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

SCHEDULE 13D
(Rule 13d-102)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULE 13d-l(a) AND AMENDMENTS THERETO FILED PURSUANT TO RULE 13d-2(a)
(Amendment No.)*

Advanced Emissions Solutions, Inc.
(Name of Issuer)

Common stock, par value $0.001 per share
(Title of Class of Securities)

00770C101
(CUSIP Number)

McIntyre Julian Alexander
c/o Arq Limited
30A Brook Street
London W1K 5DJ
United Kingdom
+44-7824-443808
(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

March 9, 2023
(Date of Event Which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box. ☐

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act.

1.	Name of Reporting Person McIntyre Julian Alexander		
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) ☐ (b) ☐		
3.	SEC Use Only		
4.	Source of Funds (See Instructions) OO (See Item 3 below)		
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e) ☐		
6.	Citizenship or Place of Organization United Kingdom		
Number of Shares Beneficially Owned by Each Reporting Person With		7.	Sole Voting Power 0
		8.	Shared Voting Power 1,868,811 shares of Common Stock
		9.	Sole Dispositive Power 0
		10.	Shared Dispositive Power 1,868,811 shares of Common Stock
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 1,868,811 shares of Common Stock		
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) ☐		
13.	Percent of Class Represented by Amount in Row 11 6.97% (1)		
14.	Type of Reporting Person (See Instructions) IN		

(1) Based upon 26,824,773 shares of the Issuer's Common Stock outstanding as of February 2, 2023.

Pursuant to Rule 13d-4, the Reporting Person, expressly disclaims beneficial ownership of the securities reflected herein except to the extent of such Reporting Person's pecuniary interest therein and declares that this Schedule 13D shall not be construed as an admission that such Reporting Person is the beneficial owner of any securities covered hereby.

1.	Name of Reporting Entity Allard Services Limited		
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) ☐ (b) ☐		
3.	SEC Use Only		
4.	Source of Funds (See Instructions) WC, OO (See Item 3 below)		
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e) ☐		
6.	Citizenship or Place of Organization Isle of Man		
Number of Shares Beneficially Owned by Each Reporting Person With		7.	Sole Voting Power 0
		8.	Shared Voting Power 1,855,860 shares of Common Stock
		9.	Sole Dispositive Power 0
		10.	Shared Dispositive Power 1,855,860 shares of Common Stock
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 1,855,860 shares of Common Stock		
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) ☐		
13.	Percent of Class Represented by Amount in Row 11 6.92% (1)		
14.	Type of Reporting Person (See Instructions) CO		

(1) Based upon 26,824,773 shares of the Issuer's Common Stock outstanding as of February 2, 2023.

1.	Name of Reporting Persons Stannard Limited		
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) ☐ (b) ☐		
3.	SEC Use Only		
4.	Source of Funds (See Instructions) WC, OO (See Item 3 below)		
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e) ☐		
6.	Citizenship or Place of Organization Isle of Man		
Number of Shares Beneficially Owned by Each Reporting Person With		7.	Sole Voting Power 0
		8.	Shared Voting Power 12,951 shares of Common Stock
		9.	Sole Dispositive Power 0
		10.	Shared Dispositive Power 12,951 shares of Common Stock
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 12,951 shares of Common Stock		
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) ☐		
13.	Percent of Class Represented by Amount in Row 11 0.05% (1)		
14.	Type of Reporting Person (See Instructions) CO		

(1) Based upon 26,824,773 shares of the Issuer's Common Stock outstanding as of February 2, 2023.

Item 1. Security and Issuer

This statement on Schedule 13D (this "**Statement**") is filed with respect to the common stock, par value $0.001 per share ("**Common Stock**"), of Advanced Emissions Solutions, Inc., a Delaware corporation (the "**Issuer**"). The address of the principal executive offices of the Issuer is 8051 E. Maplewood Avenue, Suite 210 Greenwood Village, Colorado. Information given in response to each item shall be deemed incorporated by reference in all other items, as applicable.

Item 2. Identity and Background

This Schedule 13D is filed by Mr. Julian Alexander McIntyre (the "**Reporting Person**"), a citizen of the United Kingdom, whose principal occupation is an entrepreneur and investor, and a director of Arq Limited, a company incorporated under the laws of Jersey ("**Arq**"). The principal business address for the Reporting Person is c/o Arq Limited, 30A Brook Street London W1K 5DJ, United Kingdom. During the last five years, the Reporting Person has not been (i) convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Pursuant to Rule 13d-4, the Reporting Person, expressly disclaims beneficial ownership of the securities reflected herein except to the extent of such Reporting Person's pecuniary interest therein and declares that this Schedule 13D shall not be construed as an admission that such Reporting Person is the beneficial owner of any securities covered hereby.

This Schedule 13D is also filed by Allard Services Limited ("**Allard**") and Stannard Limited ("**Stannard**", and together, the "**Reporting Entities**") pursuant to their agreement to the joint filing of this Schedule 13D with the Reporting Person, filed herewith as Exhibit 3 (the "**Joint Filing Agreement**").

The business address of each of the Reporting Entities is 36 Hope Street, Douglas, Isle of Man, IM1 1AR. Each of the Reporting Entities is organized under the laws of the Isle of Man.

Positions at Allard:

Name	Position	Citizenship	Principal Occupation
Gillian Norah Caine	Director	UK	Senior Administrator
Victoria Anne Reynolds	Director	UK	Accountant
Michael Mark Durkin	Alternate Director	UK	Accountant

Allard is owned by Tanwood Limited and Garwood Limited (Isle of Man companies) and hold their securities in trust for the Reporting Person.

Positions at Stannard:

Name	Position	Citizenship	Principal Occupation
Anthony John Doyle	Director	UK	Accountant
Susan Christine Cubbon	Director	UK	Senior Administrator
Michael Mark Durkin	Alternate Director	UK	Accountant

Stannard is owned by Tanwood Limited and Garwood Limited (Isle of Man companies) and hold their securities in trust for the Reporting Person's spouse.

None of the Reporting Entities has been convicted in a criminal proceeding during the last five year period prior to the date hereof.

None of the Reporting Entities has been party to any civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree, or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws, or finding any violation with respect to such laws during the last five year period prior to the date hereof.

Item 3. Source and Amount of Funds or Other Consideration

On February 1, 2023, the Issuer entered into a Securities Purchase Agreement with Arq, pursuant to which the Issuer acquired all of the direct and indirect equity interests of Arq's subsidiaries in exchange for consideration consisting of (i) 3,814,864 shares of Common Stock, and (ii) 5,294,462 shares of Series A Convertible Preferred Stock ("**Preferred Stock**"), par value $0.001 per share, of the Issuer (together, the "**Transaction**").

Following the Transaction, Arq undertook a buyback of its own shares (the "**Buyback**") as a means of distributing the Common Stock and Preferred Stock that were the proceeds of the sale.

In the Buyback, Arq's shareholders sold in the aggregate 90% of their ordinary shares in Arq and received in the aggregate 9.78 shares of Common Stock and 11.44 shares of Preferred Stock as consideration for every 1,000 ordinary shares in Arq sold (rounded down to the nearest whole share). Allard Services Limited received 658,736 shares of Common Stock and 770, 546 shares of Preferred Stock. Stannard Limited received 6,425 shares of Common Stock and 7,515 shares of Preferred Stock.

In addition, on February 1, 2023, the Issuer entered into subscription Agreements with, among else, the Reporting Entities (the "**Subscribers**") pursuant to which the Subscribers subscribed for and purchased shares of Common Stock at a price per share of $4.00 (the "**PIPE Investment**"). Allard Services Limited purchased 1,197,124 shares of Common Stock and Stannard Limited purchased 6,526 shares of Common Stock, using cash and working capital.

Item 4. Purpose of Transaction

The information set forth in Item 3 of this Statement is incorporated herein by reference.

The Reporting Person (together with the Reporting Entities) holds the securities of the Issuer for investment purposes with a view to increase the Issuer's value and provide synergy. The Reporting Person became a member of the Issuer's Board following the Transaction.

The Reporting Person receives compensation for service as a non-management director of the Issuer consistent with the compensation generally provided to other non-management directors, as determined by the Issuer's board.

Except as set forth above, the Reporting Person and the Reporting Entities have no present plans or intentions which would result in or relate to any of the transactions described in subparagraphs (a) through (j) of Item 4 of Schedule 13D.

Item 5. Interest in Securities of the Issuer

The information set forth in Item 2 and in Item 3 of this Statement, and the information in the cover pages, is incorporated herein by reference.

(a)(b) All calculations of beneficial ownership percentage in this Statement are made on the basis of 26,824,773 shares of the Issuer's Common Stock outstanding as of February 2, 2023.

Allard is the beneficial owner of 1,855,860 shares of Common Stock of the Issuer, constituting 6.92% of the issued and outstanding shares of Common Stock of the Issuer. Stannard is the beneficial owner of 12,951 shares of Common Stock of the Issuer, constituting 0.05% of the issued and outstanding shares of Common Stock of the Issuer.

The Reporting Person, by virtue of his relationship with and interests in the Reporting Entities, may be deemed to control the Reporting Entities and consequently share the beneficial ownership of the foregoing 1,868,811 shares of Common Stock beneficially owned by the Reporting Entities, including the right to jointly direct the voting of, and disposition of, such shares.

(c) Except as reported in this Statement, the Reporting Person and the Reporting Entities have not effected any transactions in the Issuer's securities within the past 60 days.

(d) Not applicable.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

The Reporting Person was nominated to the Issuer's board following the transaction, whereby the Issuer agreed to increase the size of the Issuer's board to seven directors and appoint the Reporting Person and others to the Issuer's board.

As part of the Transaction, the Reporting Entities, among others, entered into a Registration Rights Agreement (the "**Registration Rights Agreement**") with the Issuer. The Registration Rights Agreement provides that as promptly as practicable following the closing, but no later than 150 days after the consummation of the Transaction, the Issuer will file a registration statement registering the resale of the shares of Common Stock received by Arq and other Subscribers. The Issuer will also use commercially reasonable efforts to have such registration statement declared effective as soon as practicable following the filing thereof.

The foregoing summary of the Registration Rights Agreement does not purport to be complete and is subject to, and qualified in its entirety by, the text of the Registration Rights Agreement, which is filed as Exhibit 1 to this Statement.

On February 1, 2023, the Issuer entered into a PIPE Investment agreement with, among else, the Reporting Entities. The PIPE Investment agreement is filed as Exhibit 2 to this Statement.

Item 7. Material to be Filed as Exhibits

Exhibit 1	Registration Rights Agreement
Exhibit 2	Form of PIPE Agreement
Exhibit 3	Joint Filing Agreement

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: March 9, 2023

/s/ McIntyre Julian Alexander
McIntyre Julian Alexander

Allard Services Limited

By: /s/ Victoria Anne Reynolds
Name: Victoria Anne Reynolds
Title: Director

Stannard Limited

By: /s/ Anthony John Doyle
Name: Anthony John Doyle
Title: Director

Exhibit 1

REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this "Agreement") is made as of February 1, 2023, by and between Advanced Emissions Solutions Inc., a Delaware corporation (the "Company"), and the persons listed on the attached Schedule A who are signatories to this Agreement (collectively, the "Investors" and each an "Investor"). Unless otherwise defined herein, capitalized terms used in this Agreement have the respective meanings ascribed to them in the Purchase Agreement (as defined below).

RECITALS

WHEREAS, concurrent herewith, the Company is entering into that certain Securities Purchase Agreement, dated as of February 1, 2023 (as may be amended or supplemented from time to time, the "Purchase Agreement"), among the Company and Arq Limited, a company incorporated under the laws of Jersey ("Arq"), whereby, among other things, the Company will purchase the equity interests of the subsidiaries of Arq (the "Purchased Interests") from Arq and Arq will sell the Purchased Interests to the Company in exchange for the issuance by ADES to Arq of (i) 3,814,864 shares of common stock of the Company, par value $0.001 per share (the "Common Stock") and (ii) 5,294,462 shares of Series A Convertible Preferred Stock, par value $0.001 per share, of Company (the "Series A Preferred Stock") (833,914 of which shares of Series A Preferred Stock are initially being deposited into an escrow account), on the terms and subject to the conditions set forth therein and in the ancillary agreements thereto (the "Transaction");

WHEREAS, concurrent herewith, the Company is entering into certain Subscription Agreements (the "Subscription Agreements" and each a "Subscription Agreement"), among the Company and certain of the Investors (such group, the "PIPE Investors" and each a "PIPE Investor"), whereby the PIPE Investors will subscribe for certain shares of Common Stock, on the terms and subject to the conditions set forth therein (the "PIPE Investment");

WHEREAS, pursuant to the terms of the Purchase Agreement and the Subscription Agreements, the Company and the Investors wish to provide for certain arrangements with respect to the registration of the Registrable Securities (as defined below) by the Company under the Securities Act (as defined below).

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth herein, and other consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereto agree as follows:

Section 1.
Definitions

1.1 Certain Definitions. In addition to the terms defined elsewhere in this Agreement, as used in this Agreement, the following terms have the respective meanings set forth below:

(a) "Commission" shall mean the Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

(b) "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(c) "Holder" means the record holder of any Registrable Securities that is an Investor or a permitted transferee of an Investor pursuant to Section 3.2.

(d) "Person" shall mean any individual, partnership, corporation, company, association, trust, joint venture, limited liability company, unincorporated organization, entity or division, or any government, governmental department or agency or political subdivision thereof.

(e) "Registrable Securities" shall mean (i) the shares of Common Stock received by the Investors in the Transaction and the PIPE Investment, (ii) the shares of Common Stock issuable upon conversion of the Series A Preferred Stock received by the Investors in the Transaction and (iii) any shares of Common Stock purchased by affiliates of Arq on the open market prior to the filing of the Registration Statement (as such term is defined below) that become "control securities" as such term is used under Rule 144 promulgated under the Securities Act. Any particular Registrable Securities shall cease to be Registrable Securities when (A) a registration statement with respect to the sale of such securities shall have been declared effective under the Securities Act and such securities shall have been disposed of in accordance with such registration statement, (B) such securities shall have been sold to the public pursuant to Rule 144 (or any successor provision) under the Securities Act or (C) such securities shall cease to be outstanding or (D) as to Registrable Securities held by an Arq Shareholder following a transfer permitted by Section 3.2 (other than an Arq Shareholder who is also an Investor), the date on which all Registrable Securities beneficially owned by such Arq Shareholder may be sold in a single sale pursuant to any section of Rule 144 under the Securities Act (or any similar provision then in force under the Securities Act) without any volume limitations.

(f) The terms "register," "registered" and "registration" shall refer to a registration effected by preparing and filing a Registration Statement in compliance with the Securities Act, and such Registration Statement becoming effective under the Securities Act.

(g) "Rule 144" shall mean Rule 144 as promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(h) "Securities Act" shall mean the Securities Act of 1933, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

Section 2.
Resale Registration Rights

2.1 Resale Registration Rights.

(a) The Company agrees that, as promptly as reasonable practicable after the consummation of the Transaction, but in any event within 150 calendar days after such consummation, the Company will file with the Commission (at the Company's sole cost and expense) a registration statement registering the resale of the Registrable Securities (the "Registration Statement"), and the Company shall use its commercially reasonable efforts to have the Registration Statement declared effective as soon as practicable after the filing thereof, but no later than the earlier of (i) the 210th calendar day (or 270th calendar day if the Commission notifies the Company that it will "review" the Registration Statement) following the closing of the Transaction and (ii) the 10th Business Day after the date the Company is notified (orally or in writing, whichever is earlier) by the Commission that the Registration Statement will not be "reviewed" or will not be subject to further review (such earlier date, the "Effective Date"); provided, however, that the Company's obligations to include the Registrable Securities held by a Holder in the Registration Statement are contingent upon such Holder furnishing in writing to the Company such information regarding such Holder, the securities of the Company held by such Holder and the intended method of disposition of the Registrable Securities as shall be reasonably requested by the Company to effect the registration of the applicable Registrable Securities, and the Holder shall execute such documents in connection with such registration as the Company may reasonably request that are customary of a selling stockholder in similar situations, including providing that the Company shall be entitled to postpone and suspend the effectiveness or use of the Registration Statement for such applicable selling stockholder during any applicable and customary blackout or similar period or as permitted hereunder. Notwithstanding the foregoing, if the Commission prevents the Company from including any or all of the shares proposed to be registered under the Registration Statement due to limitations on the use of Rule 415 of the Securities Act for the resale of the Registrable Securities by the applicable stockholders or otherwise, such Registration Statement shall register for resale such number of Registrable Securities which is equal to the maximum number of Registrable Securities as is permitted by the Commission. In such event, the number of Registrable Securities to be registered for each selling stockholder named in the Registration Statement shall be reduced pro rata among all such selling stockholders. Upon notification by the Commission that the Registration Statement has been declared effective by the Commission, within one (1) Business Day thereafter, the Company shall file the final prospectus under Rule 424 of the Securities Act. In no event shall any Holder be identified as a statutory underwriter in the Registration Statement unless requested by the Commission; provided, that if the Commission requests that a Holder be identified as a statutory underwriter in the Registration Statement, such Holder will have an opportunity to withdraw from the Registration Statement. For purposes of clarification, any failure by the Company to file the Registration Statement within 150 calendar days after the consummation of the Transaction or to effect such Registration Statement by the Effective Date shall not otherwise relieve the Company of its obligations to file or effect the Registration Statement as set forth above in this Section 2.1(a).

(b) Notwithstanding anything to the contrary in this Agreement, the Company shall be entitled to delay or postpone the effectiveness of the Registration Statement, and from time to time to require the Holder not to sell under the Registration Statement or to suspend the effectiveness thereof, if the negotiation or consummation of a transaction by the Company or its subsidiaries is pending or an event has occurred, which negotiation, consummation or event the Company reasonably believes, upon the advice of legal counsel, would require additional disclosure by the Company in the Registration Statement of material information that the Company has a bona fide business purpose for keeping confidential and the Company reasonably believes, upon the advice of legal counsel, that non-disclosure of such information in the Registration Statement would cause the Registration Statement to fail to comply with applicable disclosure requirements (each such circumstance, a "Suspension Event"); provided, however, that the Company may not delay or suspend the Registration Statement on more than three (3) occasions or for more than sixty (60) total calendar days, in each case during any twelve-month period. Upon receipt of any written notice from the Company of the happening of any Suspension Event during the period that the Registration Statement is effective or if as a result of a Suspension Event the Registration Statement or related prospectus contains any untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made (in the case of the prospectus) not misleading, each Holder agrees that (i) it will immediately discontinue offers and sales of the Registrable Securities under the Registration Statement (excluding, for the avoidance of doubt, sales conducted pursuant to Rule 144) until such Holder receives copies of a supplemental or amended prospectus (which the Company agrees to promptly prepare) that corrects the misstatement(s) or omission(s) referred to above and receives notice that any post-effective amendment has become effective or unless otherwise notified by the Company that it may resume such offers and sales, and (ii) it will maintain the confidentiality of any information included in such written notice delivered by the Company unless otherwise required by law or subpoena. If so directed by the Company, each Holder will deliver to the Company or, in such Holder's sole discretion destroy, all copies of the prospectus covering the Registrable Securities in the Holder's possession; provided, however, that this obligation to deliver or destroy all copies of the prospectus covering the Registrable Securities shall not apply (1) to the extent the Holder is required to retain a copy of such prospectus (x) in order to comply with applicable legal, regulatory, self-regulatory or professional requirements or (y) in accordance with a bona fide pre- existing document retention policy or (2) to copies stored electronically on archival servers as a result of automatic data back-up. Notwithstanding anything to the contrary set forth in this Section, without the prior written approval of the Holder, the Company shall not, when advising the Holder of any of the events set forth in this Section, provide the Holder with any material, non-public information regarding the Company other than to the extent that providing notice to the Holder of the occurrence of such events listed above may constitute material, non-public information regarding the Company.

2.2 Sales and Underwritten Offerings of the Registrable Securities.

(a) If the Company proposes to conduct an Underwritten Offering for its own account or for the account of any other person, each Specified Investor shall have the right to include in such Underwritten Offering all or part of the Registrable Securities held by such Specified Investor, subject to the provisions of Section 2.2(b) and solely to the extent such Registrable Securities can be sold pursuant to the Registration Statement or a Replacement Registration Statement (the "Piggyback Rights"). Except as otherwise provided in Section 2.3, to the extent a Specified Investor is entitled to Piggyback Rights hereunder, the Company shall promptly, but in no event less than five Business Days prior to any such Underwritten Offering (or, in the event of an Underwritten Offering that will be executed as an "overnight" or "bought" deal, no less than two Business Days prior to the commencement of such Underwritten Offering), give written notice to such Specified Investor (so long as such Specified Investor continues to hold at least 50% of the sum of (x) the shares of Common Stock issued to such Specified Investor in the PIPE Investment and (y) any shares of Common Stock or shares of Series A Preferred Stock (including any shares of Common Stock issued upon conversion thereof) distributed to such Specified Investor by Arq) of its intention to conduct such Underwritten Offering. If a Specified Investor is entitled to Piggyback Rights hereunder and wishes to exercise its Piggyback Rights it shall deliver to the Company a written notice (i) within two Business Days after the receipt of the Company's notice or (ii) at least one day prior to the first use of a preliminary prospectus in connection with such Underwritten Offering, whichever is earlier. A Specified Investor's written notice shall specify the number of Registrable Securities intended to be disposed of by such Specified Investor. If a Specified Investor is entitled to Piggyback Rights hereunder, the Company will, subject to Section 2.2(b), use its commercially reasonable efforts to effect the registration under the Securities Act of, and to include in the Underwritten Offering, all Registrable Securities which the Company has been so requested to register by the applicable Specified Investor, to the extent requisite to permit the disposition of the Registrable Securities so to be registered and sold; provided that if, at any time after giving written notice of its intention to conduct the Underwritten Offering and prior to the commencement of the Underwritten Offering, the Company shall determine for any reason not to proceed with the Underwritten Offering, the Company may, at its election, give written notice of such determination to the applicable Specified Investor and, thereupon, shall be relieved of its obligation to register any Registrable Securities in connection with such Underwritten Offering. Each Specified Investor electing to sell any shares in such Underwritten Offering must sell its Registrable Securities to the underwriters selected by the Company on the same terms and conditions as apply to the Company (including entering into an underwriting agreement in customary form with the underwriter or underwriters selected for such offering by the Company), as may be customary or appropriate in for offerings of the type being conducted, except that indemnification and contribution by and of the Specified Investors shall be consistent with this Agreement, mutatis mutandis. For purposes of this Agreement, (i) "Underwritten Offering" means an offering (including an offering pursuant to the Registration Statement) in which shares of Common Stock are sold to an underwriter on a firm commitment basis for reoffering to the public or an offering that is a "bought deal" with one or more investment banks and (ii) "Specified Investor" means Arq and any other Investor who both (i) either (1) has an Aggregate Subscription Amount (as such term is defined in the Subscription Agreements) in the PIPE Investment of at least $2,000,000 or (2) is an Affiliate of the Company on the applicable date and (ii) continues to hold at least 50% of the sum of (x) the shares of Common Stock issued to such Investor in the PIPE Investment and (y) any shares of Common Stock or Series A Preferred Stock (including any shares of Common Stock issued upon conversion thereof) distributed to such Investor by Arq; provided that the holdings of each of York Global Finance 48, LLC, York Global Finance 47, LLC, YGF 100 LP, York European Distressed Credit Fund II LP, Dinan Management LP, Schwartz Management LLC, York Distressed Asset Fund IV LP and Exuma Capital LP and each of their respective Affiliates (collectively, the "York Parties") shall be aggregated for purposes of determining whether any York Party is a Specified Investor.

(b) If the managing underwriter in any Underwritten Offering determines in good faith that marketing factors require a limitation on the number of securities to be underwritten, the number of securities that may be included will be limited to the number of securities that, in the opinion of such underwriter, should be included, and the securities to be included in the underwriting shall be allocated, as follows: (i) first, to the Company, (ii) second, among Arq and the Specified Investors that elect to participate in such Underwritten Offering, and (iii) third, pro rata among any other Persons who have been or are granted registration rights after the date of this Agreement based on the number of securities validly requested to be included by such Persons.

2.3 Opt-Out Notice. Each Holder may deliver written notice (an "Opt-Out Notice") to the Company requesting that such Holder not receive notices from the Company otherwise required by this Agreement; provided, however, that such Holder may later revoke any such Opt-Out Notice in writing. Following receipt of an Opt-Out Notice from a Holder (unless subsequently revoked), (i) the Company shall not deliver any such notices to such Holder and such Holder shall no longer be entitled to the rights associated with any such notice and (ii) each time prior to such Holder's intended use of an effective Registration Statement, such Holder will notify the Company in writing at least two (2) Business Days in advance of such intended use, and if a notice of a Suspension Event was previously delivered (or would have been delivered but for the provisions of this Section 2.3) and the related suspension period remains in effect, the Company will so notify such Holder, within one (1) Business Day of such Holder's notification to the Company, by delivering to such Holder a copy of such previous notice of Suspension Event, and thereafter will provide such Holder with the related notice of the conclusion of such Suspension Event immediately upon its availability.

2.4 Fees and Expenses. The Company shall be responsible for all expenses incurred by the Company in connection with registrations, filings, or qualifications pursuant to this Agreement, including all registration, filing, and qualification fees; printers' and accounting fees; and fees and disbursements of counsel for the Company. Except as otherwise provided in Section 2.8 hereof, the Company shall not be responsible for legal fees incurred by Holders in connection with the exercise of such Holders' rights hereunder. In addition, the Company shall not be responsible for any "Selling Expenses," which means all underwriting fees, discounts and selling commissions and transfer taxes allocable to the sale of the Registrable Securities, or expenses incurred by a Holder in connection with delivering any applicable certifications or legal opinions.

2.5 Registration Procedures. In the case of the registration, qualification, exemption or compliance effected by the Company pursuant to this Agreement, the Company shall, upon reasonable request, inform the Holders as to the status of such registration, qualification, exemption and compliance. At its expense the Company shall:

(a) except for such times as the Company is permitted hereunder to suspend the use of the prospectus forming part of a Registration Statement, use its commercially reasonable efforts to keep such registration, and any qualification, exemption or compliance under state securities laws which the Company determines to obtain, continuously effective with respect to the each Holder, and to keep the applicable Registration Statement or any subsequent shelf registration statement free of any material misstatements or omissions, until the earlier of the following: (1) each Holder ceases to hold any Registrable Securities or (2) the date all Registrable Securities held by all Holders may be sold without restriction under Rule 144 promulgated under the Securities Act, including without limitation, any volume and manner of sale restrictions which may be applicable to affiliates under Rule 144 promulgated under the Securities Act and without the requirement for the Company to be in compliance with the current public information required under Rule 144(c)(1) or Rule 144(i)(2), as applicable, and (3) two years from the Effective Date of the Registration Statement.

(b) advise each Holder within five (5) Business Days:

(i) when a Registration Statement or any amendment thereto has been filed with the Commission and when such Registration Statement or any post-effective amendment thereto has become effective;

(ii) of any request by the Commission for amendments or supplements to the Registration Statement or the prospectus included therein or for additional information;

(iii) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for such purpose;

(iv) of the receipt by the Company of any notification with respect to the suspension of the qualification of the Registrable Securities included therein for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; and

(v) subject to the provisions in this Agreement, of the occurrence of any event that requires the making of any changes in the Registration Statement or prospectus so that, as of such date, the statements therein are not misleading and do not omit to state a material fact required to be stated therein or necessary to make the statements therein (in the case of a prospectus, in the light of the circumstances under which they were made) not misleading.

Notwithstanding anything to the contrary set forth herein, the Company shall not, when so advising a Holder of such events, provide such Holder with any material, nonpublic information regarding the Company other than to the extent that providing notice to such Holder of the occurrence of the events listed in (1) through (5) above constitutes material, nonpublic information regarding the Company;

(c) use its commercially reasonable efforts to obtain the withdrawal of any order suspending the effectiveness of the Registration Statement as soon as reasonably practicable;

(d) upon the occurrence of any event contemplated above, except for such times as the Company is permitted hereunder to suspend, and has suspended, the use of a prospectus forming part of a Registration Statement, the Company shall use its commercially reasonable efforts to as soon as reasonably practicable prepare a post-effective amendment to such Registration Statement or a supplement to the related prospectus, or file any other required document so that, as thereafter delivered to purchasers of the Registrable Securities included therein, such prospectus will not include any untrue statement of a material fact or omit to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading;

(e) use its commercially reasonable efforts to cause all Registrable Securities to be listed on each securities exchange or market, if any, on which the Common Stock issued by the Company have been listed;

(f) use its commercially reasonable efforts to take all other steps necessary to effect the registration of the Registrable Securities contemplated hereby and, for so long as a Holder holds Registrable Securities, to enable such Holder to sell the such Registrable Securities under Rule 144; and

(g) remove the Securities Act legend (or instruct its transfer agent to so remove such legend) from the Registrable Securities if (1) the Registration Statement has become effective under the Securities Act and the applicable holder notifies the Company that such Registrable Securities have been sold pursuant to the Registration Statement, (2) such Registrable Securities are sold or transferred pursuant to Rule 144 (if the transferor is not an Affiliate of the Company), or (3) such Registrable Securities are eligible for sale under Rule 144, without the requirement for the Company to be in compliance with the current public information required under Rule 144(c)(1) (or Rule 144(i)(2), if applicable) as to such securities and without volume or manner-of-sale restrictions. Each applicable holder agrees to provide the Company, its counsel and/or the transfer agent with evidence reasonably requested by it (including but not limited to an opinion of counsel reasonably acceptable to the Company) in order to cause the removal of the Securities Act legend (the "Representations"). If a legend is no longer required pursuant to the foregoing, the Company will no later than three (3) Business Days following the delivery by an applicable holder to the Company or the transfer agent (with notice to the Company) of a legended certificate or instrument representing Registrable Securities (endorsed or with stock powers attached, signatures guaranteed, and otherwise in form necessary to affect the reissuance and/or transfer) and the Representations, deliver or cause to be delivered to such applicable holder a certificate or instrument (as the case may be) representing such Registrable Securities that is free from all restrictive legends. Certificates for Registrable Securities free from all restrictive legends may be transmitted by the transfer agent to the applicable holders by crediting the account of the applicable holder's prime broker with DTC as directed by such applicable holder.

2.6 Replacement Registration Statement. Upon the expiration of the Registration Statement, at any time that an Investor is a Specified Investor, then on one occasion, Arq or holders of at least 30% of the Registrable Securities held by all of the Specified Investors shall be entitled to direct the Company to file a new Registration Statement to replace the Registration Statement that was filed pursuant to this Agreement (the "Replacement Registration Statement"). The Company shall promptly, and in any event within 45 days of such a request, file the Replacement Registration Statement, and the Company shall use its commercially reasonable efforts to have such Replacement Registration Statement declared effective and to keep effective the Replacement Registration Statement as if such replacement registration statement were the Registration Statement.

2.7 The Holders' Obligations.

(a) Compliance with Prospectus Delivery Requirements. The Holders covenant and agree that they shall comply with the prospectus delivery requirements of the Securities Act as applicable to them or an exemption therefrom in connection with sales of Registrable Securities pursuant to any Registration Statement filed by the Company pursuant to this Agreement.

(b) Notification of Sale of Registrable Securities. The Holders covenant and agree that they shall notify the Company following the sale of Registrable Securities to a third party as promptly as reasonably practicable, and in any event within thirty (30) days, following the sale of such Registrable Securities.

2.8 Indemnification.

(a) The Company shall, notwithstanding any termination of this Agreement, indemnify, defend and hold harmless each Holder (to the extent a seller under the Registration Statement), the officers, directors and agents of such Holder, and each person who controls such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) to the fullest extent permitted by applicable law, from and against any and all out-of-pocket losses, claims, damages, liabilities, costs (including, without limitation, reasonable attorneys' fees) and expenses (collectively, "Losses"), as incurred, that arise out of or are based upon (i) any untrue or alleged untrue statement of a material fact contained in the Registration Statement, any prospectus included in the Registration Statement, or any form of prospectus, or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein (in the case of any prospectus, or any form of prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading, , except to the extent, but only to the extent, that such untrue statements, alleged untrue statements, omissions or alleged omissions are based upon information regarding the Holder furnished in writing to the Company by the Holder expressly for use therein or the Holder has omitted a material fact from such information ; provided, however, that the indemnification contained in this Section 2.8 shall not apply to amounts paid in settlement of any Losses if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld, conditioned or delayed) nor shall the Company be liable for any Losses to the extent they arise out of or are based upon a violation which occurs (1) reliance upon and in conformity with written information furnished by the Holder, (2) in connection with any failure of such person to deliver or cause to be delivered a prospectus made available by the Company in a timely manner or (3) in connection with any offers or sales effected by or on behalf of the Holder in violation hereof. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of an indemnified party and shall survive the Transfer of the Registrable Securities by the Holder. For purposes of this Agreement, "Transfer" shall mean any direct or indirect transfer, redemption, disposition or monetization in any manner whatsoever, including, without limitation, through any derivative transactions.

(b) Each Holder shall, severally and not jointly with any other Holder, indemnify and hold harmless the Company, its directors, officers, agents and employees, and each person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), to the fullest extent permitted by applicable law, from and against all Losses, as incurred, (i) arising out of or based upon any untrue or alleged untrue statement of a material act contained in the Registration Statement, any prospectus included in the Registration Statement, or any form of prospectus, or in any amendment or supplement thereto or in any preliminary prospectus, or (ii) arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any prospectus, or any form of prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading, with respect to (i) and/or (ii), to the extent, but only to the extent, that such untrue or alleged untrue statements or omissions or alleged omissions are based upon information regarding a Holder furnished in writing to the Company by a Holder expressly for use therein. In no event shall the liability of an Investor be greater in amount than the dollar amount of the net proceeds received by such Investor upon the sale of the Registrable Securities giving rise to such indemnification obligation. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of an indemnified party and shall survive the Transfer of the Registrable Securities by the applicable Investor.

(c) Any person entitled to indemnification herein shall (1) give prompt written notice to the indemnifying party of any claim with respect to which it seeks indemnification (provided that the failure to give prompt notice shall not impair any person's right to indemnification hereunder to the extent such failure has not prejudiced the indemnifying party) and (2) permit such indemnifying party to assume the defense of such claim with counsel reasonably satisfactory to the indemnified party. If such defense is assumed, the indemnifying party shall not be subject to any liability for any settlement made by the indemnified party without its consent (but such consent shall not be unreasonably withheld). An indemnifying party who elects not to assume the defense of a claim shall not be obligated to pay the fees and expenses of more than one (1) counsel for all parties indemnified by such indemnifying party with respect to such claim, unless in the reasonable judgment of any indemnified party a conflict of interest may exist between such indemnified party and any other of such indemnified parties with respect to such claim. No indemnifying party shall, without the consent of the indemnified party, consent to the entry of any judgment or enter into any settlement which cannot be settled in all respects by the payment of money (and such money is so paid by the indemnifying party pursuant to the terms of such settlement) or which settlement does not include as an unconditional term thereof the giving by the claimant or plaintiff to such indemnified party of a release from all liability in respect to such claim or litigation.

(d) If the indemnification provided under this Section 2.8 from the indemnifying party is unavailable or insufficient to hold harmless an indemnified party in respect of any Losses, then the indemnifying party, in lieu of indemnifying the indemnified party, shall contribute to the amount paid or payable by the indemnified party as a result of such Losses in such proportion as is appropriate to reflect the relative fault of the indemnifying party and the indemnified party, as well as any other relevant equitable considerations. The relative fault of the indemnifying party and indemnified party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact, was made by, or relates to information supplied by, such indemnifying party or indemnified party, and the indemnifying party's and indemnified party's relative intent, knowledge, access to information and opportunity to correct or prevent such action. The amount paid or payable by a party as a result of the Losses shall be deemed to include, subject to the limitations set forth above, any legal or other fees, charges or expenses reasonably incurred by such party in connection with any investigation or proceeding. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution pursuant to this Section 2.8 from any person who was not guilty of such fraudulent misrepresentation. Each indemnifying party's obligation to make a contribution pursuant to this Section 2.8 shall be several, not joint. In the case of the PIPE Investors, in no event shall the liability of the Investor be greater in amount than the dollar amount of the net proceeds received by the PIPE Investor upon the sale of the Registrable Securities purchased pursuant to the Subscription Agreement giving rise to such contribution obligation.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with an underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control; provided, however, that the failure of the underwriting agreement to provide for or address a matter provided for or addressed by the foregoing provisions shall not be a conflict between the underwriting agreement and the foregoing provisions.

2.9 Information. The Holders shall furnish to the Company such information regarding the Holders and the distribution proposed by the Holders as the Company may reasonably request and as shall be reasonably required in connection with any registration referred to in this Agreement. The Holders agree to, as promptly as practicable (and in any event prior to any sales made pursuant to a prospectus), furnish to the Company all information required to be disclosed in order to make the information previously furnished to the Company by the Holders not misleading. Notwithstanding anything to the contrary herein, the Company shall be under no obligation to name the Holders in any Registration Statement if the Holders have not provided the information required by this Section 2.9 with respect to the Holders as a selling securityholder in such Registration Statement or any related prospectus.

Section 3.
Miscellaneous

3.1 Amendment. This Agreement may not be amended, modified, supplemented or waived except by a written amendment signed by the Company and the Holders of a majority of the then outstanding Registrable Securities.

3.2 Transfer or Assignment of Registration Rights. The rights to cause the Company to register Registrable Securities granted to the Investors by the Company under Section 2 may be transferred or assigned by each Investor only to one or more transferee(s) or assignee(s) of such Registrable Securities who are (a) Affiliates of such Investor or, (b) to shareholders of Arq (each, an "Arq Shareholder"). The Company shall be given written notice prior to any said transfer or assignment, stating the name and address of each such transferee and identifying the securities with respect to which such registration rights are being transferred or assigned, and each such transferee shall assume in writing responsibility for its obligations of such Investor under this Agreement.

3.3 Injunctive Relief. The parties agree that irreparable damage would occur if any provision of this Agreement were not performed in accordance with the terms hereof or were otherwise breached, and accordingly, that the parties hereto shall be entitled to an injunction or injunctions to prevent breaches of this Agreement, without posting a bond or undertaking and without proof of damages, or to enforce specifically the performance of the terms and provisions of this Agreement in an appropriate court of competent jurisdiction as set forth in Section 3.4, in addition to any other remedy to which any party is entitled at law, in equity, in contract, in tort or otherwise.

3.4 Notices. Any notice or communication required or permitted hereunder shall be in writing and either delivered personally, emailed, sent by overnight mail via a reputable overnight carrier, or sent by certified or registered mail, postage prepaid, and shall be deemed to be given and received (i) when so delivered personally, (ii) when sent, with no mail undeliverable or other rejection notice, if sent by email, or (iii) five (5) Business Days after the date of mailing to (a) with respect to the Company, the address (including email address) below and (b) with respect to each Holder, the address (including email address) set forth below the name of such Holder on the signature pages hereto (or the applicable joinder hereto), or to such other address or addresses as such person may hereafter designate by notice given hereunder:

If to the Holders: At such Holder's address as set forth on Schedule A hereto

If to the Company:

Advanced Emissions Solutions, Inc.
8051 E. Maplewood Avenue, Suite 210
Greenwood Village, CO 80111
USA
Attn: Mr. Clay Smith
Email: Clay.Smith@ada-cs.com

with a required copy to (which copy shall not constitute notice):

Gibson, Dunn & Crutcher LLP
2001 Ross Avenue, Suite 2100
Dallas, TX 75201
USA
Attn: Jonathan M. Whalen
Email: JWhalen@gibsondunn.com

3.5 Governing Law; Jurisdiction; Venue; Jury Trial.

(a) This Agreement shall be governed by, and construed in accordance with, the Laws of the State of Delaware, regardless of the Laws that might otherwise govern under applicable principles of conflicts of laws. In any action or proceeding between any of the parties arising out of or relating to this Agreement or any of the transaction contemplated herein, each of the parties: (a) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the State of Delaware or, to the extent such court does not have subject matter jurisdiction, the United States District Court for the District of Delaware; (b) agrees that all claims in respect of such action or proceeding shall be heard and determined exclusively in accordance with clause (a) of this Section 3.4(a); (c) waives any objection to laying venue in any such action or proceeding in such courts; (d) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any party; and (e) agrees that service of process upon such party in any such action or proceeding shall be effective if notice is given in accordance with Section 3.3 of this Agreement.

(b) EACH PARTY ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS AGREEMENT IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES AND, THEREFORE, EACH SUCH PARTY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LEGAL ACTION ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY. EACH PARTY TO THIS AGREEMENT CERTIFIES AND ACKNOWLEDGES THAT (A) NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT SEEK TO ENFORCE THE FOREGOING WAIVER IN THE EVENT OF A LEGAL ACTION, (B) SUCH PARTY HAS CONSIDERED THE IMPLICATIONS OF THIS WAIVER, (C) SUCH PARTY MAKES THIS WAIVER VOLUNTARILY, AND (D) SUCH PARTY HAS BEEN INDUCED TO ENTER INTO THIS SUBSCRIPTION AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 7(L).

3.6 Successors and Assigns. Except as otherwise provided herein, this Agreement shall be binding upon, and inure to the benefit of the parties hereto and their successors and permitted assigns (to the extent permitted pursuant to Section 3.2), and the agreements, representations, warranties, covenants and acknowledgments contained herein shall be deemed to be made by, and be binding upon, such successors and permitted assigns.

3.7 Entire Agreement. This Agreement constitutes the entire agreement, and supersedes all other prior agreements, understandings, representations and warranties, both written and oral, among the parties, with respect to the subject matter hereof.

3.8 Severability. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions of this Agreement or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. If a final judgment of a court of competent jurisdiction declares that any term or provision of this Agreement is invalid or unenforceable, the parties hereto agree that the court making such determination shall have the power to limit such term or provision, to delete specific words or phrases or to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Agreement shall be valid and enforceable as so modified. In the event such court does not exercise the power granted to it in the prior sentence, the parties hereto agree to replace such invalid or unenforceable term or provision with a valid and enforceable term or provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable term or provision.

3.9 Counterparts. This Subscription Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Subscription Agreement (in counterparts or otherwise) by all parties hereto by electronic transmission in .PDF format shall be sufficient to bind the parties to the terms and conditions of this Subscription Agreement.

3.10 Term and Termination. This Agreement shall terminate upon the earlier of (i) the date each Holder ceases to hold any Registrable Securities, (ii) the date all Registrable Securities held by all Holders may be sold without restriction under Rule 144 promulgated under the Securities Act, including without limitation, any volume and manner of sale restrictions which may be applicable to affiliates under Rule 144 promulgated under the Securities Act and without the requirement for the Company to be in compliance with the current public information required under Rule 144(c)(1) or Rule 144(i)(2), as applicable, and (iii) two years from the Effective Date of the Registration Statement.

[*Remainder of Page Intentionally Left Blank; Signature Page Follows*]

IN WITNESS WHEREOF, the parties hereto have executed this Registration Rights Agreement effective as of the day, month and year first above written.

ADVANCED EMISSIONS SOLUTIONS, INC.

By: /s/ Greg Marken
Name: Greg Marken
Title: Chief Executive Officer

[Signature Page to Registration Rights Agreement]

Investor signature pages have been omitted.

[Signature Page to Registration Rights Agreement]

Exhibit 2

SUBSCRIPTION AGREEMENT

This SUBSCRIPTION AGREEMENT (this "Subscription Agreement") is entered into this [●] day of January, 2023, by and among Advanced Emissions Solutions, Inc., a Delaware corporation (the "Issuer"), Elbert Holdings, Inc., a Delaware corporation ("Elbert"), solely as it relates to the recitals hereof, and the undersigned ("Subscriber").

WHEREAS, the Subscriber previously entered into a Subscription Agreement with Elbert (the "Prior Subscription Agreement") for the purchase of shares of Elbert's common stock;

WHEREAS, the Subscriber and Elbert now acknowledge and agree that the obligation to purchase shares of Elbert's common stock under the Prior Subscription Agreement and all other obligations of such parties under the Prior Subscription Agreement are hereby terminated and the Prior Subscription Agreement is of no further force and effect as of the date hereof;

WHEREAS, concurrent herewith, the Issuer is entering into that certain Securities Purchase Agreement, dated as of January [●], 2023 (as may be amended or supplemented from time to time, the "Purchase Agreement"), among the Issuer and Arq Limited, a company incorporated under the laws of Jersey ("Arq"), whereby, among other things, the Issuer will purchase the Purchased Interests from Arq and Arq will sell the Purchased Interests to the Issuer, on the terms and subject to the conditions set forth therein and in the ancillary agreements thereto (the "Transaction") (capitalized terms used and not otherwise defined herein shall have the meanings given to them in the Purchase Agreement);

WHEREAS, in connection with and immediately following the Transaction, on the terms and subject to the conditions set forth in this Subscription Agreement, Subscriber desires to subscribe for and purchase from the Issuer the number of shares of the Issuer's common stock, par value $0.001 per share (the "Common Shares"), set forth on the signature page hereto (the "Acquired Shares"), at a per share purchase price equal to the Per Share Purchase Price (as defined below), and the Issuer desires to issue and sell to Subscriber the Acquired Shares in consideration of the payment of the Aggregate Subscription Amount set forth on the signature page hereto (the "Aggregate Purchase Price") by or on behalf of Subscriber to the Issuer at the Closing (as defined herein);

WHEREAS, contemporaneously with the execution and delivery of this Subscription Agreement, the parties hereto are executing and delivering a registration rights agreement (the "Registration Rights Agreement"), under which the Issuer has agreed to provide certain registration rights with respect to the Common Shares and Acquired Shares under the Securities Act of 1933, as amended (the "Securities Act") and the rules and regulations promulgated thereunder, and applicable state securities laws; and

WHEREAS, in connection with the Transaction, certain "accredited investors" (as such term is defined in Rule 501 under the Securities Act) or "qualified institutional buyers" (as defined in Rule 144A promulgated under the Securities Act) other than the Subscriber (each, an "Other Subscriber"), have entered into subscription agreements with the Issuer substantially similar to this Subscription Agreement, pursuant to which such Other Subscribers have agreed to subscribe for and purchase, and the Issuer has agreed to issue and sell to such Other Subscribers, on the Closing Date (as defined herein), Common Shares at the Per Share Purchase Price (the "Other Subscription Agreements").

NOW, THEREFORE, in consideration of the foregoing and the mutual representations, warranties and covenants, and subject to the conditions, herein contained, and intending to be legally bound hereby, the parties hereto hereby agree as follows:

1. Subscription. Subject to the terms and conditions hereof, Subscriber hereby irrevocably subscribes for and agrees to purchase, and the Issuer hereby agrees to issue and sell to Subscriber, upon the payment of the Aggregate Purchase Price, the Acquired Shares (such subscription and issuance, the "Subscription"). Subscriber understands and agrees that the Issuer reserves the right to accept or reject the Subscriber's subscription for the Acquired Shares for any reason or for no reason, in whole or in part, at any time prior to its acceptance by the Issuer, and the same shall be deemed to be accepted by the Issuer only when this Subscription Agreement is signed by a duly authorized person by or on behalf of the Issuer. In the event of rejection of the entire subscription by the Issuer, the Subscriber's payment hereunder will be returned promptly (but not later than two (2) Business Days thereafter) to the Subscriber along with this Subscription Agreement, and this Subscription Agreement shall have no force or effect.

Notwithstanding anything herein to the contrary, the Issuer understands that although the Acquired Shares are being acquired by the Subscriber pursuant to this Agreement, the Subscriber may arrange for substituted purchasers (the "Substituted Purchasers"), for up to twenty (20) Business Days after Closing, who will be "accredited investors" (as defined above), for a portion of the Acquired Shares in connection with the private placement of the Acquired Shares in the United States only in accordance with the provisions of this Agreement and, without limiting the foregoing, only to Substitute Purchasers that satisfy the applicable requirements set forth on Schedule A to this Agreement. Each Substituted Purchaser may purchase Acquired Shares directly from the Subscriber at the Per Share Purchase Price set forth above.

2. Purchase Price. For purposes of this Subscription Agreement, the "Per Share Purchase Price" shall be equal to $4.00.

3. Closing.

a. The closing of the Subscription contemplated hereby (the "Closing") shall occur simultaneously with the execution and delivery of this Subscription Agreement by the Issuer and the Subscriber (such date, the "Closing Date").

b. At the Closing:

(i) Subscriber shall deliver to the Issuer the Aggregate Purchase Price for the Acquired Shares by wire transfer of U.S. dollars in immediately available funds to the account specified by the Issuer in writing; and

(ii) The Issuer shall deliver to Subscriber the Acquired Shares against and upon payment by the Subscriber in book entry form, free and clear of any liens (other than those arising under state or federal securities laws), in the name of Subscriber (or its nominee in accordance with its delivery instructions) or to a custodian designated by Subscriber, as applicable. Each book entry for the Acquired Shares shall contain a legend in substantially the following form:

> THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAWS OF ANY STATE OR OTHER JURISDICTION, AND MAY NOT BE OFFERED, SOLD OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN EXEMPTION THEREFROM. THE HOLDER WILL NOTIFY ANY SUBSEQUENT PURCHASER OF THIS SECURITY FROM IT OF THE RESALE RESTRICTIONS REFERRED TO ABOVE.

4. Issuer Representations and Warranties. The Issuer represents and warrants that:

a. The Issuer has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with corporate power and authority to own, lease and operate its properties and conduct its business as presently conducted and to enter into, deliver and perform its obligations under this Subscription Agreement.

b. The Acquired Shares have been duly authorized and, when issued and delivered to Subscriber against full payment for the Acquired Shares in accordance with the terms of this Subscription Agreement, the Acquired Shares will be validly issued, fully paid and non-assessable and will not have been issued in violation of or subject to any preemptive or similar rights created under the Issuer's certificate of incorporation (as amended as of the Closing Date) and bylaws or under the laws of the State of Delaware.

c. This Subscription Agreement, the Other Subscription Agreements, the Purchase Agreement and the Registration Rights Agreement (collectively, the "Transaction Documents") have been duly authorized, executed and delivered by the Issuer and are enforceable against the Issuer in accordance with their respective terms, except as may be limited or otherwise affected by (i) bankruptcy, insolvency, fraudulent conveyance, reorganization, moratorium or other laws relating to or affecting the rights of creditors generally, and (ii) principles of equity, whether considered at law or equity.

d. Assuming the accuracy of Subscriber's representations and warranties in Section 5, the execution and delivery by the Issuer of the Transaction Documents, and the performance by the Issuer of its obligations under the Transaction Documents, including the issuance and sale of the Acquired Shares and the consummation of the other transactions contemplated herein, do not and will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any of the property or assets of the Issuer or its Subsidiaries (as defined below) pursuant to the terms of (i) any indenture, mortgage, deed of trust, loan agreement, lease, license or other agreement or instrument to which the Issuer is a party or by which the Issuer or its Subsidiaries is bound or to which any of the property or assets of the Issuer or is Subsidiaries is subject, which would have a material adverse effect on the business, properties, financial condition, stockholders' equity or results of operations of the Issuer and its Subsidiaries taken as a whole (a "Material Adverse Effect") or materially affect the validity of the Acquired Shares or the legal authority of the Issuer to comply in all material respects with the terms of this Subscription Agreement; (ii) the organizational documents of the Issuer; or (iii) any statute or any judgment, order, rule or regulation of any court or governmental agency or body, domestic or foreign, having jurisdiction over the Issuer or its Subsidiaries or any of their respective properties, in the case of each of the foregoing clauses (i)-(iii) that would have a Material Adverse Effect or materially affect the validity of the Acquired Shares or the legal authority of the Issuer to comply in all material respects with this Subscription Agreement. For purposes of this Subscription Agreement, "Subsidiaries" shall have the meaning ascribed to such term in the Purchase Agreement.

e. There are no securities or instruments issued by or to which the Issuer is a party containing anti-dilution or similar provisions that will be triggered by the issuance of (i) the Acquired Shares or (ii) the Common Shares to be issued pursuant to any Other Subscription Agreement, in each case, that have not been or will not be validly waived on or prior to the Closing Date.

f. The Issuer is not in default or violation (and no event has occurred which, with notice or the lapse of time or both, would constitute a default or violation) of any term, condition or provision of (i) the organizational documents of the Issuer, (ii) any loan or credit agreement, note, bond, mortgage, indenture, lease or other agreement, permit, franchise or license to which the Issuer is now a party or by which the Issuer's properties or assets are bound, or (iii) any statute or any judgment, order, rule or regulation of any court or governmental agency or body, domestic or foreign, having jurisdiction over the Issuer or any of its properties, except, in the case of clauses (ii) and (iii), for defaults or violations that have not had and would not be reasonably likely to have, individually or in the aggregate, a Material Adverse Effect.

g. Assuming the accuracy of Subscriber's representations and warranties in Section 5, the Issuer is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority, self-regulatory organization or other person in connection with the execution, delivery and performance by the Issuer of this Subscription Agreement (including, without limitation, the issuance of the Acquired Shares), other than (i) filings required by applicable state or federal securities laws, (ii) the filings required in accordance with Section 7(m), (iii) those notices and filings required by the Nasdaq Global Market (the "Stock Exchange"), which notices and filings have been made prior to the execution of this Agreement, and (iv) the failure of which to obtain would not be reasonably likely to have, individually or in the aggregate, a Material Adverse Effect or have a material adverse effect on the Issuer's ability to consummate the transactions contemplated hereby, including the sale and issuance of the Acquired Shares.

h. As of the date hereof, upon the closing of the Transaction but prior to the closing of the Subscription and the transactions contemplated by the Other Subscription Agreements, (i) the authorized capital stock of the Issuer consists of (A) 50,000,000 shares of preferred stock and (B) 100,000,000 Common Shares and (ii) 5,294,462 shares of preferred stock are issued and outstanding and 27,603,183 Common Shares are issued (including 4,618,146.00 of which are held in ADES' treasury) and 22,985,037 Common Shares are outstanding.

i. The issued and outstanding Common Shares are registered pursuant to Section 12(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and are listed for trading on the Stock Exchange. There is no suit, action, proceeding or investigation pending or, to the knowledge of the Issuer, threatened against the Issuer by the Stock Exchange or the U.S. Securities and Exchange Commission (the "Commission") with respect to any intention by such entity to deregister the Common Shares or prohibit or terminate the listing of the Common Shares on the Stock Exchange. The Issuer has taken no action that is designed to terminate the registration of the Common Shares under the Exchange Act.

j. Assuming the accuracy of Subscriber's representations and warranties set forth in Section 5, no registration under the Securities Act is required for the offer and sale of the Acquired Shares by the Issuer to Subscriber in the manner contemplated by this Subscription Agreement.

k. Neither the Issuer nor any person acting on its behalf has engaged or will engage in any form of general solicitation or general advertising (within the meaning of Regulation D of the Securities Act) in connection with any offer or sale of the Acquired Shares.

l. None of the forms, reports, statement, schedules, prospectuses, proxies, registration statements or other documents, if any, filed by the Issuer with the Commission since January 1, 2020 (the "SEC Documents") filed under the Exchange Act (except to the extent that information contained in any SEC Document has been superseded by a later timely filed SEC Document) contained, when filed or, if amended prior to the date of this Subscription Agreement, as of the date of such amendment with respect to those disclosures that are amended, any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, except that have not had and would not be reasonably likely to have, individually or in the aggregate, a Material Adverse Effect. As of the date hereof, there are no material outstanding or unresolved comments in comment letters from the Staff of the Commission with respect to any of the SEC Documents.

m. Except for such matters as have not had and would not be reasonably likely to have, individually or in the aggregate, a Material Adverse Effect, as of the date hereof, there is no (i) suit, action, proceeding or arbitration before a governmental authority or arbitrator pending, or, to the knowledge of the Issuer or its Subsidiaries, threatened against the Issuer or its Subsidiaries, (ii) judgment, decree, injunction, ruling or order of any governmental entity or arbitrator outstanding against the Issuer or its Subsidiaries or that has the effect of making consummation of the Subscription illegal or otherwise preventing or prohibiting consummation of the Subscription or (iii) governmental authority that shall have instituted or threatened in writing a proceeding seeking to impose any such prevention or prohibition.

n. None of the Issuer, its Subsidiaries, nor any person acting on their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would require registration of the issuance of any of the Acquired Shares under the Securities Act, whether through integration with prior offerings pursuant to Rule 502(a) of the Securities Act or otherwise.

5. Subscriber Representations and Warranties. Subscriber represents and warrants that:

a. If Subscriber is an entity, Subscriber has been duly formed or incorporated and is validly existing in good standing under the laws of its jurisdiction of incorporation or formation, with the requisite entity power and authority to enter into, deliver and perform its obligations under this Subscription Agreement.

b. This Subscription Agreement has been duly authorized, executed and delivered by Subscriber. This Subscription Agreement is enforceable against Subscriber in accordance with its terms, except as may be limited or otherwise affected by (i) bankruptcy, insolvency, fraudulent conveyance, reorganization, moratorium or other laws relating to or affecting the rights of creditors generally, and (ii) principles of equity, whether considered at law or equity.

c. The execution and delivery by Subscriber of this Subscription Agreement, and the performance by Subscriber of its obligations under this Subscription Agreement, including the purchase of the Acquired Shares and the consummation of the other transactions contemplated herein, will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any of the property or assets of Subscriber pursuant to the terms of (i) any indenture, mortgage, deed of trust, loan agreement, lease, license or other agreement or instrument to which Subscriber is a party or by which Subscriber is bound or to which any of the property or assets of Subscriber is subject, which would be reasonably likely to have a material adverse effect on the business, properties, financial condition, stockholders' equity or results of operations of Subscriber, taken as a whole (a "Subscriber Material Adverse Effect"), or materially affect the legal authority of Subscriber to comply in all material respects with the terms of this Subscription Agreement; (ii) the organizational documents of Subscriber; or (iii) any statute or any judgment, order, rule or regulation of any court or governmental agency or body, domestic or foreign, having jurisdiction over Subscriber or any of Subscriber's properties that would be reasonably likely to have a Subscriber Material Adverse Effect or materially affect the legal authority of Subscriber to comply in all material respects with this Subscription Agreement.

d. Subscriber (i) is a "qualified institutional buyer" (as defined in Rule 144A promulgated under the Securities Act) or an "accredited investor" (within the meaning of Rule 501(a) under the Securities Act), in each case, satisfying the applicable requirements set forth on Schedule A, (ii) is acquiring the Acquired Shares only for its own account and not for the account of others, or if Subscriber is subscribing for the Acquired Shares as a fiduciary or agent for one or more investor accounts, each owner of such account is an "accredited investor" (as defined above) and Subscriber has full investment discretion with respect to each such account, and the full power and authority to make the acknowledgements, representations and agreements herein on behalf of each owner of each such account, and (iii) is not acquiring the Acquired Shares with a view to, or for offer or sale in connection with, any distribution thereof in violation of the Securities Act or any other securities laws of the United States or any other jurisdiction. Subscriber has completed Schedule A following the signature page hereto and the information contained therein is accurate and complete.

e. Subscriber understands that the Acquired Shares are being offered in a transaction not involving any public offering within the meaning of the Securities Act and that the Acquired Shares have not been registered under the Securities Act or any other securities laws of the United States or any other jurisdiction. Subscriber acknowledges that it is acquiring its entire beneficial ownership interest in the Acquired Shares for Subscriber's own account and not with a view to any distribution of the Acquired Shares in any manner that would violate the securities laws of the United States or any other jurisdiction. Subscriber understands that the Acquired Shares may not be resold, Transferred (as defined herein), pledged or otherwise disposed of by Subscriber absent an effective registration statement under the Securities Act, except (i) to the Issuer or a subsidiary thereof, (ii) to non-U.S. persons pursuant to offers and sales that occur outside the United States within the meaning of Regulation S under the Securities Act, (iii) pursuant to Rule 144 promulgated under the Securities Act, absent a change in law, receipt of regulatory no-action relief or an exemption, provided that all of the applicable conditions thereof have been met, or (iv) pursuant to another applicable exemption from the registration requirements of the Securities Act (including without limitation sales conducted pursuant to Rule 144 promulgated under the Securities Act), and that any certificates or book entry records representing the Acquired Shares shall contain a legend to such effect. Subscriber acknowledges that the Acquired Shares will not immediately be eligible for resale pursuant to Rule 144 promulgated under the Securities Act. Subscriber understands and agrees that the Acquired Shares will be subject to transfer restrictions and, as a result of these transfer restrictions, Subscriber may not be able to readily resell the Acquired Shares and may be required to bear the financial risk of an investment in the Acquired Shares for an indefinite period of time. Subscriber understands that it has been advised to consult legal counsel prior to making any offer, resale, pledge or Transfer of any of the Acquired Shares. For purposes of this Subscription Agreement, "Transfer" shall mean any direct or indirect transfer, redemption, disposition or monetization in any manner whatsoever, including, without limitation, through any derivative transactions.

f. Subscriber understands and agrees that Subscriber is purchasing the Acquired Shares directly from the Issuer. Subscriber further acknowledges that there have been no representations, warranties, covenants and agreements made to Subscriber by the Issuer or any of its respective affiliates, or any of their respective subsidiaries, control persons, officers, directors, employees, partners, agents or representatives or any other person or entity, expressly or by implication, other than those representations, warranties, covenants and agreements of the Issuer included in this Subscription Agreement.

g. Subscriber's acquisition and holding of the Acquired Shares will not constitute or result in a non-exempt prohibited transaction under section 406 of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), section 4975 of the Internal Revenue Code of 1986, as amended (the "Code"), or any applicable similar law.

h. In making its decision to subscribe for and purchase the Acquired Shares, Subscriber represents that it has relied solely upon its own independent investigation. Without limiting the generality of the foregoing, Subscriber has not relied on any statements or other information provided by the Issuer or any of its respective affiliates, or any of their respective control persons, officers, directors, employees, partners, agents or representatives, concerning the Issuer or the Acquired Shares or the offer and sale of the Acquired Shares or Subscriber's decision to purchase the Acquired Shares. Subscriber acknowledges and agrees that Subscriber has received such information as Subscriber deems necessary in order to make an investment decision with respect to the Acquired Shares, including with respect to the Issuer and the Transaction. Subscriber represents and agrees that Subscriber and Subscriber's professional advisor(s), if any, have had the full opportunity to ask such questions, receive such answers and obtain such information as Subscriber and such Subscriber's professional advisor(s), if any, have deemed necessary to make an investment decision with respect to the Acquired Shares.

i. Subscriber became aware of this offering of the Acquired Shares solely by means of direct contact between Subscriber and the Issuer, and the Acquired Shares were offered to Subscriber solely by direct contact between Subscriber and the Issuer. Subscriber did not become aware of this offering of the Acquired Shares, nor were the Acquired Shares offered to Subscriber, by any other means. Subscriber acknowledges that the Issuer represents and warrants that the Acquired Shares (i) were not offered by any form of general solicitation or general advertising and (ii) are not being offered in a manner involving a public offering under, or in a distribution in violation of, the Securities Act, or any state securities laws.

j. Subscriber acknowledges that it is aware that there are substantial risks incident to the purchase and ownership of the Acquired Shares. Subscriber qualifies as a sophisticated investor and has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of an investment, both in general and with regard to transactions in, and investment strategies involving, securities, including Subscriber's investment in the Acquired Shares, and Subscriber has sought such accounting, legal and tax advice as Subscriber has considered necessary to make an informed investment decision.

k. Alone, or together with any professional advisor(s), Subscriber represents and acknowledges that Subscriber has adequately analyzed and fully considered the risks of an investment in the Acquired Shares and determined that the Acquired Shares are a suitable investment for Subscriber and that Subscriber is able at this time and in the foreseeable future to bear the economic risk of a total loss of Subscriber's investment in the Issuer. Subscriber acknowledges specifically that a possibility of total loss exists.

l. Subscriber understands and agrees that no federal or state agency has passed upon or endorsed the merits of the offering of the Acquired Shares or made any findings or determination as to the fairness of an investment in the Acquired Shares.

m. Neither the due diligence investigation conducted by Subscriber in connection with making its decision to acquire the Acquired Shares nor any representations and warranties made by Subscriber herein shall modify, amend or affect Subscriber's right to rely on the truth, accuracy and completeness of Issuer's representations and warranties contained herein.

n. Neither Subscriber nor any of its officers, directors, managers, managing members, general partners or any other person acting in a similar capacity or carrying out a similar function is (i) a person or entity named on the List of Specially Designated Nationals and Blocked Persons, the Executive Order 13599 List, the Foreign Sanctions Evaders List, or the Sectoral Sanctions Identification List, the Russia Related Sanctions Programs each of which is administered by the U.S. Treasury Department's Office of Foreign Assets Control ("OFAC") (collectively "OFAC Lists"), (ii) owned or controlled by, or acting on behalf of, a person, that is named on an OFAC List, (iii) organized, incorporated, established, located, resident or born in, or a citizen, national, or the government, including any political subdivision, agency, or instrumentality thereof, of, Cuba, Iran, North Korea, Syria, or the covered regions of Ukraine, including Crimea, the Donetsk People's Republic, and the Luhansk People's Republic, or any other country or territory embargoed or subject to comprehensive trade restrictions by the United States, the United Kingdom, the European Union or any European Union individual member state, (iv) a Designated National as defined in the Cuban Assets Control Regulations, 31 C.F.R. Part 515 or (v) a non-U.S. shell bank or providing banking services indirectly to a non-U.S. shell bank. Subscriber represents that if it is a financial institution subject to the Bank Secrecy Act (31 U.S.C. section 5311 et seq.) (the "BSA"), as amended by the USA PATRIOT Act of 2001 (the "PATRIOT Act"), and its implementing regulations (collectively, the "BSA/PATRIOT Act"), that Subscriber maintains policies and procedures reasonably designed to comply with applicable obligations under the BSA/PATRIOT Act. Subscriber also represents that it maintains policies and procedures reasonably designed to ensure compliance with OFAC-administered sanctions programs, including for the screening of its investors against the OFAC Lists. Subscriber further represents and warrants that it maintains policies and procedures reasonably designed to ensure that the funds held by Subscriber and used to purchase the Acquired Shares were legally derived. Subscriber agrees to provide law enforcement agencies, if requested thereby, such records as required by applicable law, provided that Subscriber is permitted to do so under applicable law.

o. If Subscriber is or is acting on behalf of (i) an employee benefit plan that is subject to Title I of ERISA, (ii) a plan, an individual retirement account or other arrangement that is subject to section 4975 of the Code, (iii) an entity whose underlying assets are considered to include "plan assets" of any such plan, account or arrangement described in clauses (i) and (ii) (each, an "ERISA Plan"), or (iv) an employee benefit plan that is a governmental plan (as defined in section 3(32) of ERISA), a church plan (as defined in section 3(33) of ERISA), a non-U.S. plan (as described in section 4(b)(4) of ERISA) or other plan that is not subject to the foregoing clauses (i), (ii) or (iii) but may be subject to provisions under any other federal, state, local, non-U.S. or other laws or regulations that are similar to such provisions of ERISA or the Code (collectively, "Similar Laws," and together with the ERISA Plans, the "Plans"), then Subscriber represents and warrants that (1) neither the Issuer, nor any of its respective affiliates (the "Transaction Parties") has provided investment advice or has otherwise acted as the Plan's fiduciary with respect to its decision to acquire and hold the Acquired Shares, and none of the Transaction Parties is or shall at any time be the Plan's fiduciary with respect to any decision to acquire and hold the Acquired Shares, and none of the Transaction Parties is or shall at any time be the Plan's fiduciary with respect to any decision in connection with Subscriber's investment in the Acquired Shares, and (2) its purchase of the Acquired Shares will not result in a non-exempt prohibited transaction under section 406 of ERISA or section 4975 of the Code, or any applicable Similar Law.

p. Subscriber has sufficient funds to pay the Aggregate Purchase Price pursuant to Section 3(b)(i).

6. Additional Agreements.

a. Subscriber hereby represents, warrants, covenants and agrees that, prior to the Closing Date, neither Subscriber nor any person or entity acting on behalf of Subscriber or pursuant to any understanding with Subscriber has or will engage in any Short Sales with respect to securities of the Issuer. For purposes of this Section 6, "Short Sales" shall include, without limitation, all "short sales" as defined in Rule 200 promulgated under Regulation SHO under the Exchange Act, and all types of direct and indirect stock pledges (other than pledges in the ordinary course of business as part of prime brokerage arrangements), forward sale contracts, options, puts, calls, swaps and similar arrangements (including on a total return basis), and sales and other transactions through non-U.S. broker dealers or foreign regulated brokers. The Issuer acknowledges and agrees that, notwithstanding anything herein to the contrary, the Acquired Shares may be pledged by Subscriber in connection with a bona fide margin agreement, provided such pledge shall be (i) pursuant to an available exemption from the registration requirements of the Securities Act or (ii) pursuant to, and in accordance with, a registration statement that is effective under the Securities Act at the time of such pledge, and Subscriber effecting a pledge of Acquired Shares shall not be required to provide the Issuer with any notice thereof; provided, however, that neither the Issuer nor their counsel shall be required to take any action (or refrain from taking any action) in connection with any such pledge, other than providing any such lender of such margin agreement with an acknowledgment that the Acquired Shares are not subject to any contractual prohibition on pledging or lock up, the form of such acknowledgment to be subject to review and comment by the Issuer in all respects.

b. The Issuer has not, and shall not, enter into any side letter or similar agreement with any Other Subscriber or any other investor in connection with such Other Subscriber's or such other investor's direct or indirect investment in the Issuer other than (i) the Purchase Agreement, and (ii) the Other Subscription Agreements. True and complete copies of the Other Subscription Agreements have been provided to the Subscriber. No Other Subscription Agreement included a purchase price per share that is lower than the Per Share Purchase Price or otherwise contains terms that are more favorable in any material respect to the subscriber thereunder than the terms of this Subscription Agreement are to the Subscriber. The Issuer shall not amend, modify or otherwise supplement any Other Subscription Agreements in any material respect following the date of this Subscription Agreement.

7. Miscellaneous.

a. Each of the Issuer and Subscriber is entitled to rely upon this Subscription Agreement and is irrevocably authorized to produce this Subscription Agreement or a copy hereof to any interested party in any administrative or legal proceeding or official inquiry with respect to the matters covered hereby to the extent required by law or by regulatory bodies.

b. Neither this Subscription Agreement nor any rights that may accrue to Subscriber hereunder (other than the Acquired Shares, if any) may be transferred or assigned.

c. All the agreements, representations and warranties made by each party hereto in this Subscription Agreement shall survive the Closing.

d. The Issuer may request from Subscriber such additional information as the Issuer may reasonably deem necessary to evaluate the eligibility of Subscriber to acquire the Acquired Shares, and Subscriber shall provide such information as may be reasonably requested, to the extent readily available and to the extent consistent with its internal policies and procedures; provided, that the Issuer agrees to keep any such information provided by Subscriber confidential.

e. This Subscription Agreement constitutes the entire agreement, and supersedes all other prior agreements, understandings, representations and warranties, both written and oral, among the parties, with respect to the subject matter hereof.

f. Except as otherwise provided herein, this Subscription Agreement shall be binding upon, and inure to the benefit of the parties hereto and their heirs, executors, administrators, successors, legal representatives, and permitted assigns, and the agreements, representations, warranties, covenants and acknowledgments contained herein shall be deemed to be made by, and be binding upon, such heirs, executors, administrators, successors, legal representatives and permitted assigns.

g. Any term or provision of this Subscription Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions of this Subscription Agreement or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. If a final judgment of a court of competent jurisdiction declares that any term or provision of this Subscription Agreement is invalid or unenforceable, the parties hereto agree that the court making such determination shall have the power to limit such term or provision, to delete specific words or phrases or to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Subscription Agreement shall be valid and enforceable as so modified. In the event such court does not exercise the power granted to it in the prior sentence, the parties hereto agree to replace such invalid or unenforceable term or provision with a valid and enforceable term or provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable term or provision.

h. This Subscription Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Subscription Agreement (in counterparts or otherwise) by all parties hereto by electronic transmission in .PDF format shall be sufficient to bind the parties to the terms and conditions of this Subscription Agreement.

i. Each party shall pay all of its own expenses in connection with this Subscription Agreement and the transactions contemplated herein.

j. Any notice or communication required or permitted hereunder shall be in writing and either delivered personally, emailed, sent by overnight mail via a reputable overnight carrier, or sent by certified or registered mail, postage prepaid, and shall be deemed to be given and received (i) when so delivered personally, (ii) when sent, with no mail undeliverable or other rejection notice, if sent by email, or (iii) five (5) Business Days after the date of mailing to the address below or to such other address or addresses as such person may hereafter designate by notice given hereunder:

(i) if to Subscriber, to such address or addresses set forth on the signature page hereto;

(ii) if to the Issuer, to:

Advanced Emissions Solutions, Inc.
8051 E. Maplewood Avenue, Suite 210
Greenwood Village, CO 80111
USA
Attn:
Email:

with a required copy to (which copy shall not constitute notice):

Gibson, Dunn & Crutcher LLP
2001 Ross Avenue, Suite 2100
Dallas, TX 75201
USA
Attn:
Email:

k. This Subscription Agreement shall be governed by, and construed in accordance with, the Laws of the State of Delaware, regardless of the Laws that might otherwise govern under applicable principles of conflicts of laws. In any action or proceeding between any of the parties arising out of or relating to this Subscription Agreement or any of the transaction contemplated herein, each of the parties: (a) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the State of Delaware or, to the extent such court does not have subject matter jurisdiction, the United States District Court for the District of Delaware; (b) agrees that all claims in respect of such action or proceeding shall be heard and determined exclusively in accordance with clause (a) of this Section 7(k); (c) waives any objection to laying venue in any such action or proceeding in such courts; (d) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any party; and (e) agrees that service of process upon such party in any such action or proceeding shall be effective if notice is given in accordance with Section 7(j) of this Subscription Agreement.

l. EACH PARTY ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS SUBSCRIPTION AGREEMENT IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES AND, THEREFORE, EACH SUCH PARTY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LEGAL ACTION ARISING OUT OF OR RELATING TO THIS SUBSCRIPTION AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY. EACH PARTY TO THIS SUBSCRIPTION AGREEMENT CERTIFIES AND ACKNOWLEDGES THAT (A) NO REPRESENTATIVE OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT SEEK TO ENFORCE THE FOREGOING WAIVER IN THE EVENT OF A LEGAL ACTION, (B) SUCH PARTY HAS CONSIDERED THE IMPLICATIONS OF THIS WAIVER, (C) SUCH PARTY MAKES THIS WAIVER VOLUNTARILY, AND (D) SUCH PARTY HAS BEEN INDUCED TO ENTER INTO THIS SUBSCRIPTION AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 7(L).

m. Notwithstanding anything in this Subscription Agreement to the contrary, the Issuer shall not publicly disclose the name of Subscriber or any of its affiliates, or include the name of Subscriber or any of its affiliates in any press release or in any filing with the Commission or any regulatory agency or trading market, without the prior written consent of Subscriber, except (i) as required by the federal securities law (including any required beneficial ownership disclosure in any filing made by the Issuer with the Commission), (ii) in the filing of the form of this Subscription Agreement with the Commission and in the related Current Report on Form 8-K in a manner acceptable to the undersigned, (iii) in a press release or marketing materials of the Issuer in connection with the Transaction in a manner reasonably acceptable to Subscriber and (iv) to the extent such disclosure is required by law, at the request of the Staff of the Commission or regulatory agency or under the regulations of the Stock Exchange, in which case the Issuer shall provide Subscriber with prior written notice of such disclosure permitted under this subclause (iv).

n. This Subscription Agreement may not be amended, modified, supplemented or waived except by an instrument in writing, signed by each of the parties hereto.

o. The parties agree that irreparable damage would occur if any provision of this Subscription Agreement were not performed in accordance with the terms hereof or were otherwise breached, and accordingly, that the parties hereto shall be entitled to an injunction or injunctions to prevent breaches of this Subscription Agreement, without posting a bond or undertaking and without proof of damages, or to enforce specifically the performance of the terms and provisions of this Subscription Agreement in an appropriate court of competent jurisdiction as set forth in Section 7(l), in addition to any other remedy to which any party is entitled at law, in equity, in contract, in tort or otherwise.

[*Signature pages follow.*]

IN WITNESS WHEREOF, the Issuer has executed or caused this Subscription Agreement to be executed by its duly authorized representative as of the date first written above.

ADVANCED EMISSIONS SOLUTIONS, INC.

By: _____
Name:
Title:

IN WITNESS WHEREOF, and solely as it relates to the recitals of this Subscription Agreement, the undersigned has executed or caused this Subscription Agreement to be executed by its duly authorized representative as of the date first written above.

ELBERT HOLDINGS, INC.

By: _____
Name:
Title:

IN WITNESS WHEREOF, the Subscriber has executed or caused this Subscription Agreement to be executed by its duly authorized representative as of the date set forth below.

Name of Subscriber:

State/Country of Formation or Domicile:

By: _____
Name: _____
Title: _____

Name in which Shares are to be registered (if different):

Date: _____, 2023

Subscriber EIN:

Business Address-Street:

Mailing Address-Street (if different):

City, State, Zip:

City, State, Zip:

Attn: _____

Attn: _____

Telephone No.:

Telephone No.:

Facsimile No.:

Facsimile No.:

Number of Common Shares subscribed for:
[●]

Aggregate Subscription Amount: $

You must pay the Aggregate Subscription Amount by wire transfer of United States dollars in immediately available funds to the account previously specified by the Issuer in writing

Exhibit 3

JOINT FILING AGREEMENT

In accordance with Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended, the undersigned agree that only one statement containing the information required by Schedule 13D and any further amendments thereto needs to be filed with respect to the beneficial ownership by each of the undersigned relating to the shares of Common stock, par value $0.001 per share, of Advanced Emissions Solutions, Inc., and further agree that this Joint Filing Agreement be included as an exhibit to the Schedule 13D, provided that, as contemplated by Section 13d-1(k)(1)(ii), no person shall be responsible for the completeness or accuracy of the information concerning any other person making the filing, unless such person knows or has reason to believe that such information is inaccurate. This Agreement as to Joint Filing may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

Dated: March 9, 2023

/s/ McIntyre Julian Alexander
McIntyre Julian Alexander

Allard Services Limited

By: /s/ Victoria Anne Reynolds
Name: Victoria Anne Reynolds
Title: Director

Stannard Limited

By: /s/ Anthony John Doyle
Name: Anthony John Doyle
Title: Director