

<b>PATENT ASSIGNMENT COVER SHEET</b>
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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
HUI-HAI LIU	01/03/2017
BITAO LAI	01/03/2017
JILIN JAY ZHANG	01/03/2017
DANIEL T GEORGI	01/03/2017
XINWO HUANG	01/03/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	ARAMCO SERVICES COMPANY
<b>Street Address:</b>	9009 WEST LOOP SOUTH
<b>City:</b>	HOUSTON
<b>State/Country:</b>	TEXAS
<b>Postal Code:</b>	77096
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15378305
<b>CORRESPONDENCE DATA</b>	
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<b>ATTORNEY DOCKET NUMBER:</b>	004159.005464
<b>NAME OF SUBMITTER:</b>	VIVEK SHANKAM, PH.D
<b>SIGNATURE:</b>	/Vivek P. Shankam/
<b>DATE SIGNED:</b>	02/27/2017
<b>Total Attachments: 6</b>	
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**ASSIGNMENT**

WHEREAS, we, **HUI-HAI LIU**, a citizen of the United States of America, **BITAO LAI**, a citizen of China, **JILIN JAY ZHANG**, a citizen of the United States of America, **DANIEL T. GEORGI**, a citizen of the United States of America, and **XINWO HUANG**, a citizen of China, are the inventors of an invention, entitled, “**METHODS AND SYSTEMS FOR DETERMINING PORE PRESSURE-DEPENDENT GAS PERMEABILITY OF A SUBSURFACE FORMATION**,” for which a provisional patent application was filed on December 14, 2015 as U.S. Provisional Application No. **62/267,091** and the conversion non-provisional application entitled, “**METHODS AND SYSTEMS FOR DETERMINING GAS PERMEABILITY OF A SUBSURFACE FORMATION**,” for which application for United States Letters Patent was filed on December 14, 2016 as U.S. Patent Application No. **15/378,305**; and

WHEREAS, **ARAMCO SERVICES COMPANY**, a Company with Limited Liability, with a business address of 9009 West Loop South, Houston, TX 77096, hereafter "ARAMCO SERVICES", is desirous of acquiring our entire right, title and interest in and to the aforesaid invention throughout the world, and all right, title and interest in, to and under any and all Letters Patent of the United States and all other countries throughout the world;

WHEREAS, by an Agreement dated June 12, 2015 entitled “Assignment of Intellectual Property”, we as employees of ARAMCO SERVICES have assigned all of our right, title and interest in and to the aforesaid invention throughout the world, and both we and ARAMCO SERVICES are desirous of ratifying such Assignment for the record;

NOW, THEREFORE, for and in consideration of the sum of One Dollar (\$1.00) to us in hand paid by ARAMCO SERVICES and for other good and valuable considerations, the receipt of which is hereby acknowledged, we hereby sell, assign, transfer and set over to ARAMCO SERVICES, all our rights, title and interest in and to the said invention throughout the world, and said application for U.S. Letters Patent, and any and all divisions, continuations, reexaminations and reissues thereof, and any and all Letters Patent of the United States and foreign countries which may be granted therefor, the same to be held and enjoyed by them for their own use and benefit, and for the use and benefit of their successors, assigns, or other legal

representatives, to the end of the term or terms for which said Letters Patent of the United States or foreign countries are or may be granted, reexamined or reissued, as fully and entirely as the same would have been held and enjoyed by me if this assignment and sale had not been made.

And we hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all Letters Patent of the United States on said invention or resulting from said application and from any and all divisions, continuations, and reissues thereof, to ARAMCO SERVICES, as assignee of our entire interest, and hereby covenant that we have the full right to convey our entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith.

And we further hereby covenant and agree that we will, at any time, upon request, execute and deliver any and all papers that may be necessary or desirable to perfect the title of said invention and to such Letters Patent as may be granted therefor, to ARAMCO SERVICES, its successors, assigns, or other legal representatives and that if ARAMCO SERVICES shall desire to file any divisional or continuation applications or to secure a reexamination or reissue of such Letters Patent, or to file a disclaimer relating thereto, will upon request, sign all papers, make all rightful oaths and do all lawful acts requisite for the filing of such divisional or continuation application, or such application for reissue and the procuring thereof, and for the filing of such disclaimer, without further compensation but at the expense of said assignee, its successors, or other legal representatives.


And we do further covenant and agree that we will, at any time upon request, communicate to ARAMCO SERVICES, its successors, assigns or other legal representatives, such facts relating to said invention and Letters Patent or the file history thereof as may be known to me, and testify as to the same in any interference or other litigation when requested so to do, without further compensation but at the expense of said assignee, its successors, or other legal representatives.

EXECUTED THIS 3 day of Jan, 2017

  
HUI-HAI LIU

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EXECUTED THIS 3rd day of Jan., 2017.

  
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BITAO LAI

EXECUTED THIS 3<sup>rd</sup> day of JAN, 2017

  
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JILIN JAY ZHANG

EXECUTED THIS 3 day of January, 2017

  
DANIEL T. GEORGI

EXECUTED THIS 3<sup>rd</sup> day of January, 2017.

  
XINWO HUANG