

## PATENT ASSIGNMENT COVER SHEET

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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>
AHMED M. GOMAA	07/04/2018
KHALID R. NOAIMI	07/09/2018
GHAITHAN A. AL-MUNTASHERI	07/12/2018
NOOR OTHMAN BAGADER	07/09/2018
RAJENDRA ARUNKUMAR KALGAONKAR	07/12/2018
JIN HUANG	07/09/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	SAUDI ARABIAN OIL COMPANY
<b>Street Address:</b>	1 EASTERN AVENUE
<b>City:</b>	DHAHRAN
<b>State/Country:</b>	SAUDI ARABIA
<b>Postal Code:</b>	31311
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	15711955
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<b>ATTORNEY DOCKET NUMBER:</b>	38136-0289001
<b>NAME OF SUBMITTER:</b>	SUSAN C. JOHNSON
<b>SIGNATURE:</b>	/Susan C. Johnson/
<b>DATE SIGNED:</b>	07/12/2018
<b>Total Attachments: 2</b>	
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### ASSIGNMENT

For valuable consideration, the receipt of which we acknowledge, and intending to be bound legally, we, AHMED M. GOMAA, KHALID R. NOAIMI, GHATHAN A. AL-MUNTASHERI, NOOR OTHMAN BAGADER, RAJENDRA ARUNKUMAR KALGAONKAR, and JIN HUANG, each individually assign to SAUDI ARABIAN OIL COMPANY, a corporation formed under the laws of Saudi Arabia and having a principal place of business at 1 Eastern Avenue, Dhahran, Saudi Arabia 31311, and its successors, transferees, and assignees (collectively the "Assignee"), all of our individual and joint right, title, and interest throughout the world in the subject matter (the "Subject Matter") of a patent application that names us as inventors, is titled "PULSED HYDRAULIC FRACTURING WITH NANOSILICA CARRIER FLUID," and was filed in the United States Patent and Trademark Office on September 21, 2017, as application 15/711,955 (the "Application").

This Assignment assigns (a) the Application and all other applications that may be made for, and all patents, utility models, design registrations, and other rights of exclusion and inventors' certificates for, any of the Subject Matter (collectively the "Applications and Granted Rights") in every country or region, (b) the right to claim priority based on and the benefit of the filing date of any of the Applications and Granted Rights under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other applicable treaties or conventions, and (c) the right to pursue, collect, and retain in the Assignee's name or otherwise, damages and any other remedies arising from any past, present, or future infringement of the Subject Matter, the Applications and Granted Rights, and any other rights assigned by this Assignment.

We authorize the Assignee to apply for and pursue protection for any or all of the Subject Matter, the Applications and Granted Rights, and any other rights assigned by this Assignment in all countries, regions, and territories of the world, in our names or in the Assignee's name.

We represent and warrant that we have the right and power to make this Assignment and that we have not made and will not make any other assignment that conflicts with this Assignment.

We will communicate to the Assignee (or at the request of the Assignee to other parties) all known facts in any form relating to the Subject Matter, will execute and provide all oaths and

declarations, statements, testimony, assignments, powers of attorney, applications, and documents, and will perform all other lawful acts necessary or desirable to secure fully to the Assignee the rights, titles, and interests assigned by this Assignment.

A. Gomaa  
Ahmed M. Gomaa

Date: 7/4/2018

Khalid R. Noaimi  
Khalid R. Noaimi

Date: July-9-2018

G. Muntasher  
Ghaithan A. Al-Muntasheri

Date: 7/12/2018

Noor Othman Bagader  
Noor Othman Bagader

Date: 7/9/2018

Rajendra Arunkumar Kalgaonkar  
Rajendra Arunkumar Kalgaonkar

Date: JULY 12, 2018

Jin Huang  
Jin Huang

Date: 07/09/2018