

(12) **UK Patent Application** (19) **GB** (11) **2539773** (13) **A**

(43) Date of Reproduction by UK Office **28.12.2016**

(21) Application No: **1607850.3**
 (22) Date of Filing: **26.12.2013**
 Date Lodged: **05.05.2016**

(86) International Application Data:
PCT/US2013/077825 En 26.12.2013

(87) International Publication Data:
WO2015/099736 En 02.07.2015

(51) INT CL:
G01N 33/00 (2006.01)

(56) Documents Cited:
EP 2378058 A2 **US 20130174646 A1**
US 20130110402 A1 **US 20120014749 A1**
US 20090081804 A1 **US 20080210430 A1**
US 20060173580 A1 **US 20050012035 A1**

(58) Field of Search:
 INT CL **E21B, G01N**
 Other: **Pub West, Pat Base**

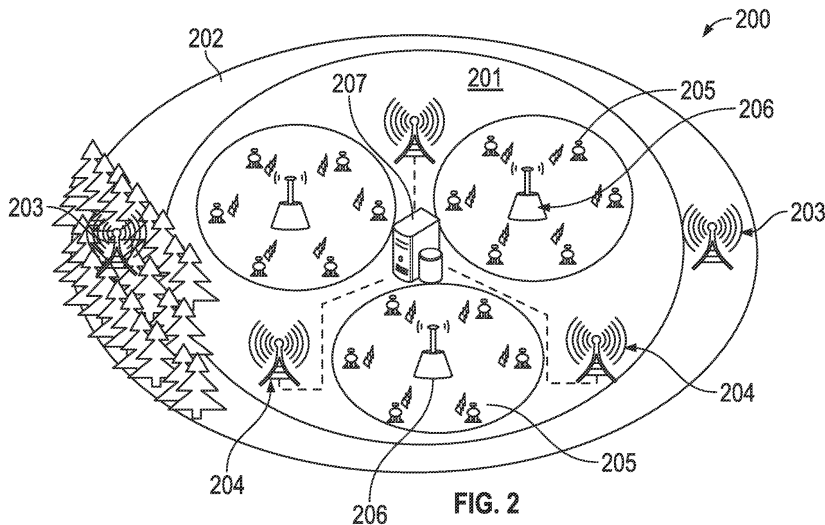
(71) Applicant(s):
Landmark Graphics Corporation
Building 2, 2107 City West Boulevard, Houston 77042,
Texas, United States of America

(72) Inventor(s):
Serkan Dursun
Ilyas Uyanik
Olivier R Germain

(74) Agent and/or Address for Service:
A.A. Thornton & CO.
10 Old Bailey, London, EC4M 7NG, United Kingdom

(54) Title of the Invention: **Real-time monitoring of health hazards during hydraulic fracturing**
 Abstract Title: **Real-time monitoring of health hazards during hydraulic fracturing**

(57) A real-time silica monitoring system can include a plurality of off-site sensors positioned at geographic locations off-site from a hydraulic fracturing well site that detect and measure quantities of airborne silica particles, a plurality of on-site sensors positioned at geographic locations on a hydraulic fracturing well site that detect and measure quantities of air-borne silica particles, and one or more mobile sensors suitable to be carried by individual persons that detect and measure quantities of airborne silica particles. A monitoring system can include a computer system that can aggregate and store airborne silica measurements taken by one or more sensors and communicate data to a user.



GB 2539773 A