approximately $365,000 primarily in transportation and material and supplies costs. Treatment Segment's overall fixed costs were higher by approximately $139,000 resulting from the following: general expenses were higher by $96,000 mostly due to higher utility costs; depreciation expenses were higher by approximately $65,000 due to depreciation for asset retirement obligations in connection with our EWOC facility; maintenance costs were higher by approximately $36,000; regulatory expenses were lower by approximately $16,000; travel expenses were lower by approximately $20,000 and payroll related and travel costs were lower by approximately $22,000. Services Segment cost of goods sold increased $1,325,000 or 18.5% primarily due to higher revenue. The increase in cost of goods sold was primarily due to higher salaries/payroll related costs, travel, outside services and general costs totaling approximately $1,451,000. The overall higher costs were offset by lower disposal and materials and supplies costs. Included within cost of goods sold is depreciation and amortization expense of $471,000 and $403,000 for the three months ended September 30, 2022, and 2021, respectively.

Cost of goods sold decreased $3,277,000 for the nine months ended September 30, 2022, as compared to the nine months ended September 30, 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change
Treatment	$ 20,581	83.2	$ 19,249	79.9	$ 1,332
Services	25,671	88.2	30,280	97.7	(4,609)
Total	$ 46,252	85.9	$ 49,529	89.9	$ (3,277)

Cost of goods sold for the Treatment Segment increased by approximately $1,332,000 or 6.9%. Treatment Segment's variable costs increased by approximately $593,000 primarily due to higher material and supplies, transportation, and outside services costs. Treatment Segment's overall fixed costs were higher by approximately $739,000 resulting from the following: salaries and payroll related expenses were higher by $97,000 as in the prior year, more vacation hours were used by employees during the first nine months of 2021 which reduced the first nine months prior year payroll costs; general expenses were higher by $380,000 mostly due to higher utility costs; depreciation expenses were higher by approximately $193,000 due to depreciation for asset retirement obligations in connection with our EWOC facility; regulatory expenses were higher by approximately $16,000; maintenance costs were higher by approximately $86,000; and travel expenses were lower by approximately $33,000. Services Segment cost of goods sold decreased $4,609,000 or 15.2% primarily due to lower revenue. The decrease in cost of goods sold was primarily due to lower salaries/payroll related, disposal and outside services costs totaling approximately $5,195,000 which was offset by higher material and supplies and general expenses. Included within cost of goods sold is depreciation and amortization expense of $1,373,000 and $1,191,000 for the nine months ended September 30, 2022, and 2021, respectively.

Gross Profit

Gross profit for the quarter ended September 30, 2022 increased $846,000 over the same period of 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change
Treatment	$ 1,967	22.2	$ 2,487	28.0	$ (520)
Services	1,103	11.5	(263)	(3.8)	1,366
Total	$ 3,070	16.6	$ 2,224	14.1	$ 846

Treatment Segment gross profit decreased by $520,000 or 20.9%. Excluding the significant REA of approximately $1,286,000 recorded during the third quarter of 2021 as discussed above, Treatment Segment gross profit increased by approximately $766,000 or 63.8% and gross margin increased to 22.2% from 15.8% primarily due to increased waste volume which was partly offset by lower averaged price waste from revenue mix. Services Segment gross profit increased by $1,366,000 or 519.4% and gross margin increased to 11.5% from a negative 3.8% primarily due to higher revenue and higher margin projects. Our overall Services Segment gross margin is impacted by our current projects which are competitively bid on and will therefore, have varying margin structures.

Gross profit for the nine months ended September 30, 2022 increased $2,044,000 over the same period in 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change
Treatment	$ 4,168	16.8	$ 4,845	20.1	$ (677)
Services	3,422	11.8	701	2.3	2,721
Total	$ 7,590	14.1	$ 5,546	10.1	$ 2,044

Treatment Segment gross profit decreased by $677,000 or 14.0%. Excluding the significant REA of approximately $1,286,000 recorded in the third quarter of 2021 as discussed above, Treatment Segment gross profit increased $609,000 or 17.1% and gross margin increased to 16.8% from 15.6% primarily due to higher revenue from higher waste volume which was offset by lower averaged price waste from revenue mix and the impact of our fixed costs which continue to include much higher utility costs. Services Segment gross profit increased by $2,721,000 or 388.2% and gross margin increased from 2.3% to 11.8% primarily due to higher revenue and more higher margin projects. Our overall Services Segment gross margin is impacted by our current projects which are competitively bid on and will therefore, have varying margin structures.

SG&A

SG&A expenses increased $581,000 for the three months ended September 30, 2022, as compared to the corresponding period for 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change
Administrative	$ 1,826	—	$ 1,580	—	$ 246
Treatment	1,144	12.9	1,066	12.0	78
Services	959	10.0	702	10.2	257
Total	$ 3,929	21.3	$ 3,348	21.2	$ 581

Administrative SG&A expenses were higher primarily due to the following: overall outside services expenses were higher by approximately $157,000 from higher consulting/outside services/audit fees; travel expenses were higher by approximately $6,000; general expenses were higher by approximately $12,000 in various categories; and salaries and payroll related expenses were higher by approximately $71,000 due to higher stock-based compensation expenses from options granted to certain employees in October 2021 and higher 401(k) plan matching expenses as our payroll expenses in the third quarter of 2021 included forfeitures of 401(k) plan matching funds contributed by us for former employees who failed to meet the 401(k) plan vesting requirements. Additionally, Administrative salaries and payroll related expenses were higher in the quarter as in 2021, resources were allocated in supporting Medical Segment's R&D/administrative functions. Treatment Segment SG&A expenses were higher primarily due to the following: outside services expense were higher by $32,000 due to more consulting/business matters; general expenses were higher by approximately $54,000 which included higher tradeshow expenses and various other categories; salaries and payroll related expenses were higher by approximately $10,000; and travel expense were lower by approximately $18,000. The increase in Services Segment SG&A was primarily due to higher salaries/payroll related and consulting expenses totaling approximately $176,000 due to bid and proposals efforts; higher travel expenses by approximately $14,000 and higher general expenses by approximately $67,000 which included higher tradeshow expenses and various other categories. Included in SG&A expenses is depreciation and amortization expense of $26,000 and $6,000 for the three months ended September 30, 2022, and 2021, respectively.

SG&A expenses increased $1,485,000 for the nine months ended September 30, 2022, as compared to the corresponding period for 2021, as follows:

(In thousands)	2022	% Revenue	2021	% Revenue	Change
Administrative	$ 5,278	—	$ 4,243	—	$ 1,035
Treatment	3,302	13.3	2,945	12.2	357
Services	2,455	8.4	2,362	7.6	93
Total	$ 11,035	20.5	$ 9,550	17.3	$ 1,485

Administrative SG&A expenses were higher primarily due to the following: overall outside services expenses were higher by approximately $491,000 resulting from higher consulting/outside services/audit fees; travel expenses were higher by approximately $31,000; general expenses were higher by approximately $32,000 in various categories; and salaries and payroll related expenses were higher by approximately $481,000 primarily due to higher stock-based compensation expenses from options granted to certain employees in October 2021 and higher 401(k) plan matching expenses as our payroll expenses in the first nine months of 2021 included forfeitures of 401(k) plan matching funds contributed by us for former employees who failed to meet the 401(k) plan vesting requirements. Additionally, Administrative salaries and payroll related expenses were higher as in 2021, resources were allocated in supporting Medical Segment's R&D/administrative functions. Treatment Segment SG&A expenses were higher primarily due to the following: salaries and payroll related expenses were higher by approximately $84,000 as in the prior year, more vacation hours were used by employees during the first nine months of 2021 which reduced the first nine months prior year payroll costs; outside services expense were higher by $76,000 due to more consulting/business matters (including our Environmental, Social and Governance initiatives); travel expense were higher by approximately $39,000; and general expenses were higher by $158,000 which included higher tradeshow expenses and various other categories. The increase in SG&A expenses within our Services Segment was primarily due to the following: travel expenses were higher by $32,000; general expenses were higher by approximately $95,000 which included higher tradeshow expenses and various other categories; and salaries/payroll related and consulting expenses were lower by approximately $34,000 as in 2021, increased hours and consulting costs were spent on bid and proposal efforts. Included in SG&A expenses is depreciation and amortization expense of $60,000 and $17,000 for the nine months ended September 30, 2022 and 2021, respectively.

R&D

R&D expenses decreased $174,000 and 293,000 for the three and nine months ended September 30, 2022, respectively, as compared to the corresponding period of 2021.

	Three Months Ended September 30,			Nine Months Ended September 30,		
(In thousands)	2022	2021	Change	2022	2021	Change
Administrative	$ 14	$ 11	$ 3	$ 43	$ 35	$ 8
Treatment	55	52	3	179	142	37
Services	—	18	(18)	23	50	(27)
PF Medical	—	162	(162)	—	311	(311)
Total	$ 69	$ 243	$ (174)	$ 245	$ 538	$ (293)

R&D costs consist primarily of employee salaries and benefits, laboratory costs, third party fees, and other related costs associated with the development of new technologies and technological enhancement of new potential waste treatment processes. The decrease was primarily the result of the sale of PF Poland in December 2021 which comprised of our Medical Segment and which previously was involved in the R&D of our medical isotope technology.

Interest Income

Interest income increased by approximately $27,000 and $46,000 for the three and nine months ended September 30, 2022, respectively, as compared to the corresponding period of 2021 primarily due to higher interest earned from lower finite risk sinking fund.

Interest Expense

Interest expense decreased by approximately $30,000 and $86,000 for the three and nine months ended September 30, 2022, respectively, as compared to the corresponding period of 2021 primarily due to lower interest expense from our declining term loan balance outstanding. Also, interest expense for the first six months of 2021 included interest accrued for our Paycheck Protection Program Loan which was forgiven by the U.S. Small Business Administration effective June 15, 2021.

Income Taxes

We had income tax expense of $179,000 and income tax benefit of $2,836,000 for continuing operations for the three months ended September 30, 2022 and 2021, respectively, and income tax benefits of $147,000 and $2,840,000 for the nine months ended September 30, 2022 and 2021, respectively. Our effective tax rates were approximately 17.8% and 194.9% for the three months ended September 30, 2022 and 2021, respectively, and 8.0% and (455.1%) for the nine months ended September 30, 2022 and 2021, respectively. Our effective tax rates for the three and nine months ended September 30, 2022 were impacted by non-deductible expenses and state taxes. Our effective tax rates for the three and nine months ended September 30, 2021 were substantially impacted by the release of our valuation allowance during the third quarter of 2021. For the three and nine months ended September 30, 2021, the primary reasons for the differences between our effective tax rate and statutory tax rate were due to the release of valuation allowance and the forgiveness of our PPP Loan which was included in our Consolidated Statement of Operations as “Gain on extinguishment of debt” but is exempt from income taxes.

Liquidity and Capital Resources

Our cash flow requirements during the nine months ended September 30, 2022 were primarily financed by our operations, cash on hand and credit facility availability. Subject to COVID-19 and other impacts as discussed above, 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 a refund that we expect to receive under the ERC program under the CARES Act, as amended (see a discussion of this expected refund below – "Employee Retention Credit ("ERC")). We continue to explore all sources of increasing our capital and/or liquidity and to improve our revenue and working capital. 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. At this time, we believe that our cash flows from operations, our available liquidity from our credit facility, our cash on hand and the expected refund from the ERC program should be sufficient to fund our operations for the next twelve months. However, due to the uncertainty of COVID-19 as disclosed in "COVID-19 and Other Impacts" within this MD&A, there are no assurances such will be the case.

The following table reflects the cash flow activities during the first nine months of 2022:

(In thousands)		
Cash used in operating activities of continuing operations	$	(334)
Cash used in operating activities of discontinued operations		(559)
Cash used in investing activities of continuing operations		(922)
Cash used in financing activities of continuing operations		(694)
Effect of exchange rate changes in cash		(4)
Decrease in cash and finite risk sinking fund (restricted cash)	$	(2,513)

At September 30, 2022, we were in a positive cash position with no revolving credit balance. At September 30, 2022, we had cash on hand of approximately $1,858,000.

Operating Activities

Accounts receivable, net of allowances for doubtful accounts, totaled $9,993,000 at September 30, 2022, a decrease of $1,379,000 from the December 31, 2021 balance of $11,372,000. The decrease was attributed to timing of invoicing and timing of our accounts receivable collection. Our contracts with our customers are subject to various payment terms and conditions; therefore, our accounts receivable are impacted by these terms and conditions and the related timing of accounts receivable collections. Additionally, our contracts with our customers may sometimes result in modifications which can cause delays in collections. Our accounts receivable at September 30, 2022 include invoices for work performed which previously was in our unbilled account for a certain Canadian project that remain outstanding and subject to negotiations (see unbilled receivables discussion below). See discussion under "Known Trends and Uncertainties – Perma-Fix Canada, Inc. ("PF Canada") for a discussion as to certain account receivable.

Unbilled receivables totaled $6,306,000 at September 30, 2022, a decrease of $2,689,000 from the December 31, 2021 balance of $8,995,000. The decrease in unbilled receivables was primarily within our Services Segment due to invoicing in connection with our Canadian projects.

Accounts payable, totaled $10,37,000 at September 30, 2022, a decrease of $1,605,000 from the December 31, 2021 balance of $11,975,000. 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 all segments.

We had working capital of $1,505,000 (which included working capital of our discontinued operations) at September 30, 2022, as compared to working capital of $4,060,000 at December 31, 2021. Our working capital was negatively impacted primarily by our results of operations which were heavily impacted from COVID-19 and other delays, especially in the first quarter of 2022. Additionally, our working capital was negatively impacted by the reclass of approximately $400,000 in remediation reserve within our discontinued operations from long-term to current and the approximately $621,000 in additional current closure liabilities recorded for our EWOC facility. Our working capital was positively impacted by the employee retention credit in the amount of approximately $1,975,000 recorded as current receivables (within "Prepaid and other assets" in our Consolidated Balance Sheets. See a discussion of this credit below "Employee Retention Credit ("ERC")").

Investing Activities

For the nine months ended September 30, 2022, our purchases of capital equipment totaled approximately $1,061,000, of which $114,000 was subject to financing, with the remaining funded from cash from operations and our credit facility. We have budgeted approximately $2,000,000 for 2022 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 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 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, winning a certain contract, 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, (the "Loan Agreement"), with PNC National Association ("PNC"), acting as agent and lender. The Loan Agreement provided us with the following credit facility with a maturity date of March 15, 2024: (a) up to $18,000,000 revolving credit ("revolving credit") and (b) a term loan ("term loan") of approximately $1,742,000, requiring monthly installments of $35,547. The maximum that we can borrow under the revolving credit is based on a percentage of eligible receivables (as defined) at any one time reduced by outstanding standby letters of credit and borrowing reductions that our lender may impose from time to time. Our Loan Agreement, as amended (the "Amended Loan Agreement"), also provides a capital expenditure 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"). Only interest is payable on advances during the Borrowing Period. At the end of the Borrowing Period, the total amount advanced under the line will amortize equally based on a five-year amortization schedule with principal payment due monthly plus interest. At the maturity date of the Amended Loan Agreement, any unpaid principal balance plus interest, if any, will become due. At the end of the Borrowing Period, advance on the capital line totaled approximately $524,000. We are required to make monthly principal installment payment of approximately $8,700 starting June 1, 2022 plus interest. At September 30, 2022, balance on the capital line was approximately $480,000. The advance made on the capital line was used to purchase the underlying asset under a previous finance lease.

On March 29, 2022, we entered into an amendment to our Amended Loan Agreement with our lender which provided, among other things, the following:

- waived our failure to meet the minimum quarterly FCCR requirement for the fourth quarter of 2021;
- removes the quarterly FCCR testing requirement for the first quarter of 2022;
- reinstates the quarterly FCCR testing requirement starting for the second quarter of 2022 and revises the methodology to be used in calculating the FCCR for the quarters ending June 30, 2022, September 30, 2022, and December 31, 2022 (with no change to the minimum 1.15:1 ratio requirement for each quarter);
- requires 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, 2022 has been met and certified to the lender; and
- revises the annual rate used to calculate the Facility Fee (as defined in the Loan Agreement) on the revolving credit, with addition of the capital expenditure line, from 0.375% to 0.500%. Upon meeting the minimum FCCR requirement of 1.15:1 on a twelve month trailing basis, the Facility Fee rate of 0.375% will be reinstated.

In connection with the amendment, we paid our lender a fee of $15,000 which is being amortized over the remaining term of the Amended Loan Agreement as interest expense-financing fees.

On August 2, 2022, we entered into an amendment to our Amended Loan Agreement with our lender which provided the following, among other things:

- waived our failure to meet the minimum quarterly FCCR requirement for the second quarter of 2022;
- removes the quarterly FCCR testing requirement for the third quarter of 2022;
- reinstates the quarterly FCCR testing requirement starting for the fourth quarter of 2022 and revises the methodology to be used in calculating the FCCR for the quarters ending December 31, 2022 and March 31, 2023 (with no change to the minimum 1.15:1 ratio requirement for each quarter);
- requires maintenance of a minimum of $3,000,000 in borrowing availability under the revolving credit until the minimum FCCR requirement for the quarter ended December 31, 2022 has been met and certified to the lender.

In connection with the amendment, we paid our lender a fee of $15,000 which is being amortized over the remaining term of the Amended Loan Agreement as interest expense-financing fees.

Our credit facility under our Amended Loan Agreement 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. We were not required to perform testing of the FCCR requirement in the first and third quarters of 2022 pursuant to the March 29, 2022 and August 2, 2022 amendments, respectively, as discussed above. We failed to meet our FCCR requirement in the second quarter of 2022; however, this non-compliance was waived by our lender pursuant to the August 2, 2022 amendment as discussed above. Other than the FCCR covenant discussion above, we met all of our other financial covenant requirements in the first, second and third quarters of 2022. We expect to meet our quarterly financial covenant requirements for the next twelve months under our Amended Loan Agreement.

On August 29, 2022, we entered into an amendment to our Amended Loan Agreement with our lender which set forth certain revisions to our Amended Loan Agreement, with the amended terms set forth in a revised Loan Agreement. The new revisions to the Amended Loan Agreement (the "Revised Loan Agreement") among other things, replaced the London InterBank Offer Rate ("LIBOR") based interest rate benchmark with the Secured Overnight Finance Rate ("SOFR") and added certain additional anti-terrorism provisions to the covenants contained in the Amended Loan Agreement. As a result of this amendment, payment of annual rate of interest due on the revolving credit is at prime (6.25% at September 30, 2022) plus 2% or Term SOFR Rate (as defined in the Revised Loan Agreement) plus 3.00% plus an SOFR Adjustment applicable for an interest period selected by us and payment of annual rate of interest due on the term loan and the capital expenditure line is at prime plus 2.50% or Term SOFR Rate plus 3.50% plus an SOFR Adjustment applicable for an interest period selected by us. Pursuant to the Revised Loan Agreement, 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.

After May 7, 2022, we may terminate its Revised Loan Agreement upon 90 days' prior written notice upon payment in full of our obligations under the Revised Loan Agreement with no early termination fees.

Employee Retention Credit ("ERC")

The CARES Act, which was enacted on March 27, 2020, provides an 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, we determined that we were eligible for the ERC, and as a result of the foregoing legislations, are eligible to claim a refundable tax credit against our 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 are 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 is 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, we determined we were eligible for the ERC and amended our 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, we account 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 has reasonable assurance for receipt of the ERC and recorded the expected refund as other income (within "Other income (expense)") on our Consolidated Statements of Operations and other receivables (within "Prepaid and other assets") on our Consolidated Balance Sheets.

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 September 30, 2022, the total amount of standby letters of credit outstanding totaled approximately $3,016,000 and the total amount of bonds outstanding totaled approximately $59,322,000. We also provide closure and post-closure requirements through a financial assurance policy for certain of our Treatment Segment facilities through AIG. At September 30, 2022, the closure and post-closure requirements for these facilities were approximately $21,175,000.

Critical Accounting Policies and Estimates

There were no significant changes in our accounting policies or critical accounting estimates that are discussed in our Annual Report on Form 10-K for the year ended December 31, 2021.

Recent Accounting Pronouncements

See "Note 2 – Summary of Significant Accounting Policies" in the "Notes to Consolidated Financial Statements" for the recent accounting pronouncements that have been adopted during the first nine months of 2022, or will be adopted in future periods.

Known Trends and Uncertainties

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. We also had significant relationships with Canadian government authorities primarily through TOAs entered into with Canadian government authorities. Project work under all TOAs with Canadian government authorities has substantially been completed. 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. The contracts/TOAs that we are a party to with Canadian governmental authorities also generally provide that the government authorities may terminate the contracts/TOAs at any time for any reason for convenience. 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 and foreign (primarily Canadian)), either directly as a prime contractor or indirectly for others as a subcontractor to government entities, representing approximately $15,279,000 or 82.7% and $46,488,000 or 86.3% of our total revenues generated during the three and nine months ended September 30, 2022, respectively, as compared to $13,244,000 or 83.8% and $47,267,000 or 85.8% of our total revenues generated during the three and nine months ended September 30, 2021, respectively.

COVID-19 Impact. See "COVID-19 and Other Impacts" within this MD&A for a discussion of the impact of COVID-19 and other on our financial results and the potential impact it may have on our future financial results and business operations.

Perma-Fix Canada, Inc. ("PF Canada")

During the fourth quarter of 2021, PF Canada received a Notice of Termination ("NOT") from CNL on a 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 September 30, 2022, PF Canada has approximately $2,385,000 in unpaid receivables due from CNL as a result of work performed under the TOA. Additionally, CNL has approximately $1,044,000 in contractual holdback under the TOA that is payable to PF Canada. CNL also established a bond securing approximately $1,900,000 (CAD) to cover certain issue raised in connection with the TOA. Under the TOA, CNL may be entitled to set off certain costs and expenses incurred by CNL in connection with the termination of the TOA, including the bond as discussed above, against amounts owed to PF Canada for work performed by PF Canada or its subcontractors. PF Canada continues to be in discussions with CNL to finalize the amounts due to PF Canada under the TOA and continues to believe these amounts are due and payable.

Potential Partnership with Springfields Fuels Limited. As discussed above, we have signed a 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.

Supply Chain. We use various commercially available materials and supplies which include among other things chemicals, containers/drums and personal protective equipment in our operations. We generally source these items from various suppliers in order to take advantage of competitive pricing.

We also utilize various types of equipment, which include among other things trucks, flatbeds, lab equipment, heavy machinery, in carrying out our business operations. Our equipment may be obtained through direct purchase, rental option or leases. Within our Services Segment, equipment required for projects are often provided by our subcontractors as part of our contract agreement with the subcontractor. Due to some of our specialized waste treatment processes, certain equipment that we utilize are designed and built to our specifications. We rely on various commercial equipment suppliers for the construction of these equipment. Due to supply chain challenges, we previously experienced a delay in the delivery of a new waste processing unit to us by our supplier due to shortage of parts required for the construction of the unit, among other things, This supply chain interruption delayed deployment of our new technology which negatively impacted our revenue for 2021 and the first quarter of 2022 as associated revenue was not able to be generated. Deployment of this unit commenced in mid-May of 2022. Continued increases in pricing and/or potential delays in procurements of material and supplies and equipment required for our operations resulting from further tightening supply chain could further adversely affect our operations and profitability.

Inflation and Cost Increases. Continued increases in any of our operating costs, including further changes in fuel prices (which impacts our transportation costs), wage rates, supplies, and utility costs, may further increase our overall cost of goods sold or operating expenses. Some of these cost increases have been the result of inflationary pressures that could further reduce profitability. 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.

Environmental Contingencies

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

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

We have three 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. We expect to fund the expenses to remediate these sites from funds generated from operations. At September 30, 2022, we had total accrued environmental remediation liabilities of $861,000, a decrease of $15,000 from the December 31, 2021 balance of $876,000. The decrease represents payments for remediation projects. At September 30, 2022, $751,000 of the total accrued environmental liabilities was recorded as current.

Item 3. Quantitative and Qualitative Disclosures about Market Risks

Not applicable

Item 4. Controls and Procedures

(a) *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 is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission and that such information is accumulated and communicated to our management. As of the end of the period covered by this report, we carried out an evaluation with the participation of our Principal Executive Officer and Principal Financial Officer. Based on this recent assessment, our Principal Executive Officer and Principal Financial Officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended) were not effective as of September 30, 2022 as a result of the identified material weakness in our internal control over financial reporting as discussed in more detail below and in our 2021 Form 10-K filing.

As previously disclosed in our 2021 Form 10-K, management concluded that a material weakness existed in our internal control over financial reporting because management did not have the appropriate controls in place over the determination of revenue recognition for nonroutine and complex revenue transactions in accordance with ASC 606, "Revenue from Contracts with Customers" in certain contracts that contained nonstandard terms and conditions.

Remediation of Material Weakness in Internal Control Over Financial Reporting

In order to remediate this material weakness, management has implemented its remediation plan which included the following:

- consultation with third-party expertise for guidance on large and/or unique contracts to ensure ASC 606 guidance are accurately applied and documented;

- updated our ASC 606 revenue templates to ensure unique contract provisions are able to be identified so ASC 606 guidance are applied accurately;

- instituted more robust collaboration with the Company's operation personnel to identify nonstandard contract terms in order to determine appropriate treatment under ASC 606; and

- continue training of accounting and operations personnel on ASC 606 by subject matter experts and internal financial department to ensure proper application of guidance under ASC 606.

Management is committed to improving our internal control processes and believes that the measures described above should remediate the material weakness identified above and strengthen internal control over financial reporting. As we continue to evaluate and improve internal control over financial reporting resulting from the material weakness described above, additional measures to remediate the material weakness may be necessary. The material weakness will not be considered remediated until the applicable remediated controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. At this time, notwithstanding the material weakness in our internal control over financial reporting as described above, we believe that our consolidated financial statements contained in this Quarterly Report on Form 10-Q fairly present our financial position, results of operations and cash flows for the period covered thereby.

(b) *Changes in internal control over financial reporting.*

Except for the remediation procedures implemented by the Company as described above, there have been no other change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during our most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings

There are no material legal proceedings pending against us and/or our subsidiaries not previously reported by us in Item 3 of our Form 10-K for the year ended December 31, 2021. Additionally, there has been no other material change in legal proceedings previously disclosed by us in our Form 10-K for the year ended December 31, 2021.

Item 1A. Risk Factors

There has been no other material change from the risk factors previously disclosed in our Form 10-K for the year ended December 31, 2021, and our Form 10-Q for the quarter ended March 31, 2022.

Item 6. Exhibits

(a) **Exhibits**

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	Fourth Amendment to Second Amended and Restated Revolving Credit, Term Loan and Security Agreement between Perma-Fix Environmental Services, Inc. and PNC Bank, National Association (as Lender and as Agent), dated August 2, 2022, as incorporated by reference from Exhibit 4.3 to the Company Form 10-Q for the quarter ended June 30, 2022 filed on August 5, 2022.
10.1	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.
31.1	Certification by Mark Duff, Chief Executive Officer of the Company pursuant to Rule 13a-14(a) or 15d-14(a).
31.2	Certification by Ben Naccarato, Chief Financial Officer of the Company pursuant to Rule 13a-14(a) or 15d-14(a).
32.1	Certification by Mark Duff, Chief Executive Officer of the Company furnished pursuant to 18 U.S.C. Section 1350.
32.2	Certification by Ben Naccarato, Chief Financial Officer of the Company furnished pursuant to 18 U.S.C. Section 1350.
101.INS	Inline XBRL Instance Document-the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL 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*
104	Cover Page Interactive Data File (formatted as an Inline XBRL document and included in Exhibit 101).

* Pursuant to Rule 406T of Regulation S-T, the Inline 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.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, hereunto duly authorized.

PERMA-FIX ENVIRONMENTAL SERVICES

Date: November 3, 2022	By: */s/ Mark Duff* Mark Duff President and Chief (Principal) Executive Officer
Date: November 3, 2022	By: */s/ Ben Naccarato* Ben Naccarato Chief (Principal) Financial Officer

EXHIBIT 31.1

CERTIFICATIONS

I, Mark Duff, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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: November 3, 2022

/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 quarterly report on Form 10-Q 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: November 3, 2022

/s/ Ben Naccarato

Ben Naccarato
Executive Vice President and 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 Quarterly Report of Perma-Fix Environmental Services, Inc. (“PESI”) on Form 10-Q for the quarter ended September 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the “Form 10-Q”), I, Mark Duff, President and Chief Executive Officer 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-Q 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-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 3, 2022

/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 Quarterly Report of Perma-Fix Environmental Services, Inc. ("PESI") on Form 10-Q for the quarter ended September 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Form 10-Q"), I, Ben Naccarato, Executive Vice President and 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-Q 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-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 3, 2022

/s/ Ben Naccarato
Ben Naccarato
Executive Vice President and 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.