

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4670174

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST
CONVEYING PARTY DATA	
Name	Execution Date
FAIRMOUNT SANTROL INC.	10/31/2017
RECEIVING PARTY DATA	
Name:	BARCLAYS BANK PLC
Street Address:	745 SEVENTH AVENUE
Internal Address:	27TH FLOOR
City:	NEW YORK
State/Country:	NEW YORK
Postal Code:	10019
PROPERTY NUMBERS Total: 14	
Property Type	Number
Patent Number:	5990051
Patent Number:	6380138
Patent Number:	7490667
Patent Number:	7244492
Patent Number:	7135231
Patent Number:	8852682
Patent Number:	7647964
Patent Number:	7763316
Patent Number:	8754147
Patent Number:	8697185
Patent Number:	7275643
Application Number:	62396960
Application Number:	15708957
Application Number:	62473677
CORRESPONDENCE DATA	
Fax Number:	(212)751-4864
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	212-906-1216

Email: angela.amaru@lw.com
Correspondent Name: LATHAM & WATKINS LLP C/O ANGELA M. AMARU
Address Line 1: 885 THIRD AVENUE
Address Line 4: NEW YORK, NEW YORK 10022

ATTORNEY DOCKET NUMBER: 039269-0165

NAME OF SUBMITTER: ANGELA M. AMARU

SIGNATURE: /S/ Angela M. Amaru

DATE SIGNED: 11/02/2017

Total Attachments: 6

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PATENT SECURITY AGREEMENT

This **PATENT SECURITY AGREEMENT**, dated as of November 1, 2017 (as it may be amended, restated, supplemented or otherwise modified from time to time, this “Agreement”), is made by the entities identified as grantors on the signature pages hereto (collectively, the “Grantors”) in favor of Barclays Bank PLC as collateral agent (in such capacity, together with its successors and permitted assigns, the “Collateral Agent”) for the Secured Parties.

WHEREAS, the Grantors are party to the Pledge and Security Agreement dated as of November 1, 2017 (the “Pledge and Security Agreement”) between the Grantors and the other grantors party thereto and the Collateral Agent pursuant to which the Grantors granted a security interest to the Collateral Agent in the Patent Collateral (as defined below) and are required to execute and deliver this Agreement.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Grantors hereby agree with the Collateral Agent as follows:

SECTION 1. Defined Terms

Unless otherwise defined herein, terms defined in the Pledge and Security Agreement and used herein have the meaning given to them in the Pledge and Security Agreement.

SECTION 2. Grant of Security Interest

Each Grantor hereby grants to the Collateral Agent, for the benefit of the Secured Parties, a security interest in and continuing lien on all of such Grantor’s right, title and interest in, to and under the following, in each case whether now owned or existing or hereafter acquired, developed, created or arising and wherever located (collectively, the “Patent Collateral”): (i) each patent and patent application listed in Schedule A attached hereto, (ii) all reissues, divisions, continuations, continuations-in-part, extensions, renewals, and reexaminations thereof, (iii) all improvements thereto, (iv) the right to sue or otherwise recover for any past, present and future infringement or other violation thereof, (v) all Proceeds of the foregoing, including, without limitation, license fees, royalties, income, payments, claims, damages, and proceeds of suit now or hereafter due and/or payable with respect thereto, and (vi) all other rights of any kind accruing thereunder or pertaining thereto throughout the world.

SECTION 3. Security Agreement

The security interest granted pursuant to this Agreement is granted in conjunction with the security interest granted to the Collateral Agent for the Secured Parties pursuant to the Pledge and Security Agreement, and the Grantors hereby acknowledge and affirm that the rights and remedies of the Collateral Agent with respect to the security interest in the Patent Collateral made and granted hereby are more fully set forth in the Pledge and Security Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein. In the event that any provision of this Agreement is deemed to conflict with the Pledge and Security Agreement, the provisions of the Pledge and Security Agreement shall control.

SECTION 4. TERMINATION

Upon the Payment in Full of the Secured Obligations in accordance with Section 9.08(d) of the Credit Agreement and termination of the Pledge and Security Agreement, the Collateral Agent shall execute, acknowledge and deliver to the Grantors a written instrument in recordable

form releasing the collateral pledge, grant, assignment, lien and security interest in the Patent Collateral under this Agreement.

SECTION 5. GOVERNING LAW

THIS AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER AND ALL CLAIMS AND CONTROVERSIES ARISING OUT OF THE SUBJECT MATTER HEREOF WHETHER SOUNDING IN CONTRACT LAW, TORT LAW OR OTHERWISE SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICTS OF LAW PROVISIONS THAT WOULD RESULT IN THE APPLICATION OF ANY OTHER LAW (OTHER THAN ANY MANDATORY PROVISIONS OF LAW RELATING TO THE LAW GOVERNING PERFECTION AND THE EFFECT OF PERFECTION OF THE SECURITY INTEREST GRANTED HEREBY).

SECTION 6. COUNTERPARTS

This Agreement may be executed in one or more counterparts and by different parties hereto in separate counterparts, each of which when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument.

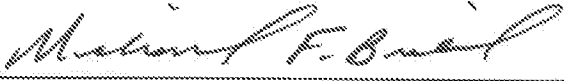
SECTION 7. INTERCREDITOR AGREEMENT

Notwithstanding anything herein to the contrary, the lien and security interest granted to the Collateral Agent pursuant to this Agreement and the exercise of any right or remedy by the Collateral Agent hereunder are subject to the provisions of the Intercreditor Agreement, dated as of November 1, 2017 (as amended, restated, supplemented or otherwise modified from time to time, the "Intercreditor Agreement"), among FMSA Inc. and the other Grantors, PNC Bank, National Association, as ABL Collateral Agent and Barclays Bank PLC, as Fixed Asset Collateral Agent and certain other persons party or that may become party thereto from time to time. In the event of any conflict between the terms of the Intercreditor Agreement and this Agreement, the terms of the Intercreditor Agreement shall govern and control.

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IN WITNESS WHEREOF, each Grantor has caused this Agreement to be executed and delivered by its duly authorized officer as of the date first set forth above.

FAIRMOUNT SANTROL INC.

By: 
Name: Michael F. Biehl
Title: Executive Vice President, Chief Financial Officer, Assistant Secretary and Treasurer

SELF-SUSPENDING PROPPANT LLC

By: 
Name: Michael F. Biehl
Title: Executive Vice President, Chief Financial Officer, Assistant Secretary and Treasurer

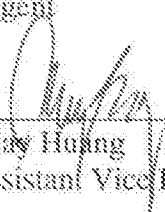
TECHNISAND, INC.

By: 
Name: Michael F. Biehl
Title: Executive Vice President, Chief Financial Officer, Assistant Secretary and Treasurer

Accepted and Agreed:

BARCLAYS BANK PLC,
as Collateral Agent

By: _____


Name: Moy Huiing

Title: Assistant Vice President

[Signature Page to Fairmount Patent Security Agreement]

PATENT
REEL: 044014 FRAME: 0762

SCHEDULE A
to
PATENT SECURITY AGREEMENT
PATENTS AND PATENT APPLICATIONS

Title	Grantor	Application No.	Filing Date	Patent No.	Issue Date
PROPPANT CONTAINING BONDABLE PARTICLES AND REMOVABLE PARTICLES	TechniSand, Inc.	09/129,063	04-Aug-1998	6,114,410	05-Sep-2000
PROPPANT CONTAINING BONDABLE PARTICLES AND REMOVABLE PARTICLES	TechniSand, Inc.	09/616,648	14-Jul-2000	6,328,105	11-Dec-2001
INJECTION MOLDED DEGRADABLE CASING PERFORATION BALL SEALERS	TechniSand, Inc. and Fairmount Santrol Inc.	09/055,549	06-Apr-1998	5,990,051	23-Nov-1999
INJECTION MOLDED DEGRADABLE CASING PERFORATION BALL SEALERS	Fairmount Santrol Inc.	09/444,901	22-Nov-1999	6,380,138	30-Apr-2002
PROPPANTS WITH SOLUBLE COMPOSITE COATINGS	Fairmount Santrol Inc.	11/541,874	02-Oct-2006	7,490,667	17-Feb-2009
SOLUBLE FIBERS FOR USE IN RESIN COATED PROPPANT	Fairmount Santrol Inc.	10/793,429	04-Mar-2004	7,244,492	17-Jul-2007
DOWNHOLE CHEMICAL DELIVERY SYSTEM FOR OIL AND GAS WELLS	TechniSand, Inc.	10/195,989	16-Jul-2002	7,049,272	23-May-2006
PROCESS FOR INCREMENTAL COATING OF PROPPANTS FOR HYDRAULIC FRACTURING AND PROPPANTS PRODUCED THEREFROM	Fairmount Santrol Inc.	10/611,200	01-Jul-2003	7,135,231	14-Nov-2006
PROCESS FOR INCREMENTAL COATING OF PROPPANTS FOR HYDRAULIC FRACTURING AND PROPPANTS PRODUCED THEREFROM	Fairmount Santrol Inc.	11/582,644	18-Oct-2006	8,852,682	07-Oct-2014
DEGRADABLE BALL SEALERS AND METHODS FOR USE IN WELL TREATMENT	Fairmount Santrol Inc.	11/640,813	18-Dec-2006	7,647,964	19-Jan-2010
COMPOSITION OF MATTER AND METHOD OF APPLICATION FOR ELIMINATION OF HEXAMETHYLENETETRAMINE IN SHELL SAND ENCAPSULATION	Fairmount Santrol Inc.	11/645,991	27-Dec-2006	7,763,316	27-Jul-2010
NO HEXA SHELL SAND	Fairmount Santrol Inc.	12/832,171	08-Jul-2010	8,754,147	17-Jun-2014
RAPID ACTION COATER	Fairmount Santrol Inc.	12/914,560	28-Oct-2010	8,697,185	15-Apr-2014
ENVIRONMENTALLY SAFE PROMOTER FOR USE IN FLOTATION SEPARATION OF CARBONATES FROM MINERALS	Fairmount Santrol Inc.	11//203,919	15-Aug-2005	7,275,643	02-Oct-2007
META CROSSLINKED BENZYL POLYMERS		15/228,189	04-Aug-2016	N/A	N/A

PROPPANTS FOR HYDRAULIC FRACTURING TECHNOLOGIES	Self-Suspending Proppant LLC	12/908,411	20-Oct-2010	N/A	N/A
PROPPANTS FOR HYDRAULIC FRACTURING TECHNOLOGIES	Self-Suspending Proppant LLC	15/339,986	01-Nov-2016	N/A	N/A
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	13/599,828	30-Aug-2012	9315721	19-Apr-2016
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	15/081,037	25-Mar-2016	9796916	24-Oct-2017
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	15/721,983	02-Oct-2017	N/A	N/A
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	13/838,806	15-Mar-2013	9297244	29-Mar-2016
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	15/078,371	23-Mar-2016	N/A	N/A
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	15/721,983	10-Feb-2017	N/A	N/A
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	14/958,112	12-Mar-2015	9,644,139	09-May-2017
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	14/197,596	05-Mar-2014	N/A	N/A
CALCIUM ION TOLERANT SELF-SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	14/631,946	26-Feb-2015	N/A	N/A
HARD WATER RESISTANT SELF SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	15/091,987	06-Apr-2016	N/A	N/A
SALT-TOLERANT SELF-SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	15/595,722	15-May-2017	N/A	N/A
AMPHOTERIC SELF-SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	62/240,611	13-Oct-2016	N/A	N/A
SELF-SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	15/782,066	12-Oct-2017	N/A	N/A
SELF-SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	US17/56287	12-Oct-2017	N/A	N/A
SELF-SUSPENDING PROPPANTS FOR HYDRAULIC FRACTURING	Self-Suspending Proppant LLC	15/340,000	01-Nov-2016	N/A	N/A
SELF-SUSPENDING PROPPANTS	Self-Suspending Proppant LLC	62/428,258	30-Nov-2016	N/A	N/A
SELF-SUSPENDING PROPPANT WITH SANDWICHED HYDROGEL COATING	Self-Suspending Proppant LLC	15/782,922	13-Oct-2017	N/A	N/A
DEGRADABLE BALL SEALERS WITH IMPROVED SOLUBILITY CHARACTERISTICS	Fairmount Santrol Inc.	62/396,960	20-Sep-2016	N/A	N/A
DEGRADABLE BALL SEALERS WITH IMPROVED SOLUBILITY CHARACTERISTICS	Fairmount Santrol Inc.	15/708,957	19-Sep-17	N/A	N/A
FLOWBACK RESISTANT PROPPANTS	Fairmount Santrol Inc.	62/473,677	20-Mar-17	N/A	N/A
IMPROVED SELF-SUSPENDING PROPPANTS MADE FROM POWDERED HYDROGEL-FORMING POLYMERS	Self-Suspending Proppant LLC	62/526,614	29-Jun-17	N/A	N/A