

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6448395

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
HONG SUN	08/30/2018
DONG SHEN	08/30/2018
PHILIP NGUYEN	08/30/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	HALLIBURTON ENERGY SERVICES, INC.
<b>Street Address:</b>	3000 N. SAM HOUSTON PARKWAY E.
<b>City:</b>	HOUSTON
<b>State/Country:</b>	TEXAS
<b>Postal Code:</b>	77032
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	17252072
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(214)200-0853
<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>	
<b>Phone:</b>	214-651-5000
<b>Email:</b>	ipdocketing@haynesboone.com
<b>Correspondent Name:</b>	HAYNES AND BOONE, LLP IP SECTION
<b>Address Line 1:</b>	2323 VICTORY AVENUE
<b>Address Line 2:</b>	SUITE 700
<b>Address Line 4:</b>	DALLAS, TEXAS 75219
<b>ATTORNEY DOCKET NUMBER:</b>	7523.1982US01
<b>NAME OF SUBMITTER:</b>	CANDY SANDERS
<b>SIGNATURE:</b>	/Candy Sanders/
<b>DATE SIGNED:</b>	12/14/2020
<b>Total Attachments: 9</b>	
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## ASSIGNMENT

WHEREAS, Hong SUN (an "ASSIGNOR") a citizen of the United States, residing at 2818 Fairhope Street, Houston, Texas, 77025, United States has developed and is the owner of certain inventions as embodied in and represented by the Intellectual Property, as defined below.

"Intellectual Property" shall collectively mean the technology developed by ASSIGNOR and generally titled:

### HYBRID FRACTURING TREATMENT WITH NATURAL GAS

as well as any application related thereto, including, without limitation, the application(s):

\_\_\_ of even date filed herewith;

X filed on August 29, 2018 and assigned application number PCT/US2018/048497.

WHEREAS, ASSIGNOR is desirous of assigning all of his right in the Intellectual Property to Halliburton Energy Services, Inc. ("ASSIGNEE"), a corporation, doing business at 3000 N. Sam Houston Parkway E. Houston, Texas 77032, United States of America.

NOW, THEREFORE, subject to the terms, conditions, covenants and provisions of this Assignment, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by each ASSIGNOR, the parties hereto, intending legally to be bound, agree as follows:

ASSIGNOR hereby sells, assigns and transfers to ASSIGNEE, its successors and assigns, said ASSIGNOR'S entire right, title, and interest in the Intellectual Property, including, without limitation, (i) all United States and foreign rights therein, whether patentable or not, and in and to aforesaid patents, patent applications and any divisions or continuations thereof, and any patents or similar registrations obtained for the Intellectual Property in the United States and foreign countries, or issuing out of said application or any such division or continuation thereof, and any reissues or extensions of any such patents, as well as all rights to claim priority to any of the foregoing and (ii) all causes of action, past, present, and future, for infringement, unfair competition or otherwise with respect to the Intellectual Property and all disclosures of ideas, whether or not patentable and all pending applications.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

ASSIGNOR hereby covenants that (i) he believes himself to be the original and first inventor of the subject matter of the Intellectual Property; (ii) he has the full right to convey his

entire right, title and interest in said Intellectual Property, and (iii) he has not executed and will not execute any agreement in conflict herewith.

ASSIGNOR further covenants that he will not undertake any activity to erode or challenge the ASSIGNEE'S rights in the Intellectual Property assigned hereunder.

ASSIGNOR further covenants that he will, at any time, upon ASSIGNEE'S request, execute and deliver any and all papers that may be necessary or desirable to perfect the title in the Intellectual Property, or any patents that may be granted therefore, in the ASSIGNEE, its successors and assigns, and if ASSIGNEE, or its assignee, desires to make a substitute, divisional or continuation application for said Intellectual Property, or to secure a reissue or extension of any Letters Patent, to file disclaimer relating thereto, or an application for a corresponding patent in any foreign country, or undertake any other act to secure and protect the ASSIGNEE'S rights in the Intellectual Property, that he will upon request, sign all papers, make all rightful oaths, and do all lawful acts requisite for the said purposes, but at the expense of the ASSIGNEE.

ASSIGNOR hereby acknowledges that the entire beneficial interest in the Intellectual Property and to which the above application relates is irrevocably vested in the ASSIGNEE including the right to make the application for protection in all countries abroad and to claim priority under the International Convention for such applications and hereby assents to the making of any such applications, with or without priority claims, and of any divisional application resulting therefrom.

ASSIGNOR further covenants that he will at all times communicate to the ASSIGNEE, its successors, assigns or legal representatives, all facts relating to the Intellectual Property, or the history thereof, known to him, and testify as the same in interferences or other litigation, when requested so to do.

Executed and delivered this 30<sup>th</sup> day of August 2018.

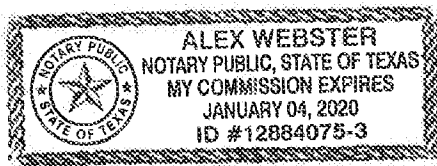
Inventor: *[Signature]*

State of Texas §

County of Tarrant §

BEFORE ME, the undersigned authority, personally appeared this 30<sup>th</sup> day of August 2018, Hong Sun, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he signed, sealed and delivered the said instrument as his free and voluntary act and deed for the uses and purposes therein set forth.

[SEAL]



*[Signature]*

Notary Public Alex Webster

My Commission Expires: 01/04/2020

## ASSIGNMENT

WHEREAS, Dong SHEN (an "ASSIGNOR") a citizen of the People's Republic of China, residing at 62 S. Piney Plains Circle, Houston, Texas, 77382, United States has developed and is the owner of certain inventions as embodied in and represented by the Intellectual Property, as defined below.

"Intellectual Property" shall collectively mean the technology developed by ASSIGNOR and generally titled:

### HYBRID FRACTURING TREATMENT WITH NATURAL GAS

as well as any application related thereto, including, without limitation, the application(s):

\_\_\_\_\_ of even date filed herewith;

X filed on August 29, 2018 and assigned application number PCT/US2018/048497.

WHEREAS, ASSIGNOR is desirous of assigning all of his right in the Intellectual Property to Halliburton Energy Services, Inc. ("ASSIGNEE"), a corporation, doing business at 3000 N. Sam Houston Parkway E. Houston, Texas 77032, United States of America.

NOW, THEREFORE, subject to the terms, conditions, covenants and provisions of this Assignment, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by each ASSIGNOR, the parties hereto, intending legally to be bound, agree as follows:

ASSIGNOR hereby sells, assigns and transfers to ASSIGNEE, its successors and assigns, said ASSIGNOR'S entire right, title, and interest in the Intellectual Property, including, without limitation, (i) all United States and foreign rights therein, whether patentable or not, and in and to aforesaid patents, patent applications and any divisions or continuations thereof, and any patents or similar registrations obtained for the Intellectual Property in the United States and foreign countries, or issuing out of said application or any such division or continuation thereof, and any reissues or extensions of any such patents, as well as all rights to claim priority to any of the foregoing and (ii) all causes of action, past, present, and future, for infringement, unfair competition or otherwise with respect to the Intellectual Property and all disclosures of ideas, whether or not patentable and all pending applications.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

ASSIGNOR hereby covenants that (i) he believes himself to be the original and first inventor of the subject matter of the Intellectual Property; (ii) he has the full right to convey his

entire right, title and interest in said Intellectual Property, and (iii) he has not executed and will not execute any agreement in conflict herewith.

ASSIGNOR further covenants that he will not undertake any activity to erode or challenge the ASSIGNEE'S rights in the Intellectual Property assigned hereunder.

ASSIGNOR further covenants that he will, at any time, upon ASSIGNEE'S request, execute and deliver any and all papers that may be necessary or desirable to perfect the title in the Intellectual Property, or any patents that may be granted therefore, in the ASSIGNEE, its successors and assigns, and if ASSIGNEE, or its assignee, desires to make a substitute, divisional or continuation application for said Intellectual Property, or to secure a reissue or extension of any Letters Patent, to file disclaimer relating thereto, or an application for a corresponding patent in any foreign country, or undertake any other act to secure and protect the ASSIGNEE'S rights in the Intellectual Property, that he will upon request, sign all papers, make all rightful oaths, and do all lawful acts requisite for the said purposes, but at the expense of the ASSIGNEE.

ASSIGNOR hereby acknowledges that the entire beneficial interest in the Intellectual Property and to which the above application relates is irrevocably vested in the ASSIGNEE including the right to make the application for protection in all countries abroad and to claim priority under the International Convention for such applications and hereby assents to the making of any such applications, with or without priority claims, and of any divisional application resulting therefrom.

ASSIGNOR further covenants that he will at all times communicate to the ASSIGNEE, its successors, assigns or legal representatives, all facts relating to the Intellectual Property, or the history thereof, known to him, and testify as the same in interferences or other litigation, when requested so to do.

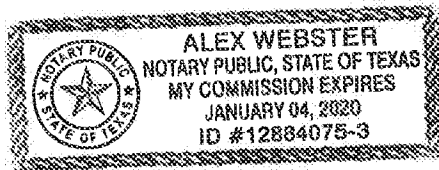
Executed and delivered this 30 day of August 2018.

Inventor: Dong Shen

State of Texas §  
County of Tarrant §

BEFORE ME, the undersigned authority, personally appeared this 30<sup>th</sup> day of August 2018, Dong Shen, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he signed, sealed and delivered the said instrument as his free and voluntary act and deed for the uses and purposes therein set forth.

[SEAL]



Alex Webster  
Notary Public Alex Webster

My Commission Expires: 01/04/2020



## ASSIGNMENT

WHEREAS, Philip NGUYEN (an "ASSIGNOR") a citizen of the United States, residing at 13419 Piney View Lane, Houston, Texas, 77379, United States has developed and is the owner of certain inventions as embodied in and represented by the Intellectual Property, as defined below.

"Intellectual Property" shall collectively mean the technology developed by ASSIGNOR and generally titled:

### HYBRID FRACTURING TREATMENT WITH NATURAL GAS

as well as any application related thereto, including, without limitation, the application(s):

\_\_\_ of even date filed herewith;

X filed on August 29, 2018 and assigned application number PCT/US2018/048497.

WHEREAS, ASSIGNOR is desirous of assigning all of his right in the Intellectual Property to Halliburton Energy Services, Inc. ("ASSIGNEE"), a corporation, doing business at 3000 N. Sam Houston Parkway E. Houston, Texas 77032, United States of America.

NOW, THEREFORE, subject to the terms, conditions, covenants and provisions of this Assignment, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by each ASSIGNOR, the parties hereto, intending legally to be bound, agree as follows:

ASSIGNOR hereby sells, assigns and transfers to ASSIGNEE, its successors and assigns, said ASSIGNOR'S entire right, title, and interest in the Intellectual Property, including, without limitation, (i) all United States and foreign rights therein, whether patentable or not, and in and to aforesaid patents, patent applications and any divisions or continuations thereof, and any patents or similar registrations obtained for the Intellectual Property in the United States and foreign countries, or issuing out of said application or any such division or continuation thereof, and any reissues or extensions of any such patents, as well as all rights to claim priority to any of the foregoing and (ii) all causes of action, past, present, and future, for infringement, unfair competition or otherwise with respect to the Intellectual Property and all disclosures of ideas, whether or not patentable and all pending applications.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

ASSIGNOR hereby covenants that (i) he believes himself to be the original and first inventor of the subject matter of the Intellectual Property; (ii) he has the full right to convey his

entire right, title and interest in said Intellectual Property, and (iii) he has not executed and will not execute any agreement in conflict herewith.

ASSIGNOR further covenants that he will not undertake any activity to erode or challenge the ASSIGNEE'S rights in the Intellectual Property assigned hereunder.

ASSIGNOR further covenants that he will, at any time, upon ASSIGNEE'S request, execute and deliver any and all papers that may be necessary or desirable to perfect the title in the Intellectual Property, or any patents that may be granted therefore, in the ASSIGNEE, its successors and assigns, and if ASSIGNEE, or its assignee, desires to make a substitute, divisional or continuation application for said Intellectual Property, or to secure a reissue or extension of any Letters Patent, to file disclaimer relating thereto, or an application for a corresponding patent in any foreign country, or undertake any other act to secure and protect the ASSIGNEE'S rights in the Intellectual Property, that he will upon request, sign all papers, make all rightful oaths, and do all lawful acts requisite for the said purposes, but at the expense of the ASSIGNEE.

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ASSIGNOR further covenants that he will at all times communicate to the ASSIGNEE, its successors, assigns or legal representatives, all facts relating to the Intellectual Property, or the history thereof, known to him, and testify as the same in interferences or other litigation, when requested so to do.

Executed and delivered this 30<sup>th</sup> day of August 2018.

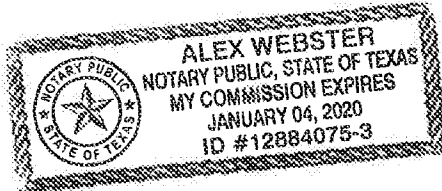
Inventor: *Philip D. Nguyen*

State of Texas §

County of Jarvis §

BEFORE ME, the undersigned authority, personally appeared this 30<sup>th</sup> day of August 2018, Philip D. Nguyen, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he signed, sealed and delivered the said instrument as his free and voluntary act and deed for the uses and purposes therein set forth.

[SEAL]



*Alex Webster*  
Notary Public Alex Webster

My Commission Expires: 01/04/2020