

## PATENT ASSIGNMENT COVER SHEET

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Stylesheet Version v1.2

EPAS ID: PAT4252826

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
JONATHAN LEE MACE	04/17/2013
BRYCE C. TAPPAN	07/29/2013
GERALD J. SEITZ	04/18/2013
LAWRENCE E. BRONISZ	05/28/2013
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	LOS ALAMOS NATIONAL SECURITY, LLC
<b>Street Address:</b>	LOS ALAMOS NATIONAL LABORATORY, LC/IP
<b>City:</b>	LOS ALAMOS
<b>State/Country:</b>	NEW MEXICO
<b>Postal Code:</b>	87545
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15421077
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(503)595-5301
<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>	503-595-5300
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<b>Correspondent Name:</b>	KLARQUIST SPARKMAN, LLP/LANS
<b>Address Line 1:</b>	121 SW SALMON STREET, SUITE 1600
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<b>ATTORNEY DOCKET NUMBER:</b>	8472-90471-06
<b>NAME OF SUBMITTER:</b>	SANDON M. DUNCAN
<b>SIGNATURE:</b>	/Sandon M. Duncan/
<b>DATE SIGNED:</b>	01/31/2017
<b>Total Attachments: 8</b>	
source=Assignment#page1.tif	
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## ASSIGNMENT

WHEREAS, we, Jonathan L. Mace, of Los Alamos, NM, Gerald J. Seitz, of El Rancho, NM, Lawrence E. Bronisz, of Los Alamos, NM, and Bryce C. Tappan, of Santa Fe, NM, have invented a certain invention, as described in the following patent application:

PCT Patent Application No. PCT/US2013/021491, filed on January 14, 2013, entitled  
"SYSTEM FOR FRACTURING AN UNDERGROUND GEOLOGIC  
FORMATION,"

which application is referred to as "the patent application."


WHEREAS, Los Alamos National Security, LLC, a corporation organized under the laws of the State of Delaware, having a place of business at Los Alamos National Laboratory, LC/IP, Los Alamos, NM 87545, desires to acquire an interest therein:

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, we, Jonathan L. Mace, Gerald J. Seitz, Lawrence E. Bronisz, and Bryce C. Tappan hereby sell, assign, and transfer to Los Alamos National Security, LLC, the full and exclusive right, title, and interest in and to said invention, patent application, and patent rights throughout the world, including foreign patent priority rights, the right to file and prosecute International Applications under the Patent Cooperation Treaty, and the right to file and prosecute applications under the European Patent Convention; said invention, patent application, and letters patent in this or any foreign country, and all corresponding non-provisional applications, divisions, continuations, continuations-in-part, reissues, and extensions thereof, to be held and enjoyed by Los Alamos National Security, LLC, for its own use and benefit, and for its successors and assigns to the full end of the term for which letters patent may be granted by the United States or any foreign country, as fully and entirely as the same would have been held by us had this assignment and sale not been made, and covenant that we have full right so to do, and agree that we will communicate to Los Alamos National Security, LLC, or its successors and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, and reissue applications, make all rightful oaths, and do everything possible to aid Los Alamos National Security, LLC, its successors, and assigns to obtain and enforce proper patent protection for said invention in the United States or any foreign country.

We confirm that, at the time the invention was made, we were under an obligation to assign the invention to Los Alamos National Security, LLC.

We hereby grant the law firm of Klarquist Sparkman, LLP, the power to insert on this Assignment any further information that may be necessary or desirable in order to comply with all applicable legal requirements, including the rules of the United States Patent and Trademark Office, for submitting and recording this document.

Executed on the date opposite our respective signatures below.

  
Jonathan L. Mace

April 17, 2013  
Date

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Gerald J. Seitz

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Date

\_\_\_\_\_  
Lawrence E. Bronisz

\_\_\_\_\_  
Date

\_\_\_\_\_  
Bryce C. Tappan

\_\_\_\_\_  
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4/18/13

Gerald J. Seitz



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Lawrence E. Bronisz

Date

Bryce C. Tappan

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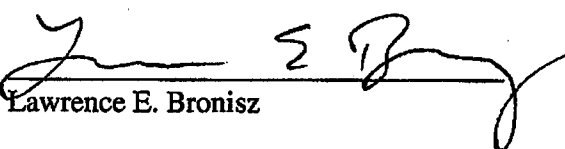
Executed on the date opposite our respective signatures below.

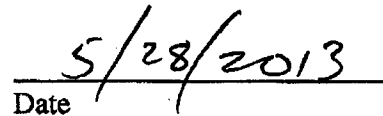
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Jonathan L. Mace

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Gerald J. Seitz

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Bryce C. Tappan

7/29/13  
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Date