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PATENT ASSIGNMENT COVER SHEET

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Execution Date
05/03/2017
05/22/2017

RECEIVING PARTY DATA

Name:	HALLIBURTON ENERGY SERVICES, INC.		
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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16478339

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NAME OF SUBMITTER:		JOSE R. LOPEZ, JR. PARALEGAL		
SIGNATURE:		/JOSE R. LOPEZ, JR./		

07/16/2019

Total Attachments: 3

DATE SIGNED:

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ASSIGNMENT OF INTELLECTUAL PROPERTY RIGHTS IN PATENT APPLICATION

Whereas we, the undersigned inventors, have invented certain new and useful innovations as set forth in the patent application entitled:

DISTRIBUTED ACOUSTIC SENSING SYSTEM WITH A POLARIZATION CONTROL DEVICE FOR IMPROVING SIGNAL-TO-NOISE RATIO

the specification of which was filed with the U.S. Receiving Office of the PCT on February 23, 2017, and assigned application no. PCT/US2017/019048.

For one dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which we acknowledge, we:

- Agree to assign, transfer, convey, and sell, hereby assign, transfer, convey, and sell and have assigned, transferred, conveyed, and sold to Halliburton Energy Services, Inc., a corporation of the State of Texas having a principal place of business at 3000 N. Sam Houston Parkway E., Houston, Texas 77032-3219 ("Assignee"), the entire right, title, and interest in and to:
 - (a) all intellectual property (including, without limitation, any innovation, information, invention, discovery, product, process, work or design) disclosed, embodied, shown, or claimed in the above-referenced patent application, implicitly or explicitly;
 - (b) the above-referenced patent application, the right to claim priority to the above-referenced patent application, all applications based in whole or in part upon the above-referenced patent application, including, without limitation, all applications that are a provisional, non-provisional, design, divisional, continuation, continuation-in-part, registration, utility model, industrial design, reissue, renewal, substitute, extension, reexamination, post-grant review, inter partes review, supplemental examination or non-U.S. patent application or application for other rights based in whole or in part on the above-referenced patent application;
 - (c) all patents (including, without limitation, all U.S. and non-U.S. patents, registrations, utility models, industrial designs, design patents, counterparts, continuations, continuations-in-part, divisionals, reissues, renewals, substitutes, extensions, reexaminations, post-grant reviews, inter partes reviews and supplemental examinations) that are granted or issued upon, or that claim priority to, any and all applications described in (b) of this paragraph or that disclose or claim intellectual property described in (a) of this paragraph, in whole or in part; and

Assignment of Intellectual Property Rights in Application Patent Application Entitled: Distributed Acoustic Sensing System with a Polarization Control Device for Improving Signal-to-Noise Ratio Attorney Docket: 061429-1034623 Page 2 of 3

- (d) all claims for damages by reason of past infringement of any rights under the applications or patents described in (a), (b) or (c) of this paragraph (including provisional rights to reasonable royalties pursuant to 35 U.S.C. §154(d)) and the right to sue for and collect such damages and royalties for Assignce's own use.
- 2. Authorize and request the U.S. Patent and Trademark Office or any other U.S. or non-U.S. agency to issue to the Assignee any and all patent(s), or other rights or documents, resulting from the intellectual property, patent application(s) and patents described in paragraph 1 of this Assignment.
- 3. Agree to sign all papers and documents, including without limitation, applications, declarations, oaths and petitions, and, at the Assignee's expense, perform any other acts that are necessary in connection with prosecution of patent application(s) or intellectual property described in paragraph 1 of this Assignment and the enforcement of patent(s) or other rights resulting from such patent application(s) or intellectual property.
- 4. Agree that the terms, covenants, and conditions of this Assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon us, as well as our heirs, legal representatives, and assigns.
- 5. Promise and affirm that we have not entered, and will not enter, into any assignment, contract, or understanding that conflicts with this Assignment.

Dated: 5-3-2017 David Andrew Barfoot STATE OF COUNTY OF Before me, a Notary Public in and for the State of , on this , 2017, personally appeared David Andrew Barfoot, who being duly sworn. signed and acknowledged the foregoing Assignment as his free act and deed. NOTARY PUBLIC My Commission Expires ()9-12-2020 (Seal) **BRITTANY WILLIAMS** Notary Public, State of Texas Comm. Expires 09-12-2020 Notary ID 130817570 PATENT REEL: 049766 FRAME: 0823

Assignment of Intellectual Property Rights in Application Patent Application Entitled: Distributed Acoustic Sensing System with a Polarization Control Device for Improving Signal-to-Noise Ratio Attorney Docket: 061429-1034623 Page 3 of 3

Dated: 5/22/2017 Kwang Il Suh ALTEORNIA STATE OF COUNTY OF Los Arbeves Before me, a Notary Public in and for the State of USUFORMIA, on this 22 day of MaY, 2017, personally appeared Kwang II Suh, who being duly sworn, signed and acknowledged the foregoing Assignment as his free act and deed. NOTARY PUBLIC / -(Seal) My Commission Expires: MAY 2(,2020



RECORDED: 07/16/2019