

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 June 30, 2022
or

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

For the transition period from to
Commission File Number: 001-37822

Advanced Emissions Solutions, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

27-5472457
(I.R.S. Employer
Identification No.)

8051 E. Maplewood Ave, Suite 210, Greenwood Village, CO
(Address of principal executive offices)

80111
(Zip Code)

(720) 598-3500
(Registrant's telephone number, including area code)

Not Applicable
(Former name, former address and former fiscal year, if changed since last report)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 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 the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

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

Class	Trading Symbol	Name of each exchange on which registered
Common stock, par value \$0.001 per share	ADES	Nasdaq Global Market

As of August 10, 2022, there were 19,130,644 outstanding shares of Advanced Emissions Solutions, Inc. common stock, par value \$0.001 per share.

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Part I. – FINANCIAL INFORMATION

Item 1. Consolidated Financial Statements

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(Unaudited)

<i>(in thousands, except share data)</i>	As of	
	June 30, 2022	December 31, 2021
ASSETS		
Current assets:		
Cash	\$ 80,819	\$ 78,753
Receivables, net	12,659	12,622
Receivables, related parties	—	2,481
Inventories, net	12,109	7,850
Prepaid expenses and other current assets	7,441	6,661
Total current assets	113,028	108,367
Restricted cash, long-term	10,000	10,027
Property, plant and equipment, net of accumulated depreciation of \$9,428 and \$7,684, respectively	31,149	30,171
Other long-term assets, net	29,575	36,871
Total Assets	\$ 183,752	\$ 185,436
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	\$ 14,150	\$ 16,486
Current portion of finance lease obligations	1,235	1,011
Other current liabilities	5,202	5,124
Total current liabilities	20,587	22,621
Long-term finance lease obligations, net of current portion	3,998	3,152
Other long-term liabilities	14,662	12,362
Total Liabilities	39,247	38,135
Commitments and contingencies (Note 7)		
Stockholders' equity:		
Preferred stock: par value of \$.001 per share, 50,000,000 shares authorized, none issued	—	—
Common stock: par value of \$.001 per share, 100,000,000 shares authorized, 23,693,208 and 23,460,212 shares issued, and 19,075,062 and 18,842,066 shares outstanding at June 30, 2022 and December 31, 2021, respectively	24	23
Treasury stock, at cost: 4,618,146 and 4,618,146 shares as of June 30, 2022 and December 31, 2021, respectively	(47,692)	(47,692)
Additional paid-in capital	102,668	102,106
Retained earnings	89,505	92,864
Total Stockholders' Equity	144,505	147,301
Total Liabilities and Stockholders' Equity	\$ 183,752	\$ 185,436

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Operations
(Unaudited)

<i>(in thousands, except per share data)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Revenues:				
Consumables	\$ 24,739	\$ 17,408	\$ 51,141	\$ 35,949
License royalties, related party	—	3,657	—	7,723
Total revenues	24,739	21,065	51,141	43,672
Operating expenses:				
Consumables cost of revenue, exclusive of depreciation and amortization	19,910	14,732	41,417	28,716
Payroll and benefits	2,519	2,908	5,145	5,377
Legal and professional fees	1,555	1,431	3,727	3,234
General and administrative	1,869	1,593	3,795	3,508
Depreciation, amortization, depletion and accretion	1,588	1,904	3,094	4,010
Loss (gain) on change in estimate, asset retirement obligation	34	(1,942)	34	(1,942)
Total operating expenses	27,475	20,626	57,212	42,903
Operating (loss) income	(2,736)	439	(6,071)	769
Other income (expense):				
Earnings from equity method investments	2,389	21,437	3,222	39,749
Interest expense	(90)	(493)	(176)	(1,330)
Other	111	150	(334)	571
Total other income	2,410	21,094	2,712	38,990
(Loss) income before income tax expense	(326)	21,533	(3,359)	39,759
Income tax expense	—	4,943	—	9,432
Net (loss) income	\$ (326)	\$ 16,590	\$ (3,359)	\$ 30,327
(Loss) earnings per common share (Note 1):				
Basic	\$ (0.02)	\$ 0.91	\$ (0.18)	\$ 1.66
Diluted	\$ (0.02)	\$ 0.90	\$ (0.18)	\$ 1.65
Weighted-average number of common shares outstanding:				
Basic	18,473	18,271	18,409	18,219
Diluted	18,473	18,398	18,409	18,356

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Changes in Stockholders' Equity
(Unaudited)

<i>(Amounts in thousands, except share data)</i>	Common Stock		Treasury Stock		Additional Paid- in Capital	Retained Earnings	Total Stockholders' Equity
	Shares	Amount	Shares	Amount			
Balances, January 1, 2022	23,460,212	\$ 23	(4,618,146)	\$ (47,692)	\$ 102,106	\$ 92,864	\$ 147,301
Stock-based compensation	323,742	1	—	—	463	—	464
Repurchase of common shares to satisfy minimum tax withholdings	(59,736)	—	—	—	(382)	—	(382)
Net loss	—	—	—	—	—	(3,033)	(3,033)
Balances, March 31, 2022	23,724,218	24	(4,618,146)	(47,692)	102,187	89,831	144,350
Stock-based compensation	(30,459)	—	—	—	484	—	484
Repurchase of common shares to satisfy minimum tax withholdings	(551)	—	—	—	(3)	—	(3)
Net loss	—	—	—	—	—	(326)	(326)
Balances, June 30, 2022	23,693,208	\$ 24	(4,618,146)	\$ (47,692)	\$ 102,668	\$ 89,505	\$ 144,505

<i>(Amounts in thousands, except share data)</i>	Common Stock		Treasury Stock		Additional Paid- in Capital	Retained Earnings	Total Stockholders' Equity
	Shares	Amount	Shares	Amount			
Balances, January 1, 2021	23,141,284	\$ 23	(4,618,146)	\$ (47,692)	\$ 100,425	\$ 32,454	\$ 85,210
Stock-based compensation	381,339	—	—	—	421	—	421
Repurchase of common shares to satisfy minimum tax withholdings	(40,975)	—	—	—	(216)	—	(216)
Net income	—	—	—	—	—	13,737	13,737
Balances, March 31, 2021	23,481,648	23	(4,618,146)	(47,692)	100,630	46,191	99,152
Stock-based compensation	(25,330)	—	—	—	566	—	566
Repurchase of common shares to satisfy minimum tax withholdings	(3,833)	—	—	—	(25)	—	(25)
Net income	—	—	—	—	—	16,590	16,590
Balances, June 30, 2021	23,452,485	\$ 23	(4,618,146)	\$ (47,692)	\$ 101,171	\$ 62,781	\$ 116,283

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows
(Unaudited)

<i>(in thousands)</i>	Six Months Ended June 30,	
	2022	2021
Cash flows from operating activities		
Net (loss) income	\$ (3,359)	\$ 30,327
Adjustments to reconcile net (loss) income to net cash provided by operating activities:		
Depreciation, amortization, depletion and accretion	3,094	4,010
Earnings from equity method investments	(3,222)	(39,749)
Operating lease expense	1,300	912
Stock-based compensation expense	948	987
Deferred income tax expense	—	6,817
Amortization of debt discount and debt issuance costs	—	945
Loss (gain) on change in estimate, asset retirement obligation	34	(1,942)
Other non-cash items, net	449	(319)
Changes in operating assets and liabilities:		
Receivables and related party receivables	2,444	1,362
Prepaid expenses and other assets	(779)	(723)
Inventories, net	(4,079)	1,327
Other long-term assets, net	2,942	(2,746)
Accounts payable and accrued expenses	(2,509)	(447)
Other current liabilities	(450)	(1,468)
Operating lease liabilities	1,999	2,048
Other long-term liabilities	649	(2,334)
Distributions from equity method investees, return on investment	2,297	19,144
Net cash provided by operating activities	1,758	18,151
Cash flows from investing activities		
Distributions from equity method investees in excess of cumulative earnings	3,316	24,732
Acquisition of property, plant, equipment, and intangible assets, net	(2,889)	(4,573)
Mine development costs	(326)	(653)
Proceeds from sale of property and equipment	1,204	895
Net cash provided by investing activities	1,305	20,401
Cash flows from financing activities		
Principal payments on finance lease obligations	(594)	(818)
Repurchase of common shares to satisfy tax withholdings	(385)	(241)
Dividends paid	(45)	(90)
Principal payments on term loan	—	(16,000)
Net cash used in financing activities	(1,024)	(17,149)
Increase in Cash and Restricted Cash	2,039	21,403
Cash and Restricted Cash, beginning of period	88,780	35,932
Cash and Restricted Cash, end of period	\$ 90,819	\$ 57,335
Supplemental disclosure of non-cash investing and financing activities:		
Acquisition of property and equipment through finance lease	\$ 1,641	\$ —
Acquisition of property and equipment through accounts payable	\$ 173	\$ 163

See Notes to the Condensed Consolidated Financial Statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

Note 1 - Basis of Presentation

Nature of Operations

Advanced Emissions Solutions, Inc. ("ADES" or the "Company") is a Delaware corporation with its principal office located in Greenwood Village, Colorado and operations located in Louisiana. The Company is principally engaged in the sale of consumable air and water treatment solutions including activated carbon ("AC") and chemical technologies. The Company's proprietary technologies in the advanced purification technologies ("APT") market enable customers to reduce air and water contaminants, including mercury and other pollutants, to maximize utilization levels and to improve operating efficiencies to meet the challenges of existing and pending air quality and water regulations. The Company manufactures and sells AC used to capture and remove contaminants for coal-fired power, industrial and water treatment markets. The Company also owns an associated lignite mine ("Five Forks Mine") which supplies the primary raw material for manufacturing AC.

Through December 31, 2021, the Company generated substantial earnings from its equity ownership in Tinum Group, LLC ("Tinum Group") and Tinum Services, LLC ("Tinum Services"), both of which are unconsolidated entities. Both Tinum Group and Tinum Services ceased material operations effective December 31, 2021 as a result of the expiration of a tax credit program under Internal Revenue Code Section 45 - Production Tax Credit (the "Section 45 Tax Credit Program"). Tinum Group provided reduction of mercury and nitrogen oxide ("NOx") emissions at select coal-fired power generators through the production and sale of refined coal ("RC") that qualified for tax credits under the Section 45 Tax Credit Program ("Section 45 tax credits"). The Company also earned royalties for technologies which were licensed to Tinum Group and used at certain RC facilities to enhance combustion and reduce emissions of NOx and mercury from coal burned to generate electrical power. Tinum Services operated and maintained the RC facilities under operating and maintenance agreements with Tinum Group and owners or lessees of the RC facilities. Presently, both Tinum Group and Tinum Services continue to wind-down their operations, and the Company expects to receive final cash distributions, which are not expected to be significant, from these entities during 2022.

Basis of Presentation

The accompanying Condensed Consolidated Financial Statements of ADES are unaudited and have been prepared in conformity with accounting principles generally accepted in the United States ("U.S. GAAP") and with Article 10 of Regulation S-X of the Securities and Exchange Commission. In compliance with those instructions, certain information and footnote disclosures normally included in annual consolidated financial statements prepared in accordance with U.S. GAAP have been condensed or omitted.

The unaudited Condensed Consolidated Financial Statements of ADES in this quarterly report ("Quarterly Report") are presented on a consolidated basis and include ADES and its wholly-owned subsidiaries (collectively, the "Company"). Also included within the unaudited Condensed Consolidated Financial Statements are the Company's unconsolidated equity investments, Tinum Group and Tinum Services, which are accounted for under the equity method of accounting, and Highview Enterprises Limited (the "Highview Investment"), which is accounted for in accordance with U.S. GAAP applicable to equity investments that do not qualify for the equity method of accounting.

Results of operations and cash flows for the interim periods are not necessarily indicative of the results that may be expected for the entire year. All significant intercompany transactions and accounts were eliminated in consolidation for all periods presented in this Quarterly Report.

In the opinion of management, these Condensed Consolidated Financial Statements include all normal and recurring adjustments considered necessary for a fair presentation of the results of operations, financial position, stockholders' equity and cash flows for the interim periods presented. These Condensed Consolidated Financial Statements should be read in conjunction with the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (the "2021 Form 10-K"). Significant accounting policies disclosed therein have not changed.

Earnings (Loss) Per Share

Basic earnings (loss) per share is computed using the weighted-average number of shares of common stock outstanding during the reporting period. Diluted earnings (loss) per share is computed in a manner consistent with that of basic earnings per share, while considering other potentially dilutive securities. For the three and six months ended June 30, 2022 and June 30, 2021, potentially dilutive securities consist of unvested restricted stock awards ("RSA's") and contingent performance stock units ("PSU's").

Advanced Emissions Solutions, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

The following table sets forth the calculations of basic and diluted (loss) earnings per share:

<i>(in thousands, except per share amounts)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Net (loss) income	\$ (326)	\$ 16,590	\$ (3,359)	\$ 30,327
Basic weighted-average common shares outstanding	18,473	18,271	18,409	18,219
Add: dilutive effect of equity instruments	—	127	—	137
Diluted weighted-average shares outstanding	18,473	18,398	18,409	18,356
(Loss) earnings per share - basic	\$ (0.02)	\$ 0.91	\$ (0.18)	\$ 1.66
(Loss) earnings per share - diluted	\$ (0.02)	\$ 0.90	\$ (0.18)	\$ 1.65

For the three and six months ended June 30, 2022 and 2021, potentially dilutive securities of 0.8 million and 0.1 million shares, and 0.7 million and zero shares of common stock, respectively, were outstanding but were not included in the calculation of diluted net (loss) income per share because the effect would have been anti-dilutive.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. There have been no changes in the Company's critical accounting estimates from those that were disclosed in the 2021 Form 10-K. Actual results could differ from these estimates.

Risks and Uncertainties

The loss of earnings and cash distributions from both Tinnium Group and Tinnium Services will continue to have a material adverse impact on the Company's financial position, results of operations and cash flows. For 2022, the Company is principally dependent on operations of its APT business and its cash on hand to provide liquidity over the near and long term. The Company's revenues, sales volumes, earnings and cash flows are significantly affected by prices of competing power generation sources such as natural gas and renewable energy. During periods of low natural gas prices, natural gas provides a competitive alternative to coal-fired power generation and therefore, coal consumption may be reduced, which in turn reduces the demand for the Company's products. However, during periods of higher prices for competing power generation sources, there is an increase in coal consumption and thus demand for the Company's products also increases.

In addition, coal consumption and demand for the Company's products are affected by the demand for electricity, which is higher in the warmer and colder months of the year. As a result, the Company's interim period results are subject to seasonal variations whereby its revenues and cost of revenues tend to be higher in its first and third fiscal quarters compared to its second and fourth fiscal quarters. Abnormal temperatures during the summer and winter months may significantly affect coal consumption and impurities within various municipalities' water sources, and thus impact the demand for the Company's products.

Concentration of credit risk

The Company is exposed to concentrations of credit risk primarily related to cash held at financial institutions and accounts receivable. The Company regularly monitors its credit risk to mitigate the possibility of current and future exposures resulting in a loss. Historically, the losses related to credit risk have been immaterial.

The Company holds cash at two financial institutions as of June 30, 2022. If a financial institution was unable to perform its obligations, the Company would be at risk regarding the amount of cash and investments in excess of the Federal Deposit Insurance Corporation limits (currently \$250 thousand) that would be returned to the Company.

The Company evaluates the creditworthiness of its customers prior to entering into an agreement to sell its products and, as necessary, through the life of the customer relationship.

Reclassifications

Certain balances have been reclassified from the prior year to conform to the current year presentation. Such reclassifications had no effect on the Company's results of operations or financial position in any of the periods presented.

Advanced Emissions Solutions, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

Segments

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by a company's chief operating decision maker ("CODM"), or a decision-making group, in deciding how to allocate resources and in assessing financial performance. As of June 30, 2022, the Company's CODM was the Company's Chief Executive Officer, and the Company concluded that APT was its one reportable segment.

Given the wind-down of Tinnuum Group and Tinnuum Services and the impact on the Company's financial statements, the Company determined the historical RC segment no longer met the qualitative or quantitative criteria to be considered a reporting segment under U.S. GAAP. As a result, including the method in which the CODM allocates resources, beginning January 1, 2022, the Company determined that it had one reportable segment and therefore has removed its segment disclosures for this Quarterly Report.

New Accounting Standards

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326) Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"). The main objective of ASU 2016-13 is to provide financial statement users with more decision-useful information about the expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. To achieve this objective, the amendments in ASU 2016-13 replace the incurred loss impairment methodology in current U.S. GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to form credit loss estimates. ASU 2016-13 is effective for "smaller reporting companies" (as defined by the Securities and Exchange Commission) for fiscal years beginning after December 15, 2022, including interim periods within those years, and must be adopted under a modified retrospective method approach. The Company intends to adopt ASU 2016-13 effective January 1, 2023 and is currently evaluating the provisions of this guidance and assessing the impact on its financial statements and disclosures. The Company does not believe this standard will have a material impact on its financial statements and disclosures.

Note 2 - Customer Supply Agreement

On September 30, 2020, the Company and Norit Activated Carbon - Americas (f/k/a Cabot Norit Americas, Inc.) ("Norit"), entered into a supply agreement (the "Supply Agreement") pursuant to which the Company agreed to sell and deliver to Norit, and Norit agreed to purchase and accept from the Company certain lignite-based AC products ("Furnace Products"). The term of the Supply Agreement is for 15 years with 10-year renewal terms that are automatic unless either party provides three years prior notice of intention not to renew before the end of any term.

Under the Supply Agreement, Norit also reimburses the Company for certain capital expenditures incurred by the Company that are necessary to manufacture the Furnace Products. Reimbursements are comprised of revenues earned from capital expenditures incurred that will benefit both the Company and Norit (referred to as "Shared Capital") and revenues earned from capital expenditures incurred that will benefit Norit exclusively (referred to as "Specific Capital"). In the event that Norit ceases to make purchases under the Supply Agreement, Norit is obligated to pay the balance of any outstanding payments for Specific Capital.

Further, under the terms of the Supply Agreement, Norit was obligated to pay the Reclamation Reimbursement (defined in Note 3 below) to the Company for \$10.2 million of the Reclamation Costs (defined in Note 3 below), inclusive of interest. The Company recorded the Norit Receivable for the Reclamation Reimbursement at its estimated fair value, which was measured using a discounted cash flows valuation model that considered the estimated credit risk associated with the obligor's (Norit's) future performance, which the Company estimated was approximately 1.5%.

On February 25, 2022, the Company received \$10.6 million in cash from Norit (the "Norit Payment") as a result of a change in control provision in the Supply Agreement (the "Change in Control"), which occurred as a result of the sale of Norit by its parent, Cabot Corporation. Under the Change in Control, the Company received from Norit full payment of all amounts outstanding under the Reclamation Reimbursement, payment of all unbilled amounts related to Specific Capital for expenditures incurred through February 28, 2022 and payment of \$0.8 million related to additional costs due to the third-party operator of Marshall Mine (the "Norit Reclamation Costs"). Under the Reclamation Contract (defined in Note 3 below), the Company was obligated to remit payment for the Norit Reclamation Costs to the third-party operator of Marshall Mine, and such payment was remitted in March 2022. The Change in Control did not impact any other provisions of the Supply Agreement.

As of February 25, 2022, the carrying value of the Reclamation Reimbursement was \$9.0 million, which included the principal balance, adjusted for accretion of interest and payments made to date. Under the Change in Control, the Company received \$8.5 million in cash for full payment of the outstanding Reclamation Reimbursement. The Company concluded that the cash

Advanced Emissions Solutions, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

proceeds received represented an early payment of a receivable based on a change in contractual terms and accounted for the difference between the cash proceeds received and the carrying amount of the Reclamation Reimbursement of \$0.5 million as a loss for the three months ended March 31, 2022, which is included in the "Other Income (Expense)" line item in the Condensed Consolidated Statement of Operations for the six months ended June 30, 2022.

Also, under the Change in Control, the Company received \$1.3 million in advance of revenue to be recognized in future periods related to Specific Capital and recorded this amount as deferred revenue, which is recognized ratably over the remaining contractual term as stipulated in the Supply Agreement.

Note 3 - Acquisition of Marshall Mine

Concurrently with the execution of the Supply Agreement, on September 30, 2020, the Company entered into an agreement to purchase from Norit 100% of the membership interests in Marshall Mine, LLC (the "Marshall Mine Acquisition") for a nominal cash purchase price. Marshall Mine, LLC owns a lignite mine located outside of Marshall, Texas (the "Marshall Mine"). The Company concluded that the Marshall Mine did not have any remaining economic reserves and independently determined to immediately commence activities to shutter it. Accordingly, on September 30, 2020, the Company and a third party entered into a reclamation contract (the "Reclamation Contract") for full reclamation of the Marshall Mine, which is expected to be completed by 2030. Under the terms of the Supply Agreement, Norit was obligated to reimburse the Company for \$10.2 million (the "Reclamation Reimbursement") for a portion of the total costs incurred under the Reclamation Contract (the "Reclamation Costs"), which was payable semi-annually over 13 years and inclusive of interest. As discussed in Note 2, on February 25, 2022 as part of the Change in Control, Norit fully paid the outstanding amount owed under the Reclamation Reimbursement and has no further liability related to the Marshall Mine.

The Company accounted for the Marshall Mine Acquisition as an asset acquisition, and it included the acquisition of certain assets and assumption of certain liabilities as well as the incurrence of an obligation for the Reclamation Costs (the "Marshall Mine ARO"). As of June 30, 2022 and December 31, 2021, the carrying value of the Marshall Mine ARO was \$4.8 million and \$6.3 million, respectively.

As the Marshall Mine Acquisition represented a transaction with a customer of net assets acquired and liabilities assumed from Norit, the Company accounted for the excess of the fair value of liabilities assumed over assets acquired as upfront consideration transferred to a customer, Norit (the "Upfront Customer Consideration"). The amount of the Upfront Customer Consideration was also recognized net of the Reclamation Reimbursement. The total Upfront Customer Consideration is being amortized as a reduction to revenues on a straight-line basis over the expected 15-year contractual period of the Supply Agreement. Amortization of the Upfront Customer Consideration is approximately \$0.5 million per year.

The Company also evaluated Marshall Mine, LLC as a potential variable interest entity ("VIE") and determined that it was a VIE and the Company was its primary beneficiary. Therefore, the Company consolidates Marshall Mine, LLC's assets and liabilities in its consolidated financial statements.

Advanced Emissions Solutions, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

The following tables summarize the assets and liabilities of Marshall Mine, LLC and their classification in the Company's Condensed Consolidated Balance Sheets:

<i>(in thousands)</i>	As of		Balance sheet component
	June 30, 2022	December 31, 2021	
Cash	\$ 1,501	\$ 914	Current assets
Norit receivable, short-term	—	2,056	Current assets
Prepaid expenses and other current assets	249	—	Current assets
Restricted cash	10,000	10,027	Non-current assets
Property and equipment, net	3	1,968	Non-current assets
Norit receivable, long-term	—	6,846	Non-current assets
	\$ 11,753	\$ 21,811	
Accounts payable and accrued liabilities	\$ 447	\$ 1,065	Current liabilities
Asset retirement obligation, short-term	291	1,775	Current liabilities
Asset retirement obligation, long-term	4,474	4,546	Non-current liabilities
	\$ 5,212	\$ 7,386	

Note 4 - Leases

The Company's operating and finance lease right-of-use ("ROU") assets and liabilities as of June 30, 2022 and December 31, 2021 consisted of the following items (in thousands):

Leases	As of	
	June 30, 2022	December 31, 2021
Operating Leases		
Operating lease right-of-use assets, net of accumulated amortization ⁽¹⁾	\$ 8,118	\$ 6,000
Operating lease obligations, current	\$ 2,742	\$ 2,157
Long-term operating lease obligations	5,592	4,178
Total operating lease obligation	\$ 8,334	\$ 6,335
Finance Leases		
Finance lease right-of-use assets, net of accumulated amortization ⁽²⁾	\$ 3,013	\$ 1,743
Finance lease obligations, current	\$ 1,235	\$ 1,011
Long-term finance lease obligations	3,998	3,152
Total finance lease obligations	\$ 5,233	\$ 4,163

(1) Operating lease ROU assets are reported net of accumulated amortization of \$2.9 million and \$1.9 million as of June 30, 2022 and December 31, 2021, respectively.

(2) Finance lease ROU assets are reported net of accumulated amortization of \$1.5 million and \$1.1 million as of June 30, 2022 and December 31, 2021, respectively.

Operating leases

ROU assets under operating leases and operating lease liabilities are included in the "Other long-term assets" and "Other current liabilities" and "Other long-term liabilities" line items, respectively, in the Condensed Consolidated Balance Sheets as of June 30, 2022 and December 31, 2021.

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Lease expense for operating leases for the three and six months ended June 30, 2022 was \$1.0 million and \$2.0 million, respectively, of which \$0.9 million and \$1.8 million, respectively, is included in the "Consumables - cost of revenue, exclusive of depreciation and amortization" line item and \$0.1 million and \$0.2 million, respectively, is included in the "General and administrative" line item in the Condensed Consolidated Statements of Operations for those periods. Lease expense for operating leases for the three and six months ended June 30, 2021 was \$0.9 million and \$1.9 million, respectively of which \$0.8 million and \$1.7 million, respectively, is included in the "Consumables - cost of revenue, exclusive of depreciation and amortization" line item and \$0.1 million and \$0.2 million, respectively, is included in "General and administrative" line item in the Condensed Consolidated Statements of Operations for those periods.

Finance leases

ROU assets under finance leases are included in the "Property, plant and equipment" line item in the Condensed Consolidated Balance Sheets as of June 30, 2022 and December 31, 2021. Interest expense related to finance lease obligations and amortization of ROU assets under finance leases are included in the "Interest expense" and "Depreciation, amortization, depletion and accretion" line items, respectively, in the Condensed Consolidated Statements of Operations for the three and six months ended June 30, 2022 and 2021.

Lease financial information as of and for the three and six months ended June 30, 2022 and 2021 is provided in the following table:

<i>(in thousands)</i>	<u>Three Months Ended June 30,</u>		<u>Six Months Ended June 30,</u>	
	<u>2022</u>	<u>2021</u>	<u>2022</u>	<u>2021</u>
Finance lease cost:				
Amortization of right-of-use assets	\$ 230	\$ 174	\$ 371	\$ 348
Interest on lease liabilities	86	70	164	149
Operating lease cost	778	626	1,584	1,085
Short-term lease cost	216	233	459	800
Variable lease cost (1)	3	12	7	21
Total lease cost	\$ 1,313	\$ 1,115	\$ 2,585	\$ 2,403

Other Information:

Cash paid for amounts included in the measurement of lease liabilities:

Operating cash flows for finance leases	\$ 164	\$ 149
Operating cash flows for operating leases	\$ 1,419	\$ 1,314
Financing cash flows for finance leases	\$ 594	\$ 818

Right-of-use assets obtained in exchange for new finance lease liabilities

\$ 1,641 \$ —

Right-of-use assets obtained in exchange for new operating lease liabilities

\$ 3,418 \$ 3,362

Weighted-average remaining lease term - finance leases

3.2 years 3.3 years

Weighted-average remaining lease term - operating leases

4.3 years 2.9 years

Weighted-average discount rate - finance leases

5.9 % 6.4 %

Weighted-average discount rate - operating leases

5.9 % 7.8 %

(1) Primarily includes common area maintenance, property taxes and insurance payable to lessors.

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Note 5 - Revenues

Trade receivables represent an unconditional right to consideration in exchange for goods or services transferred to a customer. The Company invoices its customers in accordance with the terms of the contract. Credit terms are generally net 30 from the date of invoice. The timing between the satisfaction of performance obligations and when payment is due from the customer is generally not significant.

Contract liabilities are comprised of deferred revenue, which represents an obligation to transfer goods or services to a customer for which the Company has received consideration from the customer and, if deliverable within one year or less, is included in "Other current liabilities" in the Consolidated Balance Sheets and, if deliverable outside of one year, is included in "Other long-term liabilities" in the Consolidated Balance Sheets.

The following table shows the components of the Company's Receivables, net:

<i>(in thousands)</i>	As of	
	June 30, 2022	December 31, 2021
Trade receivables, net	\$ 12,589	\$ 10,476
Other receivables	70	—
Norit Receivable - current	—	2,146
Receivables, net	\$ 12,659	\$ 12,622

For the three and six months ended June 30, 2022 and 2021, all material performance obligations related to revenues recognized were satisfied at a point in time. For the three and six months ended June 30, 2022, approximately 8% and 9%, respectively, of Consumables revenues were generated in Canada, and all other revenues were generated in the U.S. For the three and six months ended June 30, 2021, approximately 10% and 15%, respectively, of Consumables revenues were generated in Canada, and all other revenues were generated in the U.S.

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Note 6 - Inventories, net

The following table summarizes the Company's inventories recorded at the lower of average cost or net realizable value as of June 30, 2022 and December 31, 2021:

<i>(in thousands)</i>	As of	
	June 30, 2022	December 31, 2021
Product inventory, net	\$ 6,072	\$ 4,901
Raw material inventory	6,037	2,949
	\$ 12,109	\$ 7,850

Note 7 - Commitments and Contingencies

Retention Agreements

On May 4, 2022, the Compensation Committee of the Board of Directors and the Board of Directors (the "Board") approved the amendment to retention agreements (the "Retention Agreements" and each a "Retention Agreement"), which had been executed in May 2021, between the Company and its executive officers and certain other key employees in order to maintain the Company's business operations while it pursues and executes on its strategic initiatives (the "Amended Retention Agreements"). Under the Amended Retention Agreements, employees will receive (i) 40% of the original amount agreed to in the Retention Agreements ("Retention Pay") in August 2022; (ii) 60% of the Retention Pay on the earliest of (1) the date the employee's employment is terminated without Cause or for Good Reason (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), (2) 90 days after a Transaction Date or a Change in Control (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), or (3) in January 2023; and (iii) an additional lump sum payment, ranging from 10% to 40% of the Retention Pay, will also be paid at the earliest of (1) the date the employee's employment is terminated without Cause or for Good Reason (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), (2) 90 days after a Transaction Date or a Change in Control (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), or (3) in January 2023.

In order to receive the Amended Retention Agreements payments, employees must remain employed at the Company through the dates above. As of June 30, 2022, the total cash payable pursuant to the Amended Retention Agreements is \$2.5 million and is included in the "Other current liabilities" line item in the Condensed Consolidated Balance Sheet.

Surety Bonds and Restricted Cash

As the owner of the Marshall Mine, the Company is required to post a surety bond with a regulatory commission. As of June 30, 2022 and December 31, 2021, the Company had posted a \$16.6 million surety bond (the "MM Surety Bond") which will remain in place until the Marshall Mine is fully reclaimed, and may be further reduced in amount from time to time as the Company progresses with its reclamation activities.

As the owner of the Five Forks Mine, the Company is required to post a surety bond with a regulatory commission. As of June 30, 2022 and December 31, 2021, the Company had posted a \$7.5 million surety bond related to performance requirements associated with the Five Forks Mine.

As of June 30, 2022 and December 31, 2021, the Company posted collateral of \$10.0 million for both the Marshall Mine and Five Forks Mine as required by the Company's surety bond provider, which is reported as long-term restricted cash on the Condensed Consolidated Balance Sheets.

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Tinuum Group

The Company has certain limited obligations contingent upon future events in connection with the activities of Tinuum Group. The Company, NexGen Refined Coal, LLC ("NexGen") and two entities affiliated with NexGen have provided an affiliate of the Goldman Sachs Group, Inc. with limited guaranties (the "Tinuum Group Party Guaranties") related to certain losses it may suffer as a result of inaccuracies or breach of representations and covenants committed by Tinuum Group. The Company also is a party to a contribution agreement with NexGen under which any party called upon to pay on a Tinuum Group Party Guaranty is entitled to receive contributions from the other party equal to 50% of the amount paid. The Company has not recorded a liability or expense provision related to this contingent obligation as it believes that it is not probable that a loss will occur with respect to the Tinuum Group Party Guaranties.

Legal Proceedings

The Company is from time to time subject to various pending or threatened legal actions and proceedings, including those that arise in the ordinary course of its business. Such matters are subject to many uncertainties and outcomes, the financial impacts of which are not predictable with assurance and that may not be known for extended periods of time. The Company records a liability in its consolidated financial statements for costs related to claims, settlements and judgments where management has assessed that a loss is probable and an amount can be reasonably estimated. There were no significant legal proceedings as of June 30, 2022.

Note 8 - Supplemental Financial Information

Supplemental Balance Sheet Information

The following table summarizes the components of Other long-term assets, net as presented in the Condensed Consolidated Balance Sheets:

<i>(in thousands)</i>	As of	
	June 30, 2022	December 31, 2021
Other long-term assets, net:		
Right of use assets, operating leases, net	\$ 8,118	\$ 6,000
Upfront Customer Consideration	6,728	6,982
Mine development costs, net	5,461	5,330
Spare parts, net	4,710	4,598
Mine reclamation asset, net	1,691	1,742
Intangible assets, net	1,028	1,237
Equity method investments	—	2,391
Other	1,839	1,745
Norit Receivable	—	6,846
	<u>\$ 29,575</u>	<u>\$ 36,871</u>

Spare parts include critical spares required to support plant operations. Parts and supply costs are determined using the lower of cost or estimated replacement cost. Parts are recorded as maintenance expenses in the period in which they are consumed or are capitalized if applicable.

Mine development costs include acquisition costs, the cost of other development work and mitigation costs related to the Five Forks Mine and are depleted over the estimated life of the related mine reserves. The Company performs an evaluation of the recoverability of the carrying value of mine development costs to determine if facts and circumstances indicate that their carrying value may be impaired and if any adjustment is warranted. There were no indicators of impairment as of June 30, 2022. Mine reclamation asset, net represents an asset retirement obligation ("ARO") asset related to the Five Forks Mine and is depreciated over its estimated life.

As of June 30, 2022 and December 31, 2021, Other includes the Highview Investment in the amount of \$0.6 million and \$0.6 million, respectively, that is carried at cost, less impairment, plus or minus observable changes in price for identical or similar investments of the same issuer. Fair value measurements, if any, represent Level 2 measurements. The Highview Investment is evaluated for indicators of impairment such as an event or change in circumstances that may have a significant adverse effect on the fair value of the investment. There were no changes to the carrying value of the Highview Investment for the three and

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six months ended June 30, 2022 as there were no indicators of impairment or observable price changes for identical or similar investments.

The following table details the components of Other current liabilities and Other long-term liabilities as presented in the Condensed Consolidated Balance Sheets:

<i>(in thousands)</i>	As of	
	June 30, 2022	December 31, 2021
Other current liabilities:		
Current portion of operating lease obligations	\$ 2,742	\$ 2,157
Income and other taxes payable	1,173	807
Other	1,287	2,160
	\$ 5,202	\$ 5,124
Other long-term liabilities:		
Mine reclamation liabilities	\$ 8,203	\$ 8,184
Operating lease obligations, long-term	5,592	4,178
Other	867	—
	\$ 14,662	\$ 12,362

The Mine reclamation liability related to the Five Forks Mine is included in Other long-term liabilities. The Mine reclamation liability related to Marshall Mine is included in Other current liabilities and Other long-term liabilities. The Mine reclamation liabilities represent AROs and changes for the three and six months ended June 30, 2022 and year ended December 31, 2021 were as follows:

<i>(in thousands)</i>	As of	
	June 30, 2022	December 31, 2021
Asset retirement obligations, beginning of period	\$ 9,959	\$ 21,447
Accretion	308	1,102
Liabilities settled	(1,807)	(10,010)
Changes due to scope and timing of reclamation (1)	34	(2,580)
Asset retirement obligations, end of period	8,494	9,959
Less current portion	291	1,775
Asset retirement obligations, long-term	\$ 8,203	\$ 8,184

(1) As of June 30, 2021 and December 31, 2021, the Company revised its estimate of future obligations owed for the reclamation of the Marshall Mine primarily based on scope reductions related to future reclamation requirements. As a result, the Company reduced the Marshall Mine ARO by \$2.7 million and recorded a corresponding gain on change in estimate of \$2.7 million for the year ended December 31, 2021.

Note 9 - Equity Method Investments

Tinum Group, LLC

As of June 30, 2022 and December 31, 2021, the Company's ownership interest in Tinum Group was 42.5%. Tinum Group supplied technology equipment and technical services at select coal-fired generators, but its primary purpose was to put into operation facilities that produced and sold RC that lowered emissions and also qualified for Section 45 tax credits. The Company concluded that Tinum Group was a VIE, but the Company did not have the power to direct the activities that most significantly impacted Tinum Group's economic performance, as the voting partners of Tinum Group have identical voting rights, equity control interests and board control interests, and therefore power was shared. Accordingly, the Company has accounted for its investment in Tinum Group under the equity method of accounting since inception.

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The following table summarizes the results of operations of Tinum Group:

<i>(in thousands)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Gross profit	\$ —	\$ 8,820	\$ 964	\$ 11,495
Operating, selling, general and administrative expenses	1,051	12,429	4,248	26,231
Loss from operations	(1,051)	(3,609)	(3,284)	(14,736)
Other income (expenses), net	27	3,150	528	4,003
(Income) loss attributable to noncontrolling interest	(580)	29,038	(874)	64,616
Net (loss) income available to members	\$ (1,604)	\$ 28,579	\$ (3,630)	\$ 53,883
ADES equity earnings from Tinum Group	\$ 2,125	\$ 19,125	\$ 3,137	\$ 35,487

For the three and six months ended June 30, 2022 and 2021, the Company recognized earnings from Tinum Group's net (loss) income available to members that were different from its pro-rata share of Tinum Group's net (loss) income available to members for those periods, as cash distributions for the three and six months ended June 30, 2022 and 2021 exceeded the carrying value of the Tinum Group equity investment.

The following tables present the Company's investment balance, equity earnings and cash distributions in excess of the investment balance, if any, for the three and six months ended June 30, 2022 and 2021 *(in thousands)*:

Description	Date(s)	Investment balance	ADES equity earnings	Cash distributions	Memorandum Account: Cash distributions and equity earnings in (excess) of investment balance
Beginning balance	12/31/2021	\$ —	\$ —	\$ —	\$ (21,779)
ADES proportionate share of net loss from Tinum Group	First Quarter	(861)	(861)	—	—
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	First Quarter	(21,779)	(21,779)	—	21,779
Cash distributions from Tinum Group	First Quarter	(1,012)	—	1,012	—
Adjustment for current year cash distributions in excess of investment balance	First Quarter	23,652	23,652	—	(23,652)
Total investment balance, equity earnings and cash distributions	3/31/2022	\$ —	\$ 1,012	\$ 1,012	\$ (23,652)
ADES proportionate share of net loss from Tinum Group	Second Quarter	(682)	(682)	\$ —	—
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	Second Quarter	(23,652)	(23,652)	—	23,652
Cash distributions from Tinum Group	Second Quarter	(2,125)	—	2,125	—
Adjustment for current year cash distributions in excess of investment balance	Second Quarter	26,459	26,459	—	(26,459)
Total investment balance, equity earnings and cash distributions	6/30/2022	\$ —	\$ 2,125	\$ 2,125	\$ (26,459)

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Description	Date(s)	Investment balance	ADES equity earnings	Cash distributions	Memorandum Account: Cash distributions and equity earnings in (excess) of investment balance
Beginning balance	12/31/2020	\$ 3,387	\$ —	\$ —	\$ —
ADES proportionate share of net income from Tinum Group	First Quarter	10,755	10,755	—	—
Cash distributions from Tinum Group	First Quarter	(19,749)	—	19,749	—
Adjustment for current year cash distributions in excess of investment balance	First Quarter	5,607	5,607	—	(5,607)
Total investment balance, equity earnings and cash distributions	3/31/2021	\$ —	\$ 16,362	\$ 19,749	\$ (5,607)
ADES proportionate share of net income from Tinum Group	Second Quarter	\$ 12,146	\$ 12,146	\$ —	\$ —
Recovery of prior cash distributions in excess of investment balance (prior to cash distributions)	Second Quarter	(5,607)	(5,607)	—	5,607
Cash distributions from Tinum Group	Second Quarter	(19,125)	—	19,125	—
Adjustment for current year cash distributions in excess of investment balance	Second Quarter	12,586	12,586	—	(12,586)
Total investment balance, equity earnings and cash distributions	6/30/2021	\$ —	\$ 19,125	\$ 19,125	\$ (12,586)

Tinum Services, LLC

The Company has a 50% voting and economic interest in Tinuum Services as of June 30, 2022 and December 31, 2021. The Company determined that Tinuum Services was not a VIE and further evaluated it for consolidation under the voting interest model. Because the Company did not own greater than 50% of the outstanding voting shares, either directly or indirectly, it has accounted for its investment in Tinuum Services under the equity method of accounting since inception. As of June 30, 2022 and December 31, 2021, the Company's investment in Tinuum Services was zero and \$2.4 million, respectively.

The following table summarizes the results of operations of Tinuum Services:

<i>(in thousands)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Gross profit (loss)	\$ 78	\$ (22,641)	\$ 1,046	\$ (41,163)
Operating, selling, general and administrative expenses	172	47,355	2,717	101,722
Loss from operations	(94)	(69,996)	(1,671)	(142,885)
Other income (expenses), net	263	32	1,157	(394)
(Income) loss attributable to noncontrolling interest	—	74,587	323	151,802
Net income (loss)	\$ 169	\$ 4,623	\$ (191)	\$ 8,523
ADES equity earnings from Tinuum Services	\$ 264	\$ 2,312	\$ 84	\$ 4,262

Included in the Condensed Consolidated Statements of Operations of Tinuum Services for the three and six months ended June 30, 2022 and 2021 was income (loss) attributable to noncontrolling interests of Tinuum Services' VIE entities, which was eliminated in the calculation of Tinuum Services' net income (loss) attributable to the Company's interest.

For the three and six months ended June 30, 2022, the Company recognized earnings from Tinuum Services' net income (loss) available to members that were different from its pro-rata share of Tinuum Services' net income (loss) available to members for those periods, as cash distributions for the three and six months ended June 30, 2022 exceeded the carrying value of the Tinuum Services' equity investment.

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The following tables present the Company's investment balance, equity earnings and cash distributions in excess of the investment balance, if any, for the three and six months ended June 30, 2022 (*in thousands*):

Description	Date(s)	Investment balance	ADES equity earnings	Cash distributions	Memorandum Account: Cash distributions and equity earnings in (excess) of investment balance
Beginning balance	12/31/2021	\$ 2,391	\$ —	\$ —	\$ —
ADES proportionate share of net loss from Tinum Services	First Quarter	(180)	(180)	—	—
Cash distributions from Tinum Services	First Quarter	(1,501)	—	1,501	—
Total investment balance, equity earnings and cash distributions	3/31/2022	\$ 710	\$ (180)	\$ 1,501	\$ —
ADES proportionate share of net income from Tinum Services	Second Quarter	\$ 85	\$ 85	\$ —	\$ —
Cash distributions from Tinum Services	Second Quarter	(974)	—	974	—
Adjustment for current year cash distributions in excess of investment balance	Second Quarter	179	179	—	(179)
Total investment balance, equity earnings and cash distributions	6/30/2022	\$ —	\$ 264	\$ 974	\$ (179)

The following table details the carrying value of the Company's respective equity method investments included in the Equity method investments line item on the Condensed Consolidated Balance Sheets and indicates the Company's maximum exposure to loss:

<i>(in thousands)</i>	As of	
	June 30, 2022	December 31, 2021
Equity method investment in Tinum Services	\$ —	\$ 2,391
Total equity method investments	\$ —	\$ 2,391

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The following table details the components of the Company's respective equity method investments included in the "Earnings from equity method investments" line item on the Condensed Consolidated Statements of Operations:

<i>(in thousands)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Earnings from Tinum Group	\$ 2,125	\$ 19,125	\$ 3,137	\$ 35,487
Earnings from Tinum Services	264	2,312	84	4,262
Earnings from other	—	—	1	—
Earnings from equity method investments	\$ 2,389	\$ 21,437	\$ 3,222	\$ 39,749

The following table details the components of the cash distributions from the Company's respective equity method investments included as a component of cash flows from operating activities and investing activities in the Condensed Consolidated Statements of Cash Flows. Distributions from equity method investees are reported in the Condensed Consolidated Statements of Cash Flows as "Distributions from equity method investees, return on investment" as a component of cash flows from operations until such time as the carrying value in an equity method investee company is reduced to zero. Thereafter, such distributions are reported as "Distributions from equity method investees in excess of cumulative earnings" as a component of cash flows from investing activities.

<i>(in thousands)</i>	Six Months Ended June 30,	
	2022	2021
Distributions from equity method investees, return on investment		
Tinum Services	\$ 2,297	\$ 5,002
Tinum Group	—	14,142
	\$ 2,297	\$ 19,144
Distributions from equity method investees in excess of investment basis		
Tinum Group	\$ 3,137	\$ 24,732
Tinum Services	179	—
	\$ 3,316	\$ 24,732

Note 10 - Stockholders' Equity

Stock Repurchase Program

In November 2018, the Board authorized the Company to purchase up to \$20.0 million of its outstanding common stock under a stock repurchase program (the "Stock Repurchase Program"), which was to remain in effect until December 31, 2019 unless otherwise modified by the Board. In November 2019, the Board authorized an incremental \$7.1 million to the Stock Repurchase Program and provided that it will remain in effect until all amounts are utilized or it is otherwise modified by the Board.

As of June 30, 2022, the Company had \$7.0 million remaining under the Stock Repurchase Program.

Tax Asset Protection Plan

U.S. federal income tax rules, and Section 382 of the Internal Revenue Code in particular, could substantially limit the use of net operating losses and tax credits if the Company experiences an "ownership change" (as defined in the Internal Revenue Code). In general, an ownership change occurs if there is a cumulative change in the ownership of the Company by "5 percent stockholders" that exceeds 50 percentage points over a rolling three-year period.

On May 5, 2017, the Board approved the declaration of a dividend of rights to purchase Series B Junior Participating Preferred Stock for each outstanding share of common stock as part of a tax asset protection plan (the "TAPP") designed to protect the Company's ability to utilize its net operating losses and tax credits. The TAPP is intended to act as a deterrent to any person acquiring beneficial ownership of 4.99% or more of the Company's outstanding common stock.

On March 15, 2022, the Board approved the Fifth Amendment to the TAPP (the "Fifth Amendment"), which amends the TAPP, as previously amended by the First, Second, Third and Fourth Amendments that were approved the Board on April 6, 2018, April 5, 2019, April 9, 2020 and April 9, 2021, respectively. The Fifth Amendment amends the definition of "Final Expiration Date" under the TAPP to extend the duration of the TAPP and makes associated changes in connection therewith. Pursuant to

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the Fifth Amendment, the Final Expiration Date shall be the close of business on the earlier of (i) December 31, 2023 or (ii) December 31, 2022 if stockholder approval of the Fifth Amendment has not been obtained prior to such date. At the Company's 2022 annual meeting of stockholders, the Company's stockholders approved the Fifth Amendment, thus the Final Expiration Date will be the close of business on December 31, 2023.

Note 11 - Stock-Based Compensation

The Company grants equity-based awards to employees, non-employee directors and consultants that may include, but are not limited to, RSA's, PSU's, restricted stock units and stock options. Stock-based compensation expense related to manufacturing employees and administrative employees is included within the "Cost of revenue" and "Payroll and benefits" line items, respectively, in the Condensed Consolidated Statements of Operations. Stock-based compensation expense related to non-employee directors and consultants is included within the "General and administrative" line item in the Condensed Consolidated Statements of Operations.

Total stock-based compensation expense for the three and six months ended June 30, 2022 and 2021 was as follows:

<i>(in thousands)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
RSA expense	\$ 393	\$ 511	\$ 820	\$ 918
PSU expense	91	55	128	69
Total stock-based compensation expense	<u>\$ 484</u>	<u>\$ 566</u>	<u>\$ 948</u>	<u>\$ 987</u>

The amount of unrecognized compensation cost as of June 30, 2022, and the expected weighted-average period over which the cost will be recognized is as follows:

<i>(in thousands, expect years)</i>	As of June 30, 2022	
	Unrecognized Compensation Cost	Expected Weighted-Average Period of Recognition (in years)
RSA expense	\$ 3,051	2.20
PSU expense	735	1.82
Total unrecognized stock-based compensation expense	<u>\$ 3,786</u>	<u>2.13</u>

Restricted Stock

Restricted stock is typically granted with vesting terms of three years. The fair value of RSA's is determined based on the closing price of the Company's common stock on the authorization date of the grant multiplied by the number of shares subject to the stock award. Compensation expense for RSA's is generally recognized on a straight-line basis over the entire vesting period.

A summary of RSA activity under the Company's various stock compensation plans for the six months ended June 30, 2022 is presented below:

	Restricted Stock	Weighted-Average Grant Date Fair Value
Non-vested at January 1, 2022	531,623	\$ 5.94
Granted	336,079	\$ 6.40
Vested	(229,871)	\$ 6.54
Forfeited	(41,974)	\$ 6.00
Non-vested at June 30, 2022	<u>595,857</u>	<u>\$ 5.95</u>

Advanced Emissions Solutions, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

Performance Share Units

Compensation expense is recognized for PSU's on a straight-line basis over the applicable service period, which is generally three years, based on the estimated fair value at the date of grant using a Monte Carlo simulation model. A summary of PSU activity for the six months ended June 30, 2022 is presented below:

	Units	Weighted-Average Grant Date Fair Value	Aggregate Intrinsic Value (in thousands)	Weighted-Average Remaining Contractual Term (in years)
PSU's outstanding, January 1, 2022	88,026	\$ 6.65		
Granted	60,565	9.59		
Vested / Settled	—	—		
Forfeited / Canceled	—	—		
PSU's outstanding, June 30, 2022	148,591	\$ 7.85	\$ 697	1.82

Note 12 - Income Taxes

For the three and six months ended June 30, 2022 and 2021, the Company's income tax expense and effective tax rates were:

<i>(in thousands, except for rate)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Income tax expense	\$ —	\$ 4,943	\$ —	\$ 9,432
Effective tax rate	— %	23 %	— %	24 %

The effective rate for the three and six months ended June 30, 2022 was zero, as the Company incurred pretax loss for this period and the resultant tax benefit was offset by a valuation allowance recorded as of June 30, 2022, as the Company expects to incur pretax loss for the year ended December 31, 2022. The effective rate for the three and six months ended June 30, 2021 was higher from the federal statutory rate primarily from the impact of estimated state income taxes.

The Company assesses a valuation allowance recorded against deferred tax assets at each reporting date. The determination of whether a valuation allowance for deferred tax assets is appropriate requires the evaluation of positive and negative evidence that can be objectively verified. Consideration must be given to all sources of taxable income available to realize deferred tax assets, including, as applicable, the future reversal of existing temporary differences, future taxable income forecasts exclusive of the reversal of temporary differences and carryforwards, taxable income in carryback years and tax planning strategies. In estimating income taxes, the Company assesses the relative merits and risks of the appropriate income tax treatment of transactions taking into account statutory, judicial and regulatory guidance.

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

The following discussion and analysis of our financial condition and results of our operations should be read together with the unaudited Condensed Consolidated Financial Statements and notes of Advanced Emissions Solutions, Inc. ("ADES" or the "Company") included elsewhere in Item 1 of Part I ("Item 1") of this Quarterly Report and with the audited consolidated financial statements and the related notes of ADES included in the 2021 Form 10-K.

The results of operations discussed in this "Management's Discussion and Analysis of Financial Condition and Results of Operations" are those of ADES and its consolidated subsidiaries, collectively, the "Company," "we," "our" or "us."

Overview

We sell consumable products that utilize AC and chemical-based technologies to a broad range of customers, including coal-fired utilities, industrials, water treatment plants, and other diverse markets through a customer supply agreement described below. Our primary products are comprised of AC, which is produced from a variety of carbonaceous raw materials. Our AC products include both powdered activated carbon ("PAC") and granular activated carbon ("GAC"). Our proprietary technologies and associated product offerings provide purification solutions to enable our customers to reduce certain contaminants and pollutants to meet the challenges of existing and potential future regulations. Additionally, we own an associated lignite mine which supplies the primary raw material for the manufacturing of our products.

Through December 31, 2021, we generated substantial earnings from our equity investments in Tinum Group and Tinum Services. Both entities ceased operations effective December 31, 2021 as a result of the expiration of a tax credit program under the Section 45 Tax Credit Program. Tinum Group provided reduction of mercury and nitrogen oxide ("NOx") emissions at select coal-fired power generators through the production and sale of refined coal ("RC") which qualified for tax credits under the Section 45 Tax Credit Program ("Section 45 tax credits"). We also earned royalties for technologies which were licensed to Tinum Group and used at certain RC facilities to enhance combustion and reduced emissions of NOx and mercury from coal burned to generate electrical power. Tinum Services operated and maintained the RC facilities under operating and maintenance agreements with Tinum Group and owners or lessees of the RC facilities. Presently, both Tinum Group and Tinum Services continue to wind-down their operations, and we expect to receive final cash distributions from these entities during 2022.

Given the wind-down of Tinum Group and Tinum Services and the impact on our financial statements, we determined the historical RC segment no longer met the qualitative or quantitative criteria to be considered a reporting segment under U.S. GAAP. As a result, as well as the method in which the chief operating decision maker allocates resources, beginning January 1, 2022, we determined that we had one reportable segment, and therefore have removed segment disclosures for this Quarterly Report.

Drivers of Demand and Key Factors Affecting Profitability

Drivers of demand and key factors affecting our profitability are sales of our consumables-based solutions for coal-fired power generation, industrials, municipal water customers and other diverse markets served by Norit, whom we supply through the Supply Agreement discussed below. Our operating results are influenced by: (1) changes in our sales volumes; (2) changes in price and product mix; (3) changes in coal-fired dispatch and electricity power generation sources and (4) changes in demand for contaminant removal within water treatment facilities. During the three months ended June 30, 2022, we have continued to see increases in demand for our AC products. As such, we continue to purchase inventory to supplement customer demands in excess of our production capacity and to achieve our target inventory levels.

Supply Agreement

On September 30, 2020, we and Norit entered into the Supply Agreement pursuant to which we agreed to sell and deliver to Norit, and Norit agreed to purchase and accept from us, Furnace Products. Under the Supply Agreement, Norit reimburses us for certain capital expenditures incurred by us that are necessary to manufacture the Furnace Products. Reimbursements are comprised of revenues earned from capital expenditures incurred that will benefit both us and Norit (referred to as "Shared Capital") and revenues earned from capital expenditures incurred that will benefit Norit exclusively (referred to as "Specific Capital"). In the event that Norit ceases to make purchases under the Supply Agreement, Norit is obligated to pay the balance of any outstanding payments for Specific Capital.

On February 25, 2022, we received \$10.6 million in cash from Norit (the "Norit Payment") as a result of a change in control provision in the Supply Agreement (the "Change in Control"), which occurred as a result of the sale of Norit by its parent, Cabot Corporation. Under the Change in Control, we received from Norit full payment of all amounts outstanding under the Reclamation Reimbursement (defined below), payment of all unbilled amounts related to Specific Capital for expenditures

incurred through February 28, 2022 and payment of \$0.8 million related to additional Reclamation Costs (the "Norit Reclamation Costs"). Under the Reclamation Contract, we were obligated to remit payment for the Norit Reclamation Costs to the third-party operator of Marshall Mine, and such payment was remitted in March 2022. The Change in Control did not impact any other provisions of the Supply Agreement.

As of February 25, 2022, the carrying value of the Reclamation Reimbursement was \$9.0 million and was reflective of the principal balance, adjusted for accretion of interest and payments made to date. Under the Change in Control, we received \$8.5 million in cash for full payment of the outstanding Reclamation Reimbursement. We concluded that the cash proceeds received represented an early payment of a receivable based on a change in contractual terms and accounted for the difference between the cash proceeds received and the carrying amount of the Reclamation Reimbursement of \$0.5 million as a loss, which is included within the "Other Income (Expense)" line item in the Condensed Consolidated Statement of Operation for the six months ended June 30, 2022.

Acquisition of Marshall Mine

Concurrently with the execution of the Supply Agreement, on September 30, 2020, we completed the Marshall Mine Acquisition for a nominal cash purchase price. Marshall Mine is a lignite mine located outside of Marshall, Texas. We independently determined to immediately shutter the Marshall Mine and commenced full reclamation activities under the Reclamation Contract. As of June 30, 2022, we have materially completed the dirt work (i.e., contouring, backfilling, etc.) related to the Reclamation Contract.

Under the terms of the Supply Agreement, Norit was obligated to reimburse us for \$10.2 million, inclusive of interest, over a 13-year term (the "Reclamation Reimbursement") for a portion of the Reclamation Costs. As discussed above, on February 25, 2022 as part of the Change in Control, Norit fully paid the outstanding amount owed under the Reclamation Reimbursement and has no further liability related to the Marshall Mine.

As the owner of the Marshall Mine, we were required to post the MM Surety Bond with a regulatory commission to ensure performance of our reclamation activities in the amount of \$30.0 million. On June 7, 2021, the regulatory commission agreed to reduce the MM Surety Bond amount to \$16.6 million. As required by our surety bond provider for both the Marshall Mine and Five Forks Mine, we posted collateral of \$10.0 million as of June 30, 2022 in the form of restricted cash.

Results of Operations

For the three and six months ended June 30, 2022, we recognized net loss of \$0.3 million and \$3.4 million, respectively, compared to net income of \$16.6 million and \$30.3 million for the three and six months ended June 30, 2021, respectively. The most significant factor impacting results period over period was the decrease in equity earnings from Tinuum Group as the ability to generate Section 45 tax credits, the driver for Tinuum Group's operations, ceased as of December 31, 2021.

The following sections provide additional information regarding these comparable periods. For comparability purposes, the following tables set forth our results of operations for the periods presented in the Condensed Consolidated Financial Statements included in Item 1 of this Quarterly Report. The current year period to prior year period comparisons of financial results may not be indicative of financial results to be achieved in future periods.

Comparison of the Three Months Ended June 30, 2022 and 2021

Total Revenue and Cost of Revenue

A summary of the components of our revenues and cost of revenue for the three months ended June 30, 2022 and 2021 is as follows:

<i>(in thousands, except percentages)</i>	Three Months Ended June 30,		Change	
	2022	2021	(\$)	(%)
Revenues:				
Consumables	\$ 24,739	\$ 17,408	\$ 7,331	42 %
License royalties, related party	—	3,657	(3,657)	(100)%
Total revenues	\$ 24,739	\$ 21,065	\$ 3,674	17 %
Operating expenses:				
Consumables cost of revenue, exclusive of depreciation and amortization	\$ 19,910	\$ 14,732	\$ 5,178	35 %

Consumables and consumables cost of revenue

For the three months ended June 30, 2022, consumables revenues increased from the comparable quarter in 2021 primarily driven by higher product volumes, which comprised \$4.6 million of the total change. Product volumes were higher among power generation customers primarily due to higher natural gas prices and higher demand for electricity compared to the same quarter in 2021, which contributed to increased utilization of coal-fired generation and increased demand for our products. Total consumables revenues also increased due to favorable pricing mix of our products by approximately \$2.0 million.

Consumables gross margin, exclusive of depreciation and amortization, increased for the three months ended June 30, 2022 compared to the corresponding quarter in 2021 primarily due to the higher product volumes, which resulted in lower fixed costs per pound, as well as increases in the prices of our products. Offsetting these improvements for the three months ended June 30, 2022, consumables gross margin was negatively impacted by higher prices for key raw materials, transportation, including fuel, and other operational costs to produce and deliver our products. Further negatively impacting consumables gross margin was the requirement to purchase inventory due to increased demand for our products and high operating utilization of the Red River Plant. We will continue to need to maintain targeted inventory levels and therefore we expect to continue to purchase inventory at least through the remainder of 2022 as a result of ongoing increased demand for our products and continued high operating utilization at the Red River Plant. We will continue to evaluate the need for additional inventory purchases in subsequent years. In 2023, we expect to complete a turnaround at the Red River Plant and, as a result, we anticipate that our consumables gross margin will be negatively impacted.

We expect that consumables revenues and gross margin will continue to be positively impacted by our product price increase announced in the second quarter of 2022 and our efforts to move our product mix to higher margin products. We anticipate that the product price increases will help offset both the inflation we are experiencing in many of our operating costs and the higher operating costs from purchasing inventory. We also expect that changes in product mix due to the loss of certain power generation customers who are permanently shuttering certain operations as part of scheduled closures will also continue to improve our consumables gross margin.

Consumables revenues continues to be affected by electricity demand driven by seasonal weather and related power generation needs, as well as competitor prices related to alternative power generation sources such as natural gas and renewables.

License royalties, related party

As discussed above, Tinum Group ceased operations as of December 31, 2021 and as a result for the three months ended June 30, 2022, we did not recognize any revenues from license royalties from Tinum Group.

Other Operating Expenses

A summary of the components of our operating expenses for the three months ended June 30, 2022 and 2021, exclusive of cost of revenue items (presented above), is as follows:

<i>(in thousands, except percentages)</i>	Three Months Ended June 30,		Change	
	2022	2021	(\$)	(%)
Operating expenses:				
Payroll and benefits	\$ 2,519	\$ 2,908	\$ (389)	(13)%
Legal and professional fees	1,555	1,431	124	9 %
General and administrative	1,869	1,593	276	17 %
Depreciation, amortization, depletion and accretion	1,588	1,904	(316)	(17)%
Loss (gain) on change in estimate, asset retirement obligation	34	(1,942)	1,976	(102)%
	<u>\$ 7,565</u>	<u>\$ 5,894</u>	<u>\$ 1,671</u>	<u>28 %</u>

Payroll and benefits

Payroll and benefits expenses, which represent costs related to selling, general and administrative personnel, decreased for the three months ended June 30, 2022 compared to the corresponding quarter in 2021 primarily due to a decrease in payroll-related expenses of employees as our headcount decreased quarter over quarter.

Legal and professional fees

Legal and professional fees increased for the three months ended June 30, 2022 compared to the corresponding quarter in 2021 as a result of an increase in costs incurred related to our strategic alternatives review process, and was comprised mostly of consulting fees.

General and administrative

General and administrative expenses increased for the three months ended June 30, 2022 compared to the corresponding quarter in 2021 primarily due to an increase in rent and occupancy expense of \$0.2 million and general and administrative expenses, including travel, of \$0.1 million.

Depreciation, amortization, depletion and accretion

Depreciation and amortization expense decreased for the three months ended June 30, 2022 compared to the corresponding quarter in 2021 primarily due to higher production volumes compared to sales volumes for the three months ended June 30, 2022, resulting in \$0.2 million less absorption of depreciation in inventory. Further driving the decrease was a decrease in accretion expense of \$0.2 million related to the Marshall Mine ARO.

Loss (gain) on change in estimate, asset retirement obligation

As of June 30, 2022, we revised our estimate of future obligations owed for reclamation of the Marshall Mine primarily based on a change in the timing of estimated payments for future reclamation requirements. As a result, we increased the Marshall Mine ARO by \$34.0 thousand as of June 30, 2022 and recognized a corresponding loss on change in estimate in the Condensed Consolidated Statements of Operations for the three months ended June 30, 2022.

As of June 30, 2021, we revised our estimate of future obligations owed for reclamation of the Marshall Mine primarily based on scope reductions related to future reclamation requirements. As a result, we reduced the Marshall Mine ARO by \$1.9 million as of June 30, 2021 and recognized a corresponding gain on change in estimate in the Condensed Consolidated Statements of Operations for the three months ended June 30, 2021.

Other Income (Expense), net

A summary of the components of other income (expense), net for the three months ended June 30, 2022 and 2021 is as follows:

<i>(in thousands, except percentages)</i>	Three Months Ended June 30,		Change	
	2022	2021	(\$)	(%)
Other income (expense):				
Earnings from equity method investments	\$ 2,389	\$ 21,437	\$ (19,048)	(89)%
Interest expense	(90)	(493)	403	(82)%
Other	111	150	(39)	(26)%
Total other income	\$ 2,410	\$ 21,094	\$ (18,684)	(89)%

Earnings from equity method investments

As discussed above, both Tiuuum Group and Tiuuum Services ceased operations as of December 31, 2021 and as a result for the three months ended June 30, 2022, we recognized significantly lower earnings from Tiuuum Group and Tiuuum Services. The following table details the components of our respective equity method investments included in the Earnings from equity method investments line item in the Condensed Consolidated Statements of Operations:

<i>(in thousands)</i>	Three Months Ended June 30,	
	2022	2021
Earnings from Tiuuum Group	\$ 2,125	\$ 19,125
Earnings from Tiuuum Services	264	2,312
Earnings from equity method investments	\$ 2,389	\$ 21,437

For the three months ended June 30, 2022, we recognized \$2.1 million in equity earnings from Tiuuum Group compared to our proportionate share of Tiuuum Group's net loss of \$0.7 million for the quarter. For the three months ended June 30, 2021, we recognized \$19.1 million in equity earnings from Tiuuum Group compared to our proportionate share of Tiuuum Group's net income of \$12.1 million for the quarter. For both of these quarters, the difference between our pro-rata share of Tiuuum Group's net (loss) income and our earnings from the Tiuuum Group equity method investment as reported on the Condensed Consolidated Statements of Operations is the result of cumulative distributions received from Tiuuum Group being in excess of the carrying value of the investment, and therefore we recognize such excess distributions as equity method earnings in the period the distributions occur. For the remainder of 2022, we expect to recognize such excess contributions as equity method earnings in the period the distributions occur, limited to the carrying value of the Tiuuum Group equity investment.

For the three months ended June 30, 2022, we recognized \$0.3 million in equity earnings from Tiuuum Services compared to our proportionate share of Tiuuum Services' net income of \$0.1 million for this quarter. The difference between our pro-rata share of Tiuuum Services' net income and our earnings from the Tiuuum Services equity method investment as reported on the Condensed Consolidated Statements of Operations is the result of cumulative distributions received from Tiuuum Services being in excess of the carrying value of the investment, and therefore we recognize such excess distributions as equity method earnings in the period the distributions occur. For the three months ended June 30, 2021, we recognized \$2.3 million in equity earnings from Tiuuum Services, which was our proportionate share of Tiuuum Services' net income of \$4.6 million for the quarter.

Additional information related to equity method investments is included in Note 9 to the Condensed Consolidated Financial Statements included in Item 1 of this Report.

Interest expense

For the three months ended June 30, 2022, interest expense decreased \$0.4 million compared to the three months ended June 30, 2021 primarily due to the pay-off of a senior term loan as of June 1, 2021.

Income tax expense

For the three months ended June 30, 2022, we recorded no income tax expense or benefit compared to income tax expense of \$4.9 million for the three months ended June 30, 2021 primarily due to pretax loss for the three months ended June 30, 2022 of \$0.3 million compared to pretax income for the three months ended June 30, 2021 of \$21.5 million. We did not recognize a tax benefit for the three months ended June 30, 2022 related to the pretax loss for this period, as we recorded a valuation allowance as of June 30, 2022 primarily based on our forecast of pretax loss for the year ended December 31, 2022.

Comparison of the Six Months Ended June 30, 2022 and 2021

Total Revenue and Cost of Revenue

A summary of the components of our revenues and cost of revenue for the six months ended June 30, 2022 and 2021 is as follows:

<i>(in thousands, except percentages)</i>	Six Months Ended June 30,		Change	
	2022	2021	(\$)	(%)
Revenues:				
Consumables	\$ 51,141	\$ 35,949	\$ 15,192	42 %
License royalties, related party	—	7,723	(7,723)	(100)%
Total revenues	\$ 51,141	\$ 43,672	\$ 7,469	17 %
Operating expenses:				
Consumables cost of revenue, exclusive of depreciation and amortization	\$ 41,417	\$ 28,716	\$ 12,701	44 %

Consumables and consumables cost of revenue

For the six months ended June 30, 2022, consumables revenues increased from the comparable period in 2021 primarily driven by higher product volumes, which comprised approximately \$9.5 million of the total change. Product volumes in 2022 were higher in power generation primarily due to higher natural gas prices compared to the prior year period, which contributed to increased demand for our products. Total consumables revenues also increased due to favorable selling prices of our products by approximately \$4.8 million.

Consumables gross margin, exclusive of depreciation and amortization, decreased for the six months ended June 30, 2022 compared to the corresponding period in 2021. For the six months ended June 30, 2022, our consumables gross margin was negatively impacted by higher prices for key raw materials, transportation, including fuel, and other operational costs to produce and deliver our products. Further negatively impacting consumables gross margin was an increase during the six months ended June 30, 2022 compared to the prior year period in the amount of purchased inventory to meet customer demand for our products and supplement the higher operating utilization of the Red River Plant. Offsetting these negative impacts were higher product volumes, which resulted in lower fixed costs per pound, as well as increases in the prices of our products which were mostly in place as of the beginning of April 2022.

License royalties, related party

As discussed above, Tinum Group ceased operations as of December 31, 2021 and as a result, for the six months ended June 30, 2022, we did not recognize any revenues from license royalties from Tinum Group.

Other Operating Expenses

A summary of the components of our operating expenses, exclusive of cost of revenue items (presented above), for the six months ended June 30, 2022 and 2021 is as follows:

<i>(in thousands, except percentages)</i>	Six Months Ended June 30,		Change	
	2022	2021	(\$)	(%)
Operating expenses:				
Payroll and benefits	\$ 5,145	\$ 5,377	\$ (232)	(4)%
Legal and professional fees	3,727	3,234	493	15 %
General and administrative	3,795	3,508	287	8 %
Depreciation, amortization, depletion and accretion	3,094	4,010	(916)	(23)%
Loss (gain) on change in estimate, asset retirement obligation	34	(1,942)	1,976	(102)%
	<u>\$ 15,795</u>	<u>\$ 14,187</u>	<u>\$ 1,608</u>	<u>11 %</u>

Payroll and benefits

Payroll and benefits expenses decreased for the six months ended June 30, 2022 compared to the same period in 2021 primarily due to a decrease of \$0.6 million due to reduction in headcount. Offsetting these decreases was an increase in expense of \$0.4 million related to the Amended Retention Agreements.

Legal and professional fees

Legal and professional fees increased for the six months ended June 30, 2022 compared to the same period in 2021 primarily as a result of costs an increase in costs incurred related to our strategic alternatives review process, and was comprised mostly of consulting fees of \$0.5 million.

General and administrative

General and administrative expenses increased for the six months ended June 30, 2022 compared to the same period in 2021 primarily due to an increase in rent and occupancy expense of \$0.1 million, research and development expense of \$0.1 million and travel of \$0.1 million.

Depreciation, amortization, depletion and accretion

Depreciation and amortization expense decreased for the six months ended June 30, 2022 compared to the same period in 2021 primarily due to higher production volumes during the six months ended June 30, 2022, resulting in \$0.6 million less absorption of depreciation in inventory. Further driving the decrease was a decrease in accretion expense of \$0.3 million related to the reduction of the Marshall Mine ARO compared to prior year period and a decrease in amortization expense of \$0.2 million related to patents. Offsetting the net decrease period over period was an increase in depreciation expense of \$0.1 million related to an increase in our property, plant and equipment as of June 30, 2022 compared to June 30, 2021.

Loss (gain) on change in estimate, asset retirement obligation

As previously discussed, we recorded a loss on change in estimate of \$34.0 thousand primarily based on a change in the timing of estimated payments for future reclamation requirements of the Marshall Mine, which is included in the Condensed Consolidated Statements of Operations for the six months ended June 30, 2022.

As previously discussed, we recorded a gain on change in estimate of \$1.9 million related to a reduction in scope of our future reclamation efforts of the Marshall Mine, which is included in the Condensed Consolidated Statements of Operations for the six months ended June 30, 2021.

Other Income (Expense), net

A summary of the components of our other income (expense), net for the six months ended June 30, 2022 and 2021 is as follows:

<i>(in thousands, except percentages)</i>	Six Months Ended June 30,		Change	
	2022	2021	(\$)	(%)
Other income (expense):				
Earnings from equity method investments	\$ 3,222	\$ 39,749	\$ (36,527)	(92)%
Interest expense	(176)	(1,330)	1,154	(87)%
Other	(334)	571	(905)	(158)%
Total other income	\$ 2,712	\$ 38,990	\$ (36,278)	(93)%

Earnings from equity method investments

The following table details the components of our respective equity method investments included within the Earnings from equity method investments line item on the Condensed Consolidated Statements of Operations:

<i>(in thousands)</i>	Six Months Ended June 30,	
	2022	2021
Earnings from Tinnuum Group	\$ 3,137	\$ 35,487
Earnings from Tinnuum Services	84	4,262
Earnings from other	1	—
Earnings from equity method investments	\$ 3,222	\$ 39,749

For the six months ended June 30, 2022, we recognized \$3.1 million in equity earnings from Tinnuum Group compared to our proportionate share of Tinnuum Group's net loss of \$1.5 million for the period. For the six months ended June 30, 2021, we recognized \$35.5 million in equity earnings from Tinnuum Group compared to our proportionate share of Tinnuum Group's net income of \$22.9 million for the period. For both of these periods, the difference between our pro-rata share of Tinnuum Group's net (loss) income and our earnings from Tinnuum Group equity method investment as reported on the Condensed Consolidated Statements of Operations is the result of cumulative distributions received from Tinnuum Group being in excess of the carrying value of the investment, and therefore we recognize such excess distributions as equity method earnings in the period the distributions occur.

For the six months ended June 30, 2022, we recognized \$0.1 million in equity earnings from Tinnuum Services compared to our proportionate share of Tinnuum Services' net loss of \$0.1 million for this period. The difference between our pro-rata share of Tinnuum Services' net loss and our earnings from the Tinnuum Services equity method investment as reported on the Condensed Consolidated Statements of Operations is the result of cumulative distributions received from Tinnuum Services being in excess of the carrying value of the investment, and therefore we recognize such excess distributions as equity method earnings in the period the distributions occur. For the three months ended June 30, 2021, we recognized \$4.3 million in equity earnings from Tinnuum Services, which was our proportionate share of Tinnuum Services' net income of \$8.5 million for the quarter.

See additional information related to equity method investments is included in Note 9 to the Condensed Consolidated Financial Statements included in Part I - Item 1 of this Report.

Interest expense

For the six months ended June 30, 2022, interest expense decreased \$1.2 million primarily due to the pay-off of a senior term loan as of June 1, 2021.

Other

On February 25, 2022, we received the Norit Payment as a result of the Change in Control, which occurred as a result of the sale of Norit by its parent, Cabot Corporation. Under the Change in Control, we received from Norit full payment of all amounts outstanding under the Reclamation Reimbursement, payment of all unbilled amounts related to Specific Capital for expenditures incurred through February 28, 2022 and payment of the Norit Reclamation Costs. Under the Reclamation Contract, we are obligated to remit payment for the Norit Reclamation Costs to the third-party operator of Marshall Mine within a specified timeframe, and such payment was remitted in March 2022.

As of February 25, 2022, the Reclamation Reimbursement was \$9.0 million and was reflective of the principal balance adjusted for accretion of interest and collection of payments. Under the Change in Control, we received \$8.5 million in cash in relation to the outstanding Reclamation Reimbursement. We applied the cash proceeds to the Reclamation Reimbursement and recognized a loss of \$0.5 million, which is included in the "Other income (expense)" line item in the Condensed Consolidated Statement of Operations for the six months ended June 30, 2022.

Income tax expense

For the six months ended June 30, 2022, we recorded no income tax expense or benefit compared to income tax expense of \$9.4 million for the six months ended June 30, 2021 primarily due to pretax loss for the six months ended June 30, 2022 of \$3.4 million compared to pretax income for the six months ended June 30, 2021 of \$39.8 million. We did not recognize a tax benefit for the six months ended June 30, 2022 related to the pretax loss for this period, as we recorded a valuation allowance as of June 30, 2022 primarily based on our forecast of pretax loss for the year ended December 31, 2022.

Non-GAAP Financial Measures

To supplement our financial information presented in accordance with U.S. GAAP (or "GAAP"), we provide non-GAAP measures of certain financial performance. These non-GAAP measures include Consolidated EBITDA and Consolidated Adjusted EBITDA. We have included these non-GAAP measures because management believes that they help to facilitate period to period comparisons of our operating results and provide useful information to both management and users of the financial statements by excluding certain expenses, gains and losses which may not be indicative of core operating results and business outlook. Management uses these non-GAAP measures in evaluating the performance of our business.

These non-GAAP measures are not in accordance with, or an alternative to, measures prepared in accordance with GAAP and may be different from non-GAAP measures used by other companies. In addition, these non-GAAP measures are not based on any comprehensive set of accounting rules or principles. These measures should only be used to evaluate our results of operations in conjunction with the corresponding GAAP measures.

We define Consolidated EBITDA as net income adjusted for the impact of the following items that are either non-cash or that we do not consider representative of our ongoing operating performance: depreciation, amortization, depletion, accretion, amortization of upfront customer consideration, which was recorded in conjunction with the Marshall Mine Acquisition ("Upfront Customer Consideration"), interest expense, net and income taxes. We define Consolidated Adjusted EBITDA as Consolidated EBITDA reduced by the non-cash impact of equity earnings from equity method investments, increased by cash distributions from equity method investments and loss on early settlement of the Norit Receivable and the change in ARO as a result of a change in estimate. Because Consolidated Adjusted EBITDA omits certain non-cash items, we believe that the measure is less susceptible to variances that affect our operating performance.

When used in conjunction with GAAP financial measures, we believe these non-GAAP measures are supplemental measures of operating performance which explain our operating performance for our period-to-period comparisons and against our competitors' performance. Generally, we believe these non-GAAP measures are less susceptible to variances that affect our operating performance results.

We expect the adjustments to Consolidated EBITDA and Consolidated Adjusted EBITDA in future periods will be generally similar. These non-GAAP measures have limitations as analytical tools and should not be considered in isolation or as a substitute for analyzing our results as reported under GAAP.

Consolidated EBITDA and Adjusted EBITDA

<i>(in thousands)</i>	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Net (loss) income	\$ (326)	\$ 16,590	\$ (3,359)	\$ 30,327
Depreciation, amortization, depletion and accretion	1,588	1,904	3,094	4,010
Amortization of Upfront Customer Consideration	127	127	254	254
Interest expense, net	54	434	118	1,163
Income tax expense	—	4,943	—	9,432
Consolidated EBITDA	1,443	23,998	107	45,186
Cash distributions from equity method investees	3,100	20,625	5,613	43,876
Equity earnings	(2,389)	(21,437)	(3,222)	(39,749)
Loss (gain) on change in estimate, asset retirement obligation	34	(1,942)	34	(1,942)
Loss on early settlement of Norit Receivable	—	—	535	—
Consolidated Adjusted EBITDA	\$ 2,188	\$ 21,244	\$ 3,067	\$ 47,371

Liquidity and Capital Resources

Current Resources and Factors Affecting Our Liquidity

As of June 30, 2022, our principal sources of liquidity included:

- cash on hand, excluding restricted cash of \$10.0 million pledged under a surety bond agreement; and
- our operations.

As of June 30, 2022, our principal uses of liquidity included:

- our business operating expenses;
- capital and spare parts expenditures;
- payments on our lease obligations; and
- payments of AROs associated with the Five Forks Mine and Marshall Mine.

Due to the expiration of the Section 45 tax credit period as of December 31, 2021 and the resultant wind down of Tinnuum Group's and Tinnuum Services' operations in 2022, distributions from Tinnuum Group and Tinnuum Services are no longer a significant source of liquidity.

Tinnuum Group and Tinnuum Services Distributions

The following table summarizes the cash distributions from our equity method investments for the six months ended June 30, 2022 and 2021:

<i>(in thousands)</i>	Six Months Ended June 30,	
	2022	2021
Tinnuum Services	\$ 2,476	\$ 5,002
Tinnuum Group	3,137	38,874
Distributions from equity method investees	<u>\$ 5,613</u>	<u>\$ 43,876</u>

Cash distributions from Tinnuum for the six months ended June 30, 2022 decreased by \$38.3 million compared to the six months ended June 30, 2021 primarily due to Tinnuum Group and Tinnuum Services ceasing material operations as of December 31, 2021.

Cash Flows

Six Months Ended June 30, 2022 vs. Six Months Ended June 30, 2021

Cash and restricted cash increased from \$88.8 million as of December 31, 2021 to \$90.8 million as of June 30, 2022. The following table summarizes our cash flows for the six months ended June 30, 2022 and 2021, respectively:

<i>(in thousands)</i>	Six Months Ended June 30,		Change
	2022	2021	
Cash and restricted cash provided by (used in):			
Operating activities	\$ 1,758	\$ 18,151	\$ (16,393)
Investing activities	1,305	20,401	(19,096)
Financing activities	(1,024)	(17,149)	16,125
Net change in cash and restricted cash	<u>\$ 2,039</u>	<u>\$ 21,403</u>	<u>\$ (19,364)</u>

Cash flow from operating activities

Cash flows provided by operating activities for the six months ended June 30, 2022 decreased by \$16.4 million compared to the six months ended June 30, 2021. The decrease was primarily attributable to net loss of \$3.4 million for the six months ended June 30, 2022 compared to net income of \$30.3 million for the six months ended June 30, 2021, a decrease in Deferred income tax expense of \$6.8 million, a decrease in Distributions from equity method investees, return on investment of \$16.8 million and an increase in net working capital of \$5.4 million. Offsetting the net decrease in cash flows provided by operating activities for the six months ended June 30, 2022 compared to the six months ended June 30, 2021 were decreases in Earnings from equity method investments of \$36.5 million, Other long-term assets, net of \$5.7 million, primarily from the Norit Payment in settlement of the Reclamation Reimbursement, and the non-cash gain recognized from the change in estimate of the Marshall Mine ARO of \$2.0 million.

Cash flow from investing activities

Cash flows provided by investing activities decreased for the six months ended June 30, 2022 compared to the six months ended June 30, 2021 by \$19.1 million primarily as a result of a decrease in distributions from equity earnings in excess of cumulative earnings of \$21.4 million. Offsetting the net decrease in cash flows provided by investing activities was a decrease in property, plant and equipment additions of \$1.7 million.

Cash flow from financing activities

Cash flows used in financing activities for the six months ended June 30, 2022 compared to the six months ended June 30, 2021 decreased by \$16.1 million primarily from a decrease in principal loan repayments on a senior term loan.

Material Cash Requirements

For the six months ended June 30, 2022, there were no material changes to our contractual obligations outside of the ordinary course of business from those reported as of December 31, 2021. We expect that our cash on hand as of June 30, 2022 will provide sufficient liquidity to fund operations for the next 12 months.

Capital Expenditures

For 2022, we expect to incur \$11.0 million in capital expenditures compared to \$7.6 million incurred in 2021. This increase is primarily the result of forecasted capital improvements to the Red River Plant of approximately \$4.7 million, product specific capital expenditures related to the Supply Agreement of approximately \$0.7 million and scheduled maintenance improvements. We expect to fund all capital expenditures for 2022 from cash on hand.

Retention Agreements

On May 4, 2022, the Compensation Committee of the Board and the Board approved the amendment of the retention agreements (the "Retention Agreements"), which had been executed in May 2021, between us and our executive officers and certain other key employees in order to maintain our business operations while we pursue and execute on our strategic initiatives (such amended agreements, the "Amended Retention Agreements"). Under the Amended Retention Agreements, if accepted, the employees will receive (i) 40% of the original amount agreed to in the Retention Agreements ("Retention Pay") in August 2022; (ii) 60% of the Retention Pay on the earliest of (1) the date the employee's employment is terminated without Cause or for Good Reason (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), (2) 90 days after a Transaction Date or a Change in Control (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), or (3) in January 2023; and (iii) an additional lump sum payment, ranging from 10% to 40% of the Retention Pay, will also be paid at the earliest of (1) the date the employee's employment is terminated without Cause or for Good Reason (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), (2) 90 days after a Transaction Date or a Change in Control (as those terms are defined in the Retention Agreement or the employee's employment agreement, as applicable), or (3) in January 2023.

In order to receive the Amended Retention Agreements payments, employees must remain employed at the Company through the dates above. As of June 30, 2022, the total cash payable pursuant to the Amended Retention Agreements is \$2.5 million, and we expect to fund these obligations from cash on hand.

Five Forks Mine and Marshall Mine Obligations

As of June 30, 2022, we had outstanding surety bonds with regulatory commissions of \$24.1 million related to both the Marshall Mine and Five Forks Mine. As of June 30, 2022, and as required by our surety bond provider, we held restricted cash of \$10.0 million pledged as collateral related to performance requirements required under reclamation contracts for both the Marshall Mine and Five Forks Mine. We expect that the obligations secured by these surety bonds will be performed in the ordinary course of business and in accordance with the applicable contractual terms. To the extent that the obligations are performed, the related surety bonds should be released and collateral requirements reduced. However, in the event any surety bond is called, our indemnity obligations could require us to reimburse the surety bond provider.

We intend to fund the remaining portion of the Reclamation Costs from cash on hand. We believe that as reclamation activities proceed and the amounts required under the MM Surety Bond are able to be reduced, there may be an opportunity to further reduce the collateral requirement.

Critical Accounting Policies and Estimates

Our critical accounting policies and estimates have not changed from those reported in Item 7 - "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the 2021 Form 10-K.

Recently Issued Accounting Standards

Refer to Note 1 of the Condensed Consolidated Financial Statements included in Item 1 of this Quarterly Report for information regarding recently issued accounting standards applicable to us.

Forward-Looking Statements Found in this Report

This Quarterly Report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, that involve risks and uncertainties. In particular, such forward-looking statements are found in this Part I, Item 2 above. Words or phrases such as "anticipates," "believes," "expects," "intends," "plans," "estimates," "predicts," the negative expressions of such words, or similar expressions are used in this Quarterly Report to identify forward-looking statements, and such forward-looking statements include, but are not limited to, statements or expectations regarding:

- (a) the anticipated effects from the increase in pricing of our AC products;
- (b) the anticipated effects from the increase in costs of our AC products related cost increases in supply and logistics;
- (c) expected supply and demand for our AC products and services;
- (d) increasing competition in the AC market;
- (e) the timing and effects of our review of strategic alternatives;
- (f) future level of research and development activities;
- (g) the effectiveness of our technologies and the benefits they provide;
- (h) probability of any loss occurring with respect to certain guarantees made by Tinnuum Group;
- (i) the timing of awards of, and work and related testing under, our contracts and agreements and their value;
- (j) the timing and amounts of or changes in future revenues, backlog, funding for our business and projects, margins, expenses, earnings, tax rates, cash flows, royalty payment obligations, working capital, liquidity and other financial and accounting measures;
- (k) the amount of future capital expenditures needed for our business;
- (l) awards of patents designed to protect our proprietary technologies both in the U.S. and other countries;
- (m) the adoption and scope of regulations to control certain chemicals in drinking water;
- (n) the impact of adverse global macroeconomic conditions, including rising interest rates, recession fears and inflationary pressures, and geopolitical events or conflicts; and
- (o) opportunities to effectively provide solutions to U.S. coal-related businesses to comply with regulations, improve efficiency, lower costs and maintain reliability.

The forward-looking statements included in this Quarterly Report involve risks and uncertainties. Actual events or results could differ materially from those discussed in the forward-looking statements as a result of various factors including, but not limited to, timing of new and pending regulations and any legal challenges to or extensions of compliance dates of them; the U.S. government's failure to promulgate regulations that benefit our business; changes in laws and regulations, accounting rules, prices, economic conditions and market demand; impact of competition; availability, cost of and demand for alternative energy sources and other technologies; technical, start up and operational difficulties; our inability to commercialize our APT technologies on favorable terms; our inability to ramp up our operations to effectively address recent and expected growth in our business; loss of key personnel; availability of materials and equipment for our business; intellectual property infringement claims from third parties; pending litigation; as well as other factors relating to our business, as described in our filings with the SEC, with particular emphasis on the risk factor disclosures contained in those filings. You are cautioned not to place undue reliance on the forward-looking statements made in this Quarterly Report and to consult filings we have made and will make with the SEC for additional discussion concerning risks and uncertainties that may apply to our business and the ownership of our securities. The forward-looking statements contained in this Quarterly Report are presented as of the date hereof, and we disclaim any duty to update such statements unless required by law to do so.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

The information under this Item is not required to be provided by smaller reporting companies.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As required by Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), we have evaluated, under the supervision of and with the participation of our management, including our principal executive officer and principal financial officer, the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Our disclosure

controls and procedures are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Based upon this evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were not effective as of June 30, 2022 due to the material weakness described in Item 9A. "Controls and Procedures" of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021 for the initial application of the adoption of ASC 606 related to the accounting for freight, which was previously immaterial; an inadequate monitoring of interpretative guidance of previously adopted accounting standards; and a lack of a control related to an annual review of policies and procedures for material accounts.

Notwithstanding the material weaknesses, management has concluded that the Condensed Consolidated Financial Statements included in this Quarterly Report present fairly, in all material aspects, the Company's financial position, results of operations and cash flows for the periods presented in conformity with accounting principles generally accepted in the United States.

Changes in Internal Control Over Financial Reporting

Under the applicable SEC rules (Exchange Act Rules 13a-15(f) and 15d-15(f)) management is required to evaluate any changes in internal control over financial reporting that occurred during each fiscal quarter that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. As discussed in Item 9A. "Controls and Procedures" of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021, we identified a material weakness in our internal control over financial reporting detailed above. During the fiscal quarter ended June 30, 2022, we designed and implemented remediation procedures which enhanced existing controls that were ineffective in the prior year and implemented new controls to address the design gaps related to the material weakness. The updates to the internal controls framework include enhanced monitoring of interpretative guidance of previously adopted accounting standards and a periodic review of policies and procedures associated to material accounts. As of June 30, 2022, the updates and additions to controls have been implemented. We believe the controls will be in place for a sufficient period of time to conclude on their effectiveness as of December 31, 2022.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we are involved in litigation, claims and other proceedings related to the conduct of our business. Information with respect to this item may be found in Note 7 "Commitments and Contingencies" to the consolidated financial statements included in Item 1 of Part I of this Quarterly Report.

Item 1A. Risk Factors

There are no material updates to our risk factors as disclosed in the 2021 Form 10-K.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

The statement concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K is included in Exhibit 95.1 to this Quarterly Report.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit No.	Description	Form	File No.	Incorporated by Reference Exhibit	Filing Date
10.1	Advanced Emissions Solutions, Inc. 2022 Omnibus Incentive Plan.	8-K	001-37822	10.1	May 17, 2022
31.1	Certification of Principal Executive Officer of Advanced Emissions Solutions, Inc. Pursuant to 17 CFR 240.13a-14(a) or 17 CFR 240.15d-14(a)*				
31.2	Certification of Principal Financial Officer of Advanced Emissions Solutions, Inc. Pursuant to 17 CFR 240.13a-14(a) or 17 CFR 240.15d-14(a)*				
32.1	Certification of Principal Executive Officer and Principal Financial Officer of Advanced Emissions Solutions, Inc. Pursuant to 18 U.S.C Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*				
95.1	Mine Safety Disclosure Exhibit*				
101.INS	XBRL Instance Document*				
101.SCH	XBRL Schema Document*				
101.CAL	XBRL Calculation Linkbase Document*				
101.LAB	XBRL Label Linkbase Document*				
101.PRE	XBRL Presentation Linkbase Document*				
101.DEF	Taxonomy Extension Definition Linkbase Document*				
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)*				

Notes:

* Filed herewith.

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 thereunto duly authorized.

Advanced Emissions Solutions, Inc.
(Registrant)

August 15, 2022

By: /s/ Greg Marken
Greg Marken
Chief Executive Officer
(Principal Executive Officer)

August 15, 2022

By: /s/ Morgan Fields
Morgan Fields
Chief Accounting Officer
(Principal Financial Officer)

Pursuant to Rules 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as Amended

I, Greg Marken, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Advanced Emissions Solutions, 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 internal control over financial reporting, to the registrant's auditors and the audit committee of the 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: August 15, 2022

/s/ Greg Marken

Greg Marken

Chief Executive Officer

(Principal Executive Officer)

Pursuant to Rules 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as Amended

I, Morgan Fields, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Advanced Emissions Solutions, 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 internal control over financial reporting, to the registrant's auditors and the audit committee of the 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: August 15, 2022

/s/ Morgan Fields

Morgan Fields
Chief Accounting Officer
(Principal Financial Officer)

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 on Form 10-Q of Advanced Emissions Solutions, Inc. (the "Company") for the quarterly period ended June 30, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Greg Marken, as the Principal Executive Officer of the Company, and Morgan Fields, as the Principal Financial Officer of the Company, each hereby certifies, pursuant to and solely for the purpose of 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, to the best of his knowledge and belief, that:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Greg Marken

Greg Marken
Chief Executive Officer

August 15, 2022

/s/ Morgan Fields

Morgan Fields
Chief Accounting Officer

August 15, 2022

Mine Safety and Health Administration Safety Data

We are committed to maintaining a safe work environment and working to ensure environmental compliance across all of our operations. The health and safety of our employees and limiting the impact to communities in which we operate are critical to our long-term success. We employ practices and conduct training to help ensure that our employees work safely. Furthermore, we utilize processes for managing, monitoring and improving safety and environmental performance.

The following disclosures are provided pursuant to Securities and Exchange Commission (SEC) regulations, which require certain disclosures by companies required to file periodic reports under the Securities Exchange Act of 1934, as amended, that operate coal mines regulated under the Federal Mine Safety and Health Act of 1977 (the "Mine Act"). The disclosures reflect United States (U.S.) mining operations only.

Mine Safety Information. Whenever the Mine Safety and Health Administration (MSHA) believes that a violation of the Mine Act, any health or safety standard, or any regulation has occurred, it may issue a violation which describes the associated condition or practice and designates a time frame within which the operator must abate the violation. In some situations, such as when MSHA believes that conditions pose a hazard to miners, MSHA may issue an order removing miners from the area of the mine affected by the condition until hazards are corrected. Whenever MSHA issues a citation or order, it generally proposes a civil penalty, or fine, as a result of the violation that the operator is ordered to pay. Citations and orders can be contested and appealed and, as part of that process, are often reduced in severity and amount, and are sometimes vacated. The number of citations, orders and proposed assessments vary depending on the size and type (underground or surface) of the company and mine.

We are required to report citations and orders issued to us by MSHA during the three months ended June 30, 2022, as reflected in our systems. Our required disclosure covers only those mines that were issued orders or citations during the period presented and, commensurate with SEC regulations, does not reflect orders or citations issued to independent contractors working at our mines. Due to timing and other factors, our data may not agree with the mine data retrieval system maintained by MSHA. The proposed assessments for the three months ended June 30, 2022 were taken from the MSHA system as of August 9, 2022.

Additional information about MSHA references we are required to report is as follows:

- *Section 104 S&S Violations:* The total number of violations received from MSHA under section 104(a) of the Mine Act that could significantly and substantially contribute to a serious injury if left unabated.
- *Section 104(b) Orders:* The total number of orders issued by MSHA under section 104(b) of the Mine Act, which represents a failure to abate a citation under section 104(a) within the period of time prescribed by MSHA. This results in an order of immediate withdrawal from the area of the mine affected by the condition until MSHA determines that the violation has been abated.
- *Section 104(d) Citations and Orders:* The total number of citations and orders issued by MSHA under section 104(d) of the Mine Act for unwarrantable failure to comply with mandatory health or safety standards.
- *Section 104(e) Notices:* The total number of notices issued by MSHA under section 104(e) of the Mine Act for a pattern of violations that could contribute to mine health or safety hazards.
- *Section 110(b)(2) Violations:* The total number of flagrant violations issued by MSHA under section 110(b)(2) of the Mine Act.
- *Section 107(a) Orders:* The total number of orders issued by MSHA under section 107(a) of the Mine Act for situations in which MSHA determined an imminent danger existed.
- *Proposed MSHA Assessments:* The total dollar value of proposed assessments from MSHA.
- *Fatalities:* The total number of mining-related fatalities.

Our first mine is located in the Gulf Coast Lignite Region, in Natchitoches Parish, Louisiana (the "Five Forks Mine"). For the three months ended June 30, 2022, there were no citations or orders issued to the Five Forks Mine. Our second mine is located in the Gulf Coast Lignite Region, in Harrison and Panola Counties, Texas (the "Marshall Mine"). For the three months ended June 30, 2022, there were no citations or orders issued to the Marshall Mine.

Pending Legal Actions. The Federal Mine Safety and Health Review Commission (the Commission) is an independent adjudicative agency that provides administrative trial and appellate review of legal disputes arising under the Mine Act. These cases may involve, among other questions, challenges by operators to citations, orders and penalties they have received from MSHA, or complaints of discrimination by miners under section 105 of the Mine Act. The following is a brief description of the types of legal actions that may be brought before the Commission.

- *Contests of Citations and Orders:* A contest proceeding may be filed with the Commission by operators, miners or miners' representatives to challenge the issuance of a citation or order issued by MSHA, including citations related to disputed provisions of operators' emergency response plans.

- *Contests of Proposed Penalties (Petitions for Assessment of Penalties)*: A contest of a proposed penalty is an administrative proceeding before the Commission challenging a civil penalty that MSHA has proposed for the violation. Such proceedings may also involve appeals of judges' decisions or orders to the Commission on proposed penalties, including petitions for discretionary review and review by the Commission on its own motion.
- *Complaints for Compensation*: A complaint for compensation may be filed with the Commission by miners entitled to compensation when a mine is closed by certain withdrawal orders issued by MSHA. The purpose of the proceeding is to determine the amount of compensation, if any, due miners idled by the orders.
- *Complaints of Discharge, Discrimination or Interference*: A discrimination proceeding is a case that involves a miner's allegation that he or she has suffered a wrong by the operator because he or she engaged in some type of activity protected under the Mine Act, such as making a safety complaint. This category includes temporary reinstatement proceedings, which involve cases in which a miner has filed a complaint with MSHA stating he or she has suffered discrimination and the miner has lost his or her position.
- *Applications for Temporary Relief*: An application for temporary relief from any modification or termination of any order or from any order issued under certain subparts of section 104 of the Mine Act may be filed with the Commission at any time before such order becomes final.
- *Appeals of Judges' Decisions or Orders*.

For the three months ended June 30, 2022, there were no pending or legal actions before the Commission at either the Five Forks Mine or the Marshall Mine.