

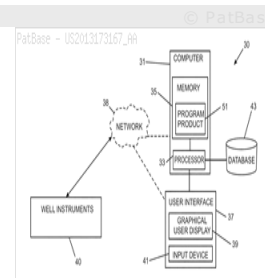
1) Family number: 54261433 (US2013173167A)

REAL-TIME DYNAMIC DATA VALIDATION METHODS FOR INTELLIGENT FIELDS

Abstract: Source: US2013173167A Methods for managing an intelligent field, are provided. An exemplary method can include receiving real-time dynamic field data, analyzing validity of the dynamic field data, validating values of the field data, validating a state/condition of a well, and flagging well components, well conditions, and/or well state validation issues.

Probable Assignee: SAUDI ARABIAN OIL CO

Earliest Publication Date: 20130704



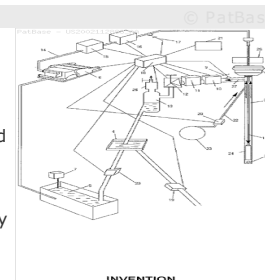
2) Family number: 28231451 (US2002112888A)

DRILLING SYSTEM AND METHOD

Abstract: Source: US2002112888A A closed-loop drilling system and method of drilling oil, gas, or geothermal wells is described, whereby through the control of the flow rates in and out of the wellbore, and by adjusting the pressure inside the wellbore by a pressure/flow control device installed on the return line, surface pressure being increased or decreased as required, this in turn decreasing or increasing downhole pressure, occurrence of kicks and fluid losses may be greatly minimized and quickly controlled. Through the method of the invention the elimination of the kick tolerance and tripping margin on the design of the well is made possible, since the pore and fracture pressure will be determined in real-time while drilling the well, and, therefore, nearly no safety margin is necessary when designing the well, reducing significantly the number of casing strings necessary. The inventive method can be called intelligent safe drilling since the response to influx or fluid loss is nearly immediate and so smoothly done that the drilling can go on without any break in the normal course of action. The new method is applicable to the whole wellbore from the first casing string with a BOP connection, and it can be implemented and adopted to any rig or drilling installation that uses the conventional method with very few exceptions and limitations. The new method is applicable to all types of wells, onshore, offshore, deepwater and ultra-deepwater, with huge safety improvement in difficult drilling scenarios.

Probable Assignee: ISG SECURE DRILLING HOLDINGS LTD

Earliest Publication Date: 20020627



3) Family number: 40495278 (WO07116006A1)

METHOD FOR PRODUCTION METERING OF OIL WELLS

Abstract: The present invention relates to a method that allows the determination of the contribution of a well to the production of a cluster of wells, of which the produced streams of well effluents are commingled and routed via a separation assembly in at least nominally separated streams of crude oil, natural gas and water, based on production measurements made on the nominally separated streams of crude oil, natural gas and water downstream of the separation assembly (production and/or bulk separator), and in the absence of a dedicated well test facility for the direct measurement of the production from a tested well.

Probable Assignee: SHELL INT RESEARCH

Earliest Publication Date: 20071018

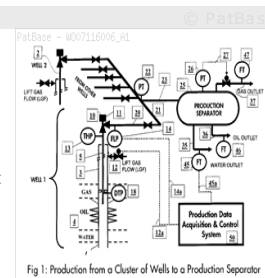


Fig 1: Production from a Cluster of Wells to a Production Separator

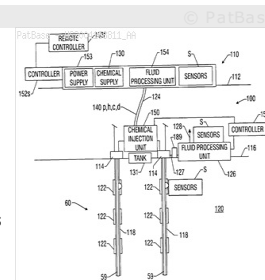
4) Family number: 29752228 (US2004168811A)

SUBSEA CHEMICAL INJECTION UNIT FOR ADDITIVE INJECTION AND MONITORING SYSTEM FOR OILFIELD OPERATIONS

Abstract: Source: US2004168811A A system monitors and controls the injection of additives into formation fluids recovered through a subsea well. The system includes a chemical injection unit and a controller positioned at a remote subsea location. The injection unit uses a pump to supply one or more selected additives from a subsea and/or remote supply unit. The controller operates the pump to control the additive flow rate based on signals provided by sensors measuring a parameter of interest. A one mode system includes a surface facility for supporting the subsea chemical injection and monitoring activities. In one embodiment, the surface facility is an offshore rig that provides power and has a chemical supply that provides additives to one or more injection units. In another embodiment, the surface facility includes a relatively stationary buoy and a mobile service vessel. When needed, the service vessel transfers additives to the chemical injection units via the buoy.

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 20000629



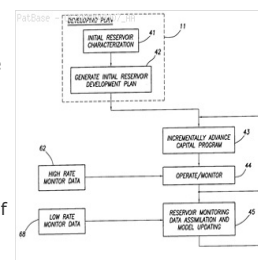
5) Family number: 15648860 (US2005149307A)

INTEGRATED RESERVOIR OPTIMIZATION

Abstract: Source: US2005149307A A method of managing a fluid or gas reservoir is disclosed which assimilates diverse data having different acquisition time scales and spatial scales of coverage for iteratively producing a reservoir development plan that is used for optimizing an overall performance of a reservoir. The method includes: (a) generating an initial reservoir characterization, (b) from the initial reservoir characterization, generating an initial reservoir development plan, (c) when the reservoir development plan is generated, incrementally advancing and generating a capital spending program, (d) when the capital spending program is generated, monitoring a performance of the reservoir by acquiring high rate monitor data from a first set of data measurements taken in the reservoir and using the high rate monitor data to perform well-regional and field-reservoir evaluations, (e) further monitoring the performance of the reservoir by acquiring low rate monitor data from a second set of data measurements taken in the reservoir, (f) assimilating together the high rate monitor data and the low rate monitor data, (g) from the high rate monitor data and the low rate monitor data, determining when it is necessary to update the initial reservoir development plan to produce a newly updated reservoir development plan, (h) when necessary, updating the initial reservoir development plan to produce the newly updated reservoir development plan, and (i) when the newly updated reservoir development plan is produced, repeating steps (c) through (h). A detailed disclosure is provided herein relating to the step (a) for generating the initial reservoir characterization and the step (b) for generating the initial reservoir development plan.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20010830



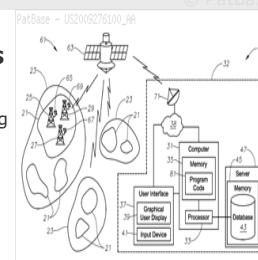
6) Family number: 43955397 (US2009276100A)

SYSTEM, PROGRAM PRODUCT, AND RELATED METHODS FOR PERFORMING AUTOMATED REAL-TIME RESERVOIR PRESSURE ESTIMATION ENABLING OPTIMIZED INJECTION AND PRODUCTION STRATEGIES

Abstract: Source: US2009276100A Systems, program product, and methods for providing real-time reservoir management of one or more reservoirs across one or more fields are provided. A system can include multiple monitoring wells and at least one injection well in communication with a central facility including a reservoir management computer or server positioned to provide real-time reservoir management of the one or more reservoirs. The computer can include, stored in memory, reservoir management program code, which when executed, can cause the computer to perform the operations of calibrating an injection well model for each of one or more injection wells positioned in a reservoir responsive to real-time injection rate and wellhead pressure data associated therewith, calculating static reservoir pressure for each of the injection wells responsive to the respective calibrated injection well model and responsive to respective surface injection rate and wellhead pressure data, and generating real-time automated isobaric pressure maps.

Probable Assignee: SAUDI ARABIAN OIL CO

Earliest Publication Date: 20091105



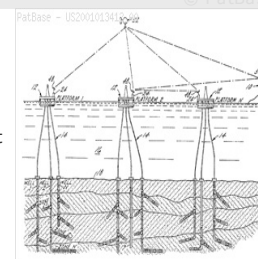
7) Family number: 30137268 (US2001013412A)

PRODUCTION WELL TELEMETRY SYSTEM AND METHOD

Abstract: Source: US2001013412A A downhole production well control system is provided for automatically controlling downhole tools in response to sensed selected downhole parameters. The production well having a production tubing string therein with multiple branches, i.e., zones. Communication and transmission of power (i.e. telemetry) over the production tubing string is by way of a combination of a hardwire system in the main borehole and a short hop system at the branches or laterals. Each zone includes a downhole control system and appropriate completion devices for controlling fluid flow. An acoustic or electromagnetic transceiver is associated with each control system for communication and/or transmission of power. An electrical conductor runs from the surface downhole along the production tubing string in the main borehole for communication and/or transmission of power, hardwired systems are well known. The conductor is connected to an acoustic or electromagnetic transceiver disposed at the production tubing string in the main borehole near each branch. These transceivers communicate with and/or transfer power to corresponding transceivers at the branches (i.e., short hop communications), which is communicated and/or transferred along the production tubing string on the conductor (i.e., uphole or downhole).

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 19960812



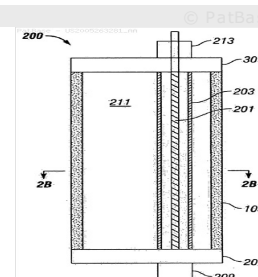
8) Family number: 32449787 (US2005263281A)

SYSTEM AND METHODS USING FIBER OPTICS IN COILED TUBING

Abstract: Source: US2005263281A Apparatus having a fiber optic tether disposed in coiled tubing for communicating information between downhole tools and sensors and surface equipment and methods of operating such equipment. Wellbore operations performed using the fiber optic enabled coiled tubing apparatus includes transmitting control signals from the surface equipment to the downhole equipment over the fiber optic tether, transmitting information gathered from at least one downhole sensor to the surface equipment over the fiber optic tether, or collecting information by measuring an optical property observed on the fiber optic tether. The downhole tools or sensors connected to the fiber optic tether may either include devices that manipulate or respond to optical signal directly or tools or sensors that operate according to conventional principles.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20051201



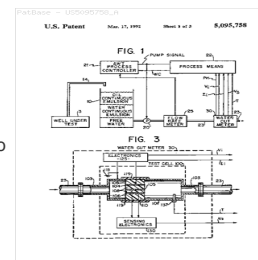
9) Family number: 3393495 (US5095758A)

WATER CUT MONITORING MEANS AND METHOD

Abstract: Source: US5095758A The present invention is a water cut monitor which includes a settling tank in which a quantity of fluid from a producing well is accumulated. The fluid is removed as a stream of fluid after a predetermined interval from the accumulation of the fluid by the settling tank so as to allow the accumulated fluid to separate into three phases: free water, water-continuous and oil-continuous. The flow rate of the stream of fluid is measured and a corresponding flow rate signal is provided as well as a temperature signal corresponding to a sensed temperature of the stream of fluid. The water cut monitor includes a plurality of electrodes in contact with the fluid. Injection electronics connected to at least one of the electrodes provides an injection voltage and injection current to the fluid stream and also provides signals corresponding to the injection voltage and injection current. A voltage in the fluid stream is measured and a measurement signal provided. A computer determines the water cut of the petroleum stream in accordance with the temperature signal, the injection voltage and injection current signals, the electrical phase angle signal and the measured voltage signal.

Probable Assignee: TEXACO INC

Earliest Publication Date: 19920317



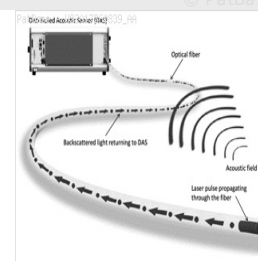
10) Family number: 66936492 (US2017260839A)

DAS FOR WELL RANGING

Abstract: Source: US2017260839A Using distributed acoustic sensing (DAS) fiber optic cable for borehole surveying and/or well ranging.

Probable Assignee: CONOCO PHILLIPS CO

Earliest Publication Date: 20170914



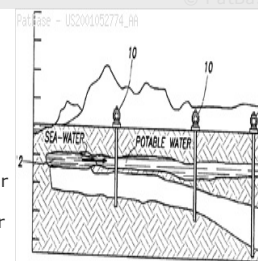
11) Family number: 28143994 (US2001052774A)

METHOD AND APPARATUS FOR MONITORING THE ADVANCE OF SEAWATER INTO FRESH WATER AQUIFERS NEAR COASTAL CITIES

Abstract: Source: US2001052774A Sensors are permanently placed in the ground near observation and injection wells in order to passively and continuously monitor the status of seawater advance toward fresh water aquifers near coastal cities as well as the status of fresh water injected into the injection wells. Such sensor devices are installed in the ground and electrically connected to surface acquisition equipment that would, without human intervention, transmit acquired data to a centralized facility for processing and interpretation. Various types of sensors can be used: the sensors used for general reservoir monitoring and/or the sensors used for leak detection, soil heating, and temperature mapping. Alternatively, a special type of sensor can be designed and provided for the purpose of monitoring the status of seawater advance toward fresh water aquifers.

Probable Assignee: NOVA METRIX GROUND MONITORING CANADA LTD

Earliest Publication Date: 20010809



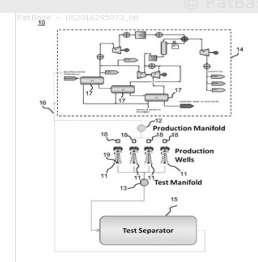
12) Family number: 58855543 (US2016245073A)

MULTIPHASE FLUID ANALYSIS

Abstract: Source: US2016245073A A method and a system of analysing multiphase fluid flow in at least one well or pipeline is provided, the method comprises characterising slug flow in the multiphase fluid flow by receiving a plurality of well pressure data from the at least one well, processing the plurality of well pressure data to obtain a time-varying slug amplitude and/or a time-varying slug period for slugs in the slug flow, analysing the slug amplitudes and/or the slug periods over a period of time to thereby determine a measure of well performance. Also an oil field monitoring system for an oil field comprising a plurality of wells is provided. Each well has a pressure gauge installed to measure a well pressure and is connected to a multiphase fluid flow analysing system. An oil field unit receives the measure of well performance from the multiphase fluid flow Production Manifold analysing system, and output the measures of well performance for each of the plurality of wells.

Probable Assignee: TOTAL E AND P DANMARK A S

Earliest Publication Date: 20150401



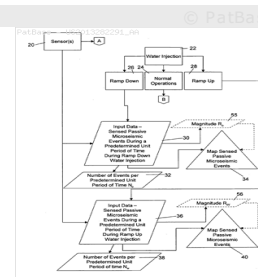
13) Family number: 43681425 (US2013282291A)

MONITORING OF RESERVOIR FLUID MOVING ALONG FLOW PATHWAYS IN A PRODUCING OIL FIELD USING PASSIVE SEISMIC EMISSIONS

Abstract: Source: US2013282291A A system of and method for determining whether a liquid moving in an oil-bearing reservoir rock formation is water or oil is provided. The oil-bearing rock formation includes at production well(s) and source(s) of injected water during normal oil production. A fluid pathway is identified, baseline number of passive microseismic events is established, passive microseismic events in the fluid pathway are monitored during oil production to sense microseismic events, the sensed microseismic events are compared to a baseline number of passive microseismic events. The fluid causing the microseismic events is determined to be water if the sensed number of microseismic events approaches the baseline number of passive microseismic events per the predetermined unit, and if the baseline number of passive microseismic is measured during a time period when the water injection is greater than the rate of water injection during normal oil production.

Probable Assignee: SAUDI ARABIAN OIL CO

Earliest Publication Date: 20090903



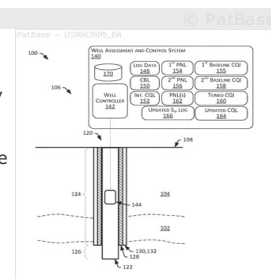
14) Family number: 68127311 (US9863895B)

SYSTEMS AND METHODS FOR MONITORING CASING CEMENT INTEGRITY

Abstract: Source: US9863895B Provided in some embodiments are systems and methods for monitoring cement quality of a cased well. Embodiments include conducting a cement-bond logging and a first pulsed neutron (PN) logging to generate a cement-bond log (CBL) and first pulsed neutron log (PNL) for the well, determining a first cement quality index (CQI) for the well based on the CBL and the first PNL, in response to determining that mud effects for the well have dissipated, conducting a second PN logging to generate a second PNL for the well, determining a second CQI for the well based on the CBL and the second PNL, determining a tuned CQI for the well based on the first CQI and the second CQI, conducting a follow-up PN logging to generate a follow-up PNL for the well, and determining a cement quality log for the well based on the tuned CQI and the follow-up PNL.

Probable Assignee: WEATHERFORD INT LLC

Earliest Publication Date: 20180109



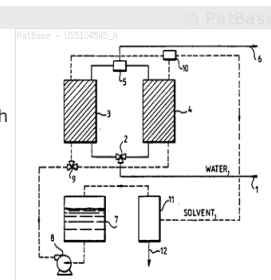
15) Family number: 4986957 (US5104545A)

PROCESS FOR REMOVING WATER SOLUBLE ORGANIC COMPOUNDS FROM PRODUCED WATER

Abstract: Source: US5104545A A process for the removal of water soluble organic compounds from produced water is provided. The process allows for the removal of water soluble organic compounds by passing the produced water through a column of adsorbing resin which is capable of removing the soluble organic compounds from the water and providing an environmentally acceptable effluent. The process further allows for the regeneration of the adsorbing resin by backwashing the resin with a solvent capable of eluting accumulated soluble organic compounds from the column. The process further allows for the treatment of the eluting solvent and soluble organic compound admixture in a manner to allow reuse of the solvent and to allow recovery of the soluble organic compounds or to allow direct injection of the soluble organic compound admixture into the oil stream. Thus, the invention provides a process for removal and recovery of water soluble organic compounds from produced water which creates no environmentally hazardous waste streams.

Probable Assignee: ECOLAB USA INC

Earliest Publication Date: 19910617



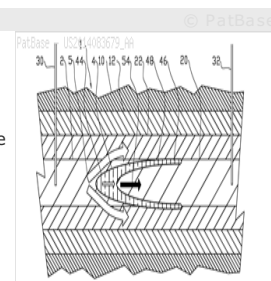
16) Family number: 52535024 (US2014083679A)

METHOD FOR MICROBIAL CONTROL OF INJECTION LIQUID FLOW IN A HYDROCARBON RESERVOIR

Abstract: Source: US2014083679A Disclosed herein are methods of establishing a microbial plug in a hydrocarbon-containing geological formation which has been flooded with water. Also disclosed herein are methods of maintaining such plugs-and methods of controlling alteration of the position and/or extent of an established plug. Disclosed herein are plugs such as microbial plugs.

Probable Assignee: GOE IP AS

Earliest Publication Date: 20121203



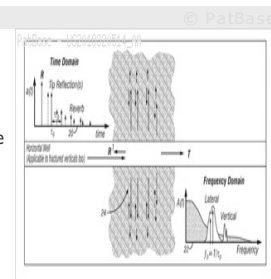
17) Family number: 68641204 (US2018320514A)

METHOD FOR EVALUATING AND MONITORING FORMATION FRACTURE TREATMENT USING FLUID PRESSURE WAVES

Abstract: Source: US2018320514A A method for characterizing a hydraulic fracture in a subsurface formation includes inducing a pressure change in a well drilled through the subsurface formation. At least one of pressure and pressure time derivative are measured in or at a location proximate to a wellhead for a selected length of time. At least one of a physical parameter, a time derivative, and a change in the parameter with respect to time of the physical parameter of at least one fracture is determined using the measured at least one of pressure and the time derivative of pressure.

Probable Assignee: SEISMOS INC

Earliest Publication Date: 20180222



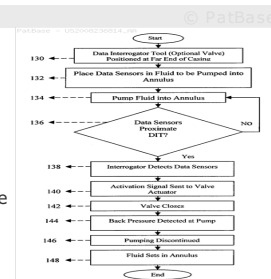
18) Family number: 42227007 (US2008236814A)

USE OF MICRO-ELECTRO-MECHANICAL SYSTEMS (MEMS) IN WELL TREATMENTS

Abstract: Source: US2008236814A A method comprising placing a sealant composition comprising one or more MEMS sensors in a wellbore and allowing the sealant composition to set. A method of servicing a wellbore comprising placing a MEMS interrogator tool in the wellbore, beginning placement of a sealant composition comprising one or more MEMS sensors into the wellbore, and terminating placement of the sealant composition into the wellbore upon the interrogator tool coming into close proximity with the one or more MEMS sensors. A method comprising placing a plurality of MEMS sensors in a wellbore servicing fluid. A wellbore composition comprising one or more MEMS sensors, wherein the wellbore composition is a drilling fluid, a spacer fluid, a sealant, or combinations thereof.

Probable Assignee: HALLIBURTON CO

Earliest Publication Date: 20081002



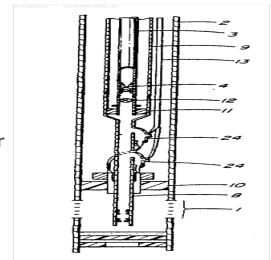
19) Family number: 4437161 (US4988389A)

EXPLOITATION METHOD FOR RESERVOIRS CONTAINING HYDROGEN SULPHIDE

Abstract: Source: US4988389A A method of producing fluids from subterranean reservoirs containing hydrogen sulphide and especially those reservoirs where elemental sulphur or hydrogen polysulphides are present. The method describes the use of a jet pump, chemical injection, and downhole electrical heaters to prevent the deposition of elemental sulphur within the production tubulars of wells penetrating such reservoirs by raising the pressure, temperature, and sulphur solvency of fluids being produced up these wells. In this way, subterranean reserves of sulphur and hydrogen sulphide which were previously unproducible or too expensive to produce can be commercially exploited.

Probable Assignee: DRESSER IND INC

Earliest Publication Date: 19890407



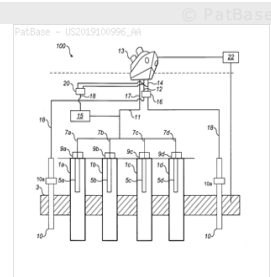
20) Family number: 62528674 (US2019100996A)

METHOD TO DETECT INCREMENTAL OIL PRODUCTION ARISING FROM A LOW SALINITY WATERFLOOD

Abstract: Source: US2019100996A A method for detecting incremental oil production from an oil-bearing reservoir includes taking a baseline sample of the oil and analyzing the baseline sample of oil to establish a baseline compositional signature for the oxygen-containing organic compounds in the oil. In addition, the method includes commencing a low salinity waterflood by injecting a low salinity water into the reservoir from an injection well. Further, the method includes recovering oil from a production well. Still further, the method includes taking post-flood samples of the oil produced from the production well over time. The method also includes analyzing the post-flood samples of oil to establish post-flood compositional signatures for the oxygen-containing organic compounds in the oil. Moreover, the method includes identifying a difference between one or more of the post-flood compositional signatures and the baseline compositional signature that is characteristic of incremental oil released by the low salinity waterflood.

Probable Assignee: BP PLC

Earliest Publication Date: 20170928



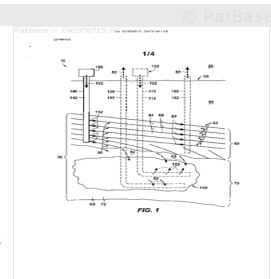
21) Family number: 65564861 (CA2958715C)

SYSTEMS AND METHODS FOR PRODUCING VISCOUS HYDROCARBONS FROM A SUBTERRANEAN FORMATION THAT INCLUDES OVERLYING INCLINED HETEROLITHIC STRATA

Abstract: Source: CA2958715C Systems and methods for producing viscous hydrocarbons from a subterranean formation that includes overlying inclined heterolithic strata are disclosed herein. The systems include the subterranean formation, which includes a lower zone and an overlying inclined heterolithic strata (IHS) zone. The systems also include a heated chamber within the lower zone, an IHS injection well extending within the IHS zone, and a mobilizing fluid supply system. The IHS injection well includes an IHS injection well conduit that is in direct fluid communication with the IHS zone, and the mobilizing fluid supply system is configured to provide a mobilizing fluid stream to the IHS injection well. The IHS injection well is configured to inject the mobilizing fluid stream into the IHS zone to facilitate flow of viscous hydrocarbons from the IHS zone. The methods include methods of utilizing the systems.

Probable Assignee: IMP OIL RESOURCES LTD

Earliest Publication Date: 20170425



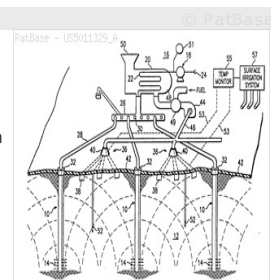
22) Family number: 8440291 (US5011329A)

IN SITU SOIL DECONTAMINATION METHOD AND APPARATUS

Abstract: Source: US5011329A Disclosed is in situ decontamination methods and apparatus for injecting a hot gas into boreholes formed in a contaminated soil area to vaporize the soil moisture and contaminants, and for collecting the vaporized contaminants at the surface of the soil. A burner heats pressurized gases and mixes the same with combustion gases for injection into the contaminated zone. A central collection system recovers the vaporized contaminants and couples such vapors to an on-site incinerator for disposal. Controlled heating of the injection gas is effective to sequentially remove different types of contaminants, as well as to provide in situ oxidation of other contaminants, while minimizing recondensation of the soil vapors. Wellbore casings are especially adapted for injecting the gas in predetermined patterns. In addition, a heater and incinerator assembly utilizes a single burner for both heating the dry gas and for incinerating the vapor contaminants.

Probable Assignee: HRUBETZ ENVIRONMENTAL SERVICES

Earliest Publication Date: 19910430



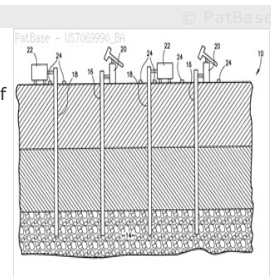
23) Family number: 15289396 (US7069990B)

ENHANCED OIL RECOVERY METHODS

Abstract: Source: US7069990B A process for enhanced oil recovery from an extraction operation comprises the steps of selection of an appropriate hydrocarbon bearing stratum; providing at least one production well and one injection well; and injecting into the target stratum a slurry formed from sand, viscous liquids or oily sludge, which is delivered at or near formation fracture pressures. Monitoring of bottom hole pressure is carried out, to permit delivery of the slurried wastes in a series of injection episodes, in which the length of the episodes and interinjection periods is determined by maintaining the bottom hole pressure within a preselected range. The position and spread of the slurried wastes within the target stratum may be monitored through the use of additional monitoring steps.

Probable Assignee: TERRALOG TECHNOLOGIES INC

Earliest Publication Date: 20010116



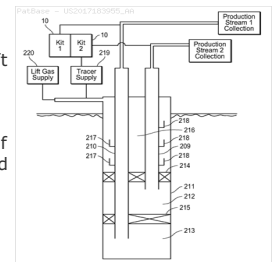
24) Family number: 61132548 (US2017183955A)

GAS LIFT ANALYSIS AND TROUBLESHOOTING

Abstract: Source: US2017183555A Methods and computer program products for evaluating the performance of a gas lift well. The method includes measuring key gas lift well parameter data and concentration of a tracer present in a substance retrieved from the gas lift well which was injected into the annulus formed between a well casing and a production tubing of the gas lift well. The actual travel time of the tracer which corresponds to a time duration required for injected tracer and lift gas to travel from the injection point, down the annulus, through one or more points of entry of the lift gas into the production tubing is then determined based on a deviation in the concentration of the tracer measured by accounting for variations in a fractal obtained by plotting multiple key well parameter data and a concentration of the tracer in a multi-dimensional time dependent plot.

Probable Assignee: WELLTRACER TECHNOLOGY LLC

Earliest Publication Date: 20151217



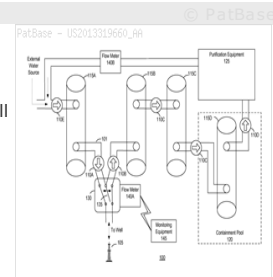
25) Family number: 55303334 (US2013319660A)

SYSTEM FOR CONTAINMENT, MEASUREMENT, AND REUSE OF FLUIDS IN HYDRAULIC FRACTURING

Abstract: Source: US2013319660A The system includes a number of flexible fluid containment structures, or tubes, for storing fluids used in or produced during fracking. The tubes may be filled to store water prior to introduction into the well or drilling waste expunged from the well. A series of valves and pumps control the flow of fluids to and from the tubes, well, and purification equipment. A backflow preventer including a primary port, forward port, and return port supports bi-directional fluid transfer with the well. Drilling fluids are piped into the forward port and exit the primary port to the well. A flow meter may be coupled to the forward port to determine the volume of fluid flowing through the forward port to the well. Drilling waste may also return from the well via the primary port and exit the return port, which may also include a flow meter.

Probable Assignee: PV FLOOD CONTROL CORP

Earliest Publication Date: 20131205



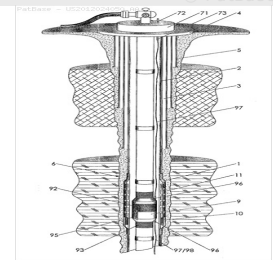
26) Family number: 42998440 (US2012024050A)

METHOD AND APPARATUS FOR IN-SITU WELLBORE MEASUREMENTS

Abstract: Source: US2012024050A An apparatus and method to monitor parameters outside the wellbore casing of a well includes a Wireless Sensor Unit located outside a section of a non-magnetic casing of the well. The Wireless Sensor Unit includes a sensor device to measure parameters of the surroundings. The apparatus further includes an internal Sensor Energizer Unit inside the wellbore casing used for power and communication with the Wireless Sensor Unit. The Sensor Energizer Unit and the Wireless Sensor Unit are arranged to be at the same elevation, and they communicate data using electromagnetic modulation techniques.

Probable Assignee: SENSOR DEVELOPMENTS AS

Earliest Publication Date: 20100714



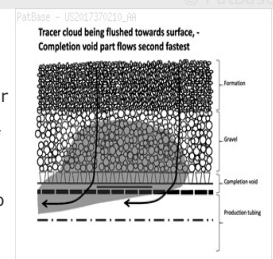
27) Family number: 62803428 (US2017370210A)

ONLINE TRACER MONITORING AND TRACER METER

Abstract: Source: US2017370210A A tracer method for online monitoring of downhole zonal contributions of oil, condensate, gas, or water mass flux of a production flow in a petroleum production well, includes arranging distinct tracer carrier systems, each in different production zones in said well, the distinct tracer carrier systems arranged for releasing unique tracers to a fluid of the production zones, the tracers having affinity after downhole release to separate phases of oil, condensate, gas, or water, using an online tracer monitor, conducting sampling of tracer concentrations for at least one of the tracers in said zonal mass fluxes at a high sampling rate, based on said concentration values, estimating the corresponding zonal tracer fluxes for each delivery data point and using said one or more estimated zonal mass fluxes to control one or more Petro Technical processes.

Probable Assignee: RESMAN AS

Earliest Publication Date: 20160624



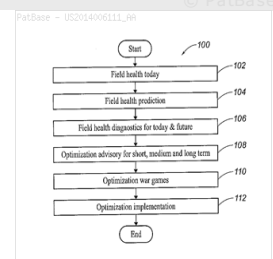
28) Family number: 53486917 (US2014006111A)

SYSTEMS AND METHODS FOR SUBSURFACE OIL RECOVERY OPTIMIZATION

Abstract: Source: US2014006111A Systems and methods for subsurface secondary and/or tertiary oil recovery optimization based on either a short term, medium term or long term optimization analysis of selected zones, wells, patterns/clusters and/or fields.

Probable Assignee: LANDMARK GRAPHICS CORP

Earliest Publication Date: 20130411



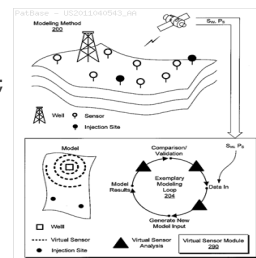
29) Family number: 46860946 (US2011040543A)

VIRTUAL RESERVOIR SENSOR

Abstract: Source: US2011040543A One or more computer-readable media include computer-executable instructions to instruct a computing system to receive simulation results for future behavior of a reservoir that includes a material production well and a fluid injection site; define a virtual sensor as being located between the material production well and the fluid injection site; determine fluid saturation at the virtual sensor based at least in part on the simulation results; and issue a notification if the fluid saturation at the virtual sensor exceeds a fluid saturation limit. Various other apparatuses, systems, methods, etc., are also disclosed.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20110212



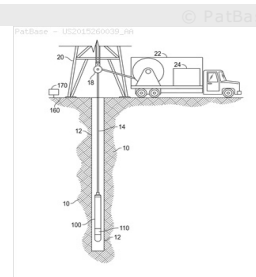
30) Family number: 58176807 (US2015260039A)

GRAVITY MONITORING OF A WATER-FLOODED ZONE IN AREAL SWEEP

Abstract: Source: US2015260039A Methods, systems, and devices for characterizing a water-flooded zone in an earth formation resulting from injection of water to the formation through an injector well borehole intersecting the formation. The method includes estimating horizontal elongation of the water-flooded zone using a gravity field change in the injector well borehole. Estimating horizontal elongation may include predicting a gravity field change for each of a plurality of model water-flooded zones for the borehole, wherein each model water-flooded zone is an elliptical cylinder having finite height and semi-axes; and fitting the gravity field change to one of the predicted gravity field changes corresponding to one of the plurality of elliptical cylinder model water-flooded zones. The gravity field change may comprise a difference between a first estimated gravity field in the injector well borehole before injection and a second estimated gravity field in the injector well borehole after injection.

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 20141231



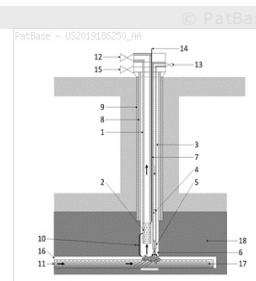
31) Family number: 68727948 (US2019186250A)

PRODUCTION WELL APPARATUS FOR UNDERGROUND COAL GASIFICATION AND USE THEREOF

Abstract: Source: US2019186250A A production well apparatus for underground coal gasification and an underground coal gasification method using same. The production well apparatus comprises a well head apparatus, a sleeve (8), a product pipe (1), a coolant pipe (3), and a monitoring meter system (7). Coolant is injected, during underground coal gasification, to be in contact and mixed with product gas, and the product gas is discharged after cooled, such that the operation is safer and more controllable. Moreover, most of the components of the production well apparatus can be completely or partially recycled and reused after the gasification is completed.

Probable Assignee: ZHONGWEI SHANGHAI ENERGY TECHNOLOGY CO LTD

Earliest Publication Date: 20180301



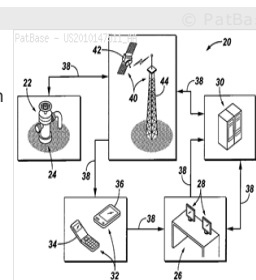
32) Family number: 45441336 (US2010147511A)

INJECTION WELL SURVEILLANCE SYSTEM

Abstract: Source: US2010147511A A method for surveillance of a well includes the steps of providing a pumping system in a wellbore that penetrates a formation; producing a fluid from the formation into the wellbore; injecting a fraction of the fluid from the wellbore into the formation via operation of the pumping system; surveying the pumping system in real-time via a sensor that senses well data; determining in real-time the correlation of a well parameter with a preselected threshold well parameter, wherein the well parameter is related to the sensed well data; and outputting a signal in response to the well parameter exceeding the preselected threshold parameter.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20100611



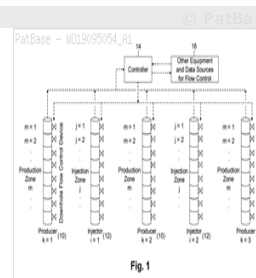
33) Family number: 74435315 (WO19095054A1)

ENHANCING HYDROCARBON RECOVERY OR WATER DISPOSAL IN MULTI-WELL CONFIGURATIONS USING DOWNHOLE REAL-TIME FLOW MODULATION

Abstract: The technology generally relates to control strategies for multi-well systems for conducting water disposal or hydrocarbon recovery from subterranean reservoirs, such as methods and systems for real-time fluid flow monitoring and control in response to breakthrough events with reallocation of fluid flows.

Probable Assignee: PAMBAN ENERGY SYSTEMS CANADA INC

Earliest Publication Date: 20190517



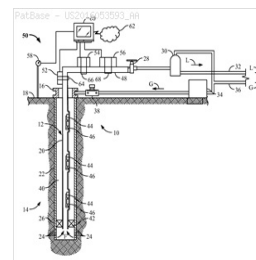
34) Family number: 61741849 (US2016053593A)

GAS LIFT OPTIMIZATION EMPLOYING DATA OBTAINED FROM SURFACE MOUNTED SENSORS

Abstract: Source: US2016053593A A method of optimizing the operation of a gas lift well. The method includes the steps of: collecting data from at least one surface mounted sensor, the at least one surface mounted sensor including a skin-mounted temperature sensor, the at least one surface mounted sensor mounted to the gas lift well's surface equipment; collecting ambient temperature data; and determining gas lift performance from data so obtained. A system and field test kits for optimizing the operation of a gas lift well are also provided.

Probable Assignee: EXXON MOBIL CORP

Earliest Publication Date: 20160225



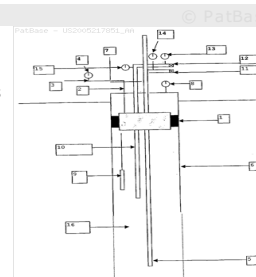
35) Family number: 23506242 (US2005217851A)

METHOD FOR STIMULATION OF LIQUID FLOW IN A WELL

Abstract: Source: US2005217851A An improved method of controlled energy delivery utilizing solid, liquid, and gaseous carbon dioxide (CO₂) into a water well and the surrounding aquifer to remove deposited material which may cause loss of capacity in wells and a variety of water quality problems. After proper study and evaluation of problems associated with a well to be treated, adequate injection of the required amount of CO₂ and energy is achieved by real-time monitoring during the injection and manipulating the phase changes in the CO₂ that take place in the well and the aquifer.

Probable Assignee: SUBSURFACE TECHNOLOGIES INC

Earliest Publication Date: 20020718



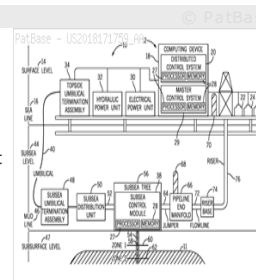
36) Family number: 70159861 (US2018171759A)

SYSTEMS AND METHODS FOR STARTING, RESTARTING, MONITORING, AND INCREASING PERFORMANCE OF A PRODUCTION AND/OR INJECTION SYSTEM

Abstract: Source: US2018171759A A system includes a distributed control system and a subsea tree that includes subsea tree chokes and a subsea control module communicatively coupled to flow control valves. The distributed control system communicatively couples to the subsea control module, is located at a surface level, and includes processors that send a first instruction to the flow control valves to adjust hydrocarbon production flow when water or gas cut is above a threshold. The processors also send a second instruction to the subsea tree chokes to adjust the flow of the production when a quality of commingling of the production flow with additional production flows is less than a threshold, an arrival pressure is less than a threshold, or an arrival flow rate is less than a threshold. The processors further continue the production of the fluids with current settings when a production rate is above a production rate threshold.

Probable Assignee: ONESUBSEA IP UK LTD

Earliest Publication Date: 20180620



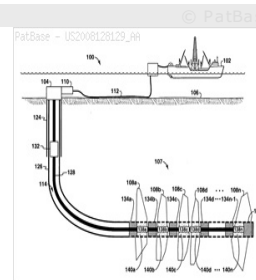
37) Family number: 44262085 (US2008128129A)

GRAVEL PACKING METHODS

Abstract: Source: US2008128129A A method associated with the production of hydrocarbons is described. The method includes drilling a wellbore using a drilling fluid, conditioning the drilling fluid, running a production string in the wellbore and gravel packing an interval of the wellbore with a carrier fluid. The production string includes a joint assembly comprising a main body portion having primary and secondary fluid flow paths, wherein the main body portion is attached to a load sleeve assembly at one end and a torque sleeve assembly at the opposite end, the load sleeve assembly having at least one transport conduit and at least one packing conduit disposed therethrough. The main body portion may include a sand control device, a packer, or other well tool for use in a downhole environment. The joint assembly also includes a coupling assembly having a manifold region in fluid flow communication with the second fluid flow path of the main body portion and facilitating the make-up of first and second joint assemblies with a single connection.

Probable Assignee: EXXON MOBIL CORP

Earliest Publication Date: 20080522



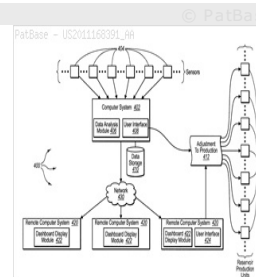
38) Family number: 49098462 (US2011168391A)

METHOD FOR DYNAMICALLY ASSESSING PETROLEUM RESERVOIR COMPETENCY AND INCREASING PRODUCTION AND RECOVERY THROUGH ASYMMETRIC ANALYSIS OF PERFORMANCE METRICS

Abstract: Source: US2011168391A Methods for accurately assessing the condition of a petroleum reservoir and designing and implementing a plan of action to increase production and recovery of petroleum from the reservoir. Information is gathered using a unique set of metrics and information gathering techniques and analyzed in a targeted fashion by properly weighting the data in the context of the particular reservoir and goals of the producer. A reservoir rating is generated using asymmetric analysis of metrics and then used to formulate a plan of action. Production architecture (e.g., number, location and manner of constructing oil and injector wells) is then constructed according to the plan of action. Reservoir performance can be continuously monitored and used to verify production and recovery goals and/or provide triggers or alarms to alter production equipment.

Probable Assignee: QRI GROUP LLC

Earliest Publication Date: 20110621



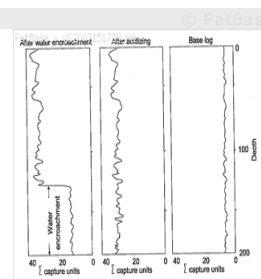
39) Family number: 34709564 (US2007151728A)

METHOD TO DETECT LOW SALINITY INJECTION WATER ENCROACHMENT INTO OIL FORMATIONS

Abstract: Source: US2007151728A This invention relates to the field of water flood monitoring in low saline water environment in a subterranean formation. In particular, the method of the invention relates to detecting the encroachment of low salinity water into oil formations. This invention provides the means to gain valuable information about water movement within the oil reservoir.

Probable Assignee: SAUDI ARABIAN OIL CO

Earliest Publication Date: 20070705



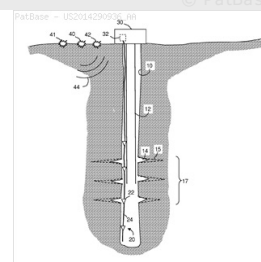
40) Family number: 52592460 (US2014290936A)

HYDRAULIC FRACTURE MONITORING USING ACTIVE SEISMIC SOURCES WITH RECEIVERS IN THE TREATMENT WELL

Abstract: Source: US2014290936A A method for obtaining information about a hydraulic fracturing operation in a fracture zone in a well, comprises a) providing at least one acoustic sensor in the well and at least one acoustic source, b) injecting fracturing fluid into the well so as to cause fractures in a fracture zone in the surrounding formation, c) using the acoustic source to send an acoustic signal and using the acoustic receiver to receive the signal, d) repeating step c) at least once, and e) processing the received signals using a microprocessor so as to obtain information about the fractures. The source may be at the earth's surface or in a second well. Step e) may comprise measuring first-arriving acoustic waves or measuring reflected or diffracted acoustic waves. The information gained in step e) may be used to control the injection of fracturing fluid or detect out-of-zone water injection.

Probable Assignee: SHELL OIL CO

Earliest Publication Date: 20121220



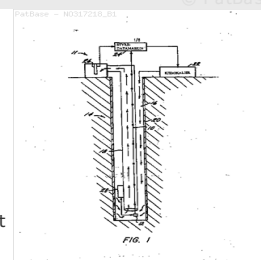
41) Family number: 33496768 (NO996082L)

KONTROLL- OG OVERVAKINGSSYSTEM FOR KJEMISK BEHANDLING AV EN OLJEBROENN

Abstract: Source: CA2293686A A control and monitoring system for chemical system for chemical treatment of an oilfield well is presented. In accordance with the present invention, a chemical injection monitoring and control system includes the placement of one or more sensors downhole in a producing zone for measuring the chemical properties of the produced fluid as well as for measuring other downhole parameters of interest. These sensors are preferably fiber optic based and provide a high temperature, reliable, and relatively inexpensive indicator of the desired chemical parameter. Surface and/or downhole controllers receive input from the several downhole sensors; and in response thereto, control the injection of chemicals into a wellbore and/or surface treatment system. By the sensors communicating with both the surface and/or downhole controllers, the effectiveness of the downhole or surface treatment system is monitored in real-time and based on the sensed information, the controllers will initiate some change in the manner, amount, or type of the chemical being injected.

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 19981230



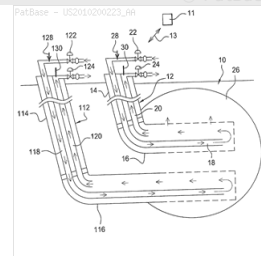
42) Family number: 45887312 (US2010200223A)

METHOD FOR HEATING A HYDROCARBONS RESERVOIR

Abstract: Source: US2010200223A A method is proposed for heating a hydrocarbons reservoir, comprising the provision of an installation comprising: a first wellbore equipped with an injection string fitted with an adjustable choke and an extraction string fitted with an adjustable choke, a set of sensors, intended to measure physical variables, an automatic device making it possible to control and monitor the operation of the installation; the circulation of steam from one string to the other; the control of the steam injection flow rate in function of a target value; the keeping of a set of physical variables within a predetermined range of values by continuous action of the automatic device on the choke of the injection string, and on the choke of the extraction string. The method makes it possible to more precisely control injection of the steam into the wellbore, throughout the circulation phase, optimizing the steam injection flow rate throughout the circulation phase while still ensuring the safe operation of the steam circulation phase.

Probable Assignee: TOTAL SA

Earliest Publication Date: 20100622



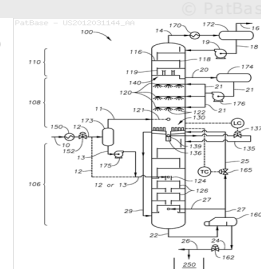
43) Family number: 46565757 (US2012031144A)

CRYOGENIC SYSTEM FOR REMOVING ACID GASES FROM A HYDROCARBON GAS STREAM, AND METHOD OF REMOVING ACID GASES

Abstract: Source: US2012031144A A system for removing acid gases from a raw gas stream the system includes a cryogenic distillation tower. The tower receives and separates the raw gas stream into an overhead methane stream and a bottom liquefied acid gas stream. Refrigeration equipment downstream of the cryogenic distillation tower cools the overhead methane stream and returns a portion of the overhead methane stream to the cryogenic distillation tower as liquid reflux. The system also may include a first molecular sieve bed upstream of the distillation tower and a second molecular sieve bed downstream of the distillation tower. The first molecular sieve bed adsorbs water while the second molecular sieve bed adsorbs additional acid gases from the cooled overhead methane stream.

Probable Assignee: SIEMENS AG

Earliest Publication Date: 20100819



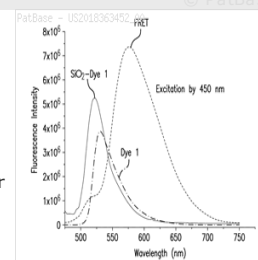
44) Family number: 72483553 (US2018363452A)

MULTICOLOR FLUORESCENT SILICA NANOPARTICLES AS TRACERS FOR PRODUCTION AND WELL MONITORING

Abstract: Source: US2018363452A A method of determining a property within a subterranean formation comprises introducing silica nanoparticles into a well; obtaining a sample of a fluid produced from the well; and analyzing the sample for presence of the silica nanoparticles, wherein the silica nanoparticles comprise a core, a donor chromophore, an acceptor chromophore, and an outer silica shell; the donor chromophore and the acceptor chromophore being selected such that an emission spectrum of the donor chromophore overlaps with an absorption spectrum of the acceptor chromophore.

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 20181220



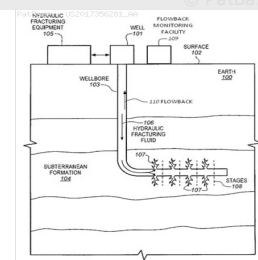
45) Family number: 62803712 (US2017356281A)

METHOD FOR ENHANCING HYDROCARBON RECOVERY FROM TIGHT FORMATIONS

Abstract: Source: US2017356281A A method of increasing recovery of liquid hydrocarbons from subsurface reservoirs, and particularly from those located in tight formations, is disclosed. One aspect includes calculating the in situ fractured formation wettability from real-time measurement of flowback volume and composition. Another aspect includes determining the composition of the fracturing fluid, the overflush or both, that will achieve higher liquid hydrocarbon recovery by increasing the water wettability of rock surfaces within the reservoir. Monitoring of rock-surface wettability through flowback volume and composition profiles allows the above mentioned injectates to be adjusted in the field to achieve maximal recovery. Other methods, apparatuses, and systems are disclosed.

Probable Assignee: NAT TECH AND ENG SOLUTIONS SANDIA LLC

Earliest Publication Date: 20160630



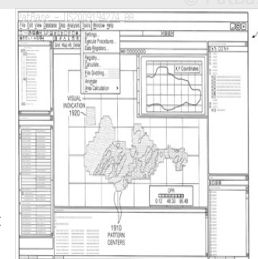
46) Family number: 43588946 (US2009194274A)

STATISTICAL DETERMINATION OF HISTORICAL OILFIELD DATA

Abstract: Source: US2009194274A A method, system, and computer program product for performing oilfield surveillance operations. The oilfield has a subterranean formation with geological structures and reservoirs therein. The oilfield is divided into a plurality of patterns, with each pattern comprising a plurality of wells. Historical production/injection data is obtained for the plurality of wells. Two independent statistical treatments are performed to achieve a common objective of production optimization. In the first process, wells and/or patterns are characterized based on Heterogeneity Index results and personalities with the ultimate goal of field production optimization. In the second process, the history of the flood is divided into even time increments. At least two domains for each of the plurality of wells are determined. Each of the at least two domains are centered around each of the plurality wells. A first domain of the at least two domains has a first orientation. A second domain of the at least two domains has a second orientation. An Oil Processing Ratio is determined for each of the at least two domains, then an Oil Processing Ratio Strength Indicator is calculated. At least one Meta Pattern within the field is then identified. An oilfield operation can then be guided based either on the well and/or pattern personality or the at least one Meta Pattern.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20090806



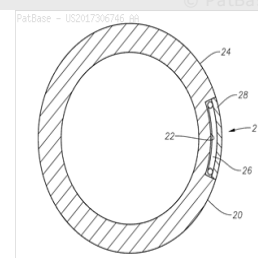
47) Family number: 62659740 (US2017306746A)

FORMATION MONITORING THROUGH THE CASING

Abstract: Source: US2017306746A A formation monitoring well system accurately measures formation electrical properties behind the casing to determine water-oil contact positions and/or to assess the integrity of the cement seal over the life of the well. The well system includes a casing string having one or more formation monitoring modules embedded therein, each having a toroid sensor. During operation, current is provided to the casing string, and the toroid measures the current flowing into the formation. Also, the voltage drop between the sensor and an electrode positioned between the cement layer and formation may be measured. This data may then be processed to determine the resistivities of the formation and/or cement layer, whereby the cement seal quality, water-oil contact surface position, etc. may be extracted from the results.

Probable Assignee: HALLIBURTON CO

Earliest Publication Date: 20160616



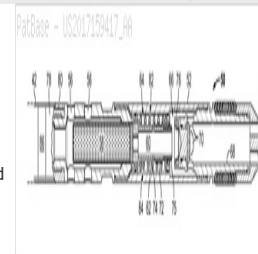
48) Family number: 61457895 (US2017159417A)

INTELLIGENT WATER FLOOD REGULATION

Abstract: Source: US2017159417A A technique facilitates remote monitoring and control of water flood regulator assemblies from a surface location, or other remote location, and for at least one zone in a well. For each zone, a regulator assembly comprising a regulator is deployed and is adjustable to enable regulation of a flow of water into a corresponding water flood injection zone. A control system is operatively coupled with the assembly to enable selective adjustment of the assembly for regulation of the water flow rate without employing intervention operations. In some applications, the surface controlled intelligent water flood regulator provides real time injection point flow information and enables real time adjustment.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20160121



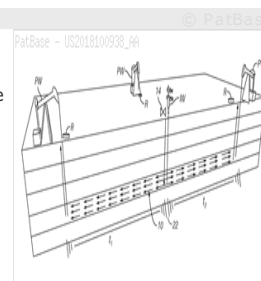
49) Family number: 66086996 (US2018100938A)

CONTINUOUS SUBSURFACE CARBON DIOXIDE INJECTION SURVEILLANCE METHOD

Abstract: Source: US2018100938A A method for characterizing a subsurface fluid reservoir includes inducing a pressure wave in a first well traversing the subsurface reservoir. A pressure wave in at least a second well traversing the subsurface reservoir is detected. The detected pressure wave results from conversion of a tube wave generated by the pressure wave in the first well into guided waves. The pressure wave in the at least a second well is generated by conversion of the guided waves arriving at the at least a second well. A guided (K) wave travel time from the first well to the at least a second well is determined and a physical property of the subsurface fluid reservoir is determined from the K-wave travel time.

Probable Assignee: SEISMOS INC

Earliest Publication Date: 20170615



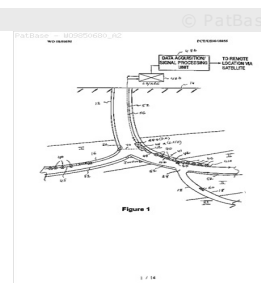
50) Family number: 33496824 (WO9850680A2)

MONITORING OF DOWNHOLE PARAMETERS AND TOOLS UTILIZING FIBER OPTICS

Abstract: The present invention provides systems utilizing fiber optics for monitoring downhole parameters and the operation and conditions of downhole tools. In one system fiber optics sensors are placed in the wellbore to make distributed measurements for determining the fluid parameters including temperature, pressure, fluid flow, fluid constituents and chemical properties. Optical spectrometric sensors are employed for monitoring chemical properties in the wellbore and at the surface for chemical injection systems. Fiber optic sensors are utilized to determine formation properties including resistivity and acoustic properties compensated for temperature effects. Fiber optic sensors are used to monitor the operation and condition of downhole devices including electrical submersible pumps and flow control devices. In one embodiment, a common fluid line is used to monitor downhole parameters and to operate hydraulically-operated devices. Fiber optic sensors are also deployed to monitor the physical condition of power lines supplying high electric power to downhole equipment. A light cell disposed downhole is used to generate electric power in the wellbore, which is used to charge batteries.

Probable Assignee: SENSOR HIGHWAY LTD

Earliest Publication Date: 19981112



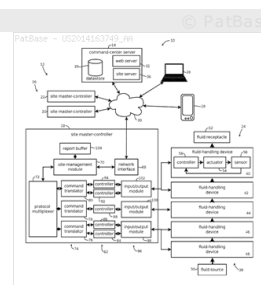
51) Family number: 55756079 (US2014163749A)

REMOTE CONTROL OF FLUID-HANDLING DEVICES

Abstract: Source: US2014163749A Provided is a process, including: receiving, via the network interface, from a remote user device, a command to change a state of the fluid-handling device to a target state; translating the received command into a translated command operative to cause a local controller of the fluid-handling device to drive the fluid-handling equipment to the target state, the local controller being responsive to the command and feedback from the fluid-handling device indicative of whether the fluid-handling device is in the target state; and sending the translated command to the local controller

Probable Assignee: SITEPRO LLC

Earliest Publication Date: 20140211



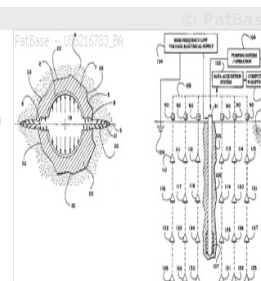
52) Family number: 30418187 (US6216783B)

AZIMUTH CONTROL OF HYDRAULIC VERTICAL FRACTURES IN UNCONSOLIDATED AND WEAKLY CEMENTED SOILS AND SEDIMENTS

Abstract: Source: US6216783B A method and apparatus for initiating an azimuth controlled vertical hydraulic fracture in unconsolidated and weakly cemented soils and sediments using active resistivity to monitor and control the fracture initiation and propagation. Separate or overlapping treatment walls and containment barriers can be created by controlling and monitoring the propagation of fractures in the subsurface. A fracture fluid is injected into a well bore to initiate and propagate a vertical azimuth controlled fracture. The fracture fluid is energized to conduct electrical current while the fracture propagates through the ground. A series of electrical resistivity monitors measure the electrical conductivity of the fracture fluid in real time against the background conductivity of the formation. Using a series of incremental influence functions, the azimuth of the vertical fracture can be controlled by regulating the injection of fracture fluid based upon the induced voltage of the earth and the conductivity of the fluid in the fracture.

Probable Assignee: GEOSIERRA LLC

Earliest Publication Date: 20000525



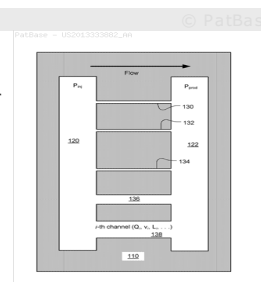
53) Family number: 55358647 (US2013333882A)

FLOWPATH IDENTIFICATION AND CHARACTERIZATION

Abstract: Source: US2013333882A Systems and methods are described for analyzing produced fluids in a mature water flood (or EOR scheme) and determining whether the introduction of an EOR agent, such as a chemical or a gas additive, or some other alteration in treatment, is enhancing the recovery of hydrocarbon from parts of the reservoir otherwise untouched by injected fluids. The monitoring can be used to identify subtle changes in the produced fluid caused by their flow through different pore structures. In a carbonate formation for example, ions and salts from the rock fabric are dissolved into the reservoir fluids, whether they are water or oil. These can be detected by various fluid analysis and particularly water analysis methods. The changes in reservoir fluid paths associated with the injection of an EOR agent are detected in the observation well.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20131219



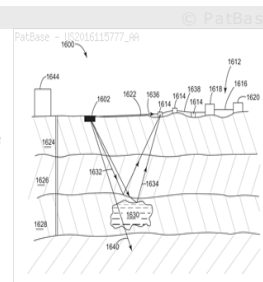
54) Family number: 62181154 (US2016115777A)

SYSTEM AND METHOD FOR PREDICTING THE FRONT ARRIVAL TIME IN RESERVOIR SEISMIC MONITORING

Abstract: Source: US2016115777A A system and method for predicting the front arrival time in seismic monitoring is disclosed The method includes measuring or computing a physical property reference signature at a calibration point, the physical property reference signature based on a change in a physical property over time due to a well injection; computing a seismic attribute reference signature at the calibration point based on the physical property reference signature; identifying a reference marker, the reference marker corresponding to a change in the seismic attribute reference signature at the calibration point over time; detecting a measured marker, the measured marker corresponding to a change in a seismic attribute of a recorded dataset over time; calibrating the measured marker; and calculating a marker arrival time for a location other than the calibration point.

Probable Assignee: CGG SERVICES SA

Earliest Publication Date: 20160427



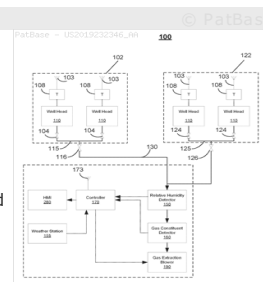
55) Family number: 75289553 (US2019232346A)

SYSTEM AND METHODS FOR MONITORING AND CONTROLLING AN AEROBIC LANDFILL BIOREACTOR

Abstract: Source: US2019232346A A system and method for monitoring or controlling an aerobic landfill bioreactor having a plurality of zones each including at least one well head. The system comprises: a gas extraction blower, a plurality of temperature sensors disposed in the well heads, an ex-situ relative humidity detector, an ex-situ gas constituent detector, an air injection system, a liquid injection system, and a controller. Landfill gas is extracted by the blower and its temperature, relative humidity, and gas constituents are measured. The system further comprises a system of headers, isolation valves, and flow control valves which serve to isolate zones for measurement and/or air and liquid injection as well as control the flow of either the landfill gas extraction or liquid and air injection. The method involves measuring: temperature, relative humidity, and gas constituents of the extracted landfill gas. Advantageously, the ex-site placement of the sensors and detectors ensure that measurements are representative of the aerobic bioreactor operating parameters. The air and liquid injection systems are adjusted, based on the measured temperature, relative humidity, and gas constituents to optimize the operation of the aerobic landfill bioreactor.

Probable Assignee: AEROBIC LANDFILL TECH INC

Earliest Publication Date: 20190731



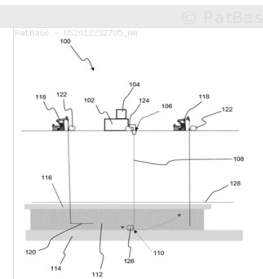
56) Family number: 51912474 (US2012232705A)

METHODS AND APPARATUS FOR ENHANCED RECOVERY OF UNDERGROUND RESOURCES

Abstract: Source: US2012232705A An enhanced system for recovering underground resources according to various aspects of the present invention is configured to increase and/or maintain a more constant output of a resource from an underground reservoir over time without damaging the reservoir. In one embodiment, the enhanced system for recovering underground resources comprises a monitoring system that continuously adjusts a formula for temperature and pressure controlled gases that are injected into the underground reservoir during a process of moving the resource to the surface for recovery. The monitoring system is adapted to utilize known and varying features and parameters of a given underground reservoir over time to maintain a more constant output from the reservoir.

Probable Assignee: MESQUITE ENERGY PARTNERS LLC

Earliest Publication Date: 20120913



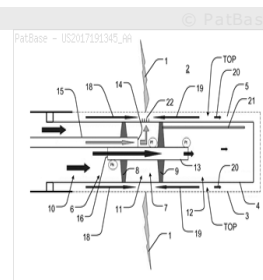
57) Family number: 56388587 (US2017191345A)

METHOD OF SEALING A FRACTURE IN A WELLBORE AND SEALING SYSTEM

Abstract: Source: US2017191345A In a method of sealing a fracture (1) in a formation (2) surrounding a wellbore provided with a non-cemented perforated liner (4), a placement tool (6) is introduced into the liner, and a first and second annular flow barrier (8, 9) create an upstream (10), an intermediate (11) and a downstream section (12). A cross flow shunt tube (13) connects the upstream section and the downstream section, and a sealing fluid outlet (14) is arranged in the intermediate section. A placement fluid is caused to flow into the fracture and controlled to obtain a desired fluid flow in an annular space between the liner and the formation that is directed in downstream direction at a position upstream the fracture and in the upstream direction at a position downstream the fracture. When said desired flow is obtained, sealing fluid is ejected from the sealing fluid outlet. A sealing system is furthermore disclosed.

Probable Assignee: TOTAL E AND P DANMARK A S

Earliest Publication Date: 20150909

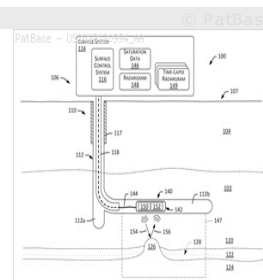


58) Family number: 74104208 (US2019120994A)

WATER CREST MONITORING USING ELECTROMAGNETIC TRANSMISSIONS

Abstract: Source: US2019120994A Provided are systems and methods for monitoring water cresting in a subsurface formation. Embodiments include, for each of a plurality of locations along a length of a horizontal section of a wellbore extending into a hydrocarbon reservoir of a subsurface formation, advancing an omnidirectional electromagnetic logging tool (ODEMLT) to the location, operating the ODEMLT to transmit (into a portion of the subsurface formation below the horizontal section of the wellbore) an electromagnetic (EM) source signal comprising a multi-frequency waveform, operating the ODEMLT to sense an EM return signal comprising a reflection of the multi-frequency waveform from the subsurface formation, and generating a subset of saturation data for the location corresponding to the sensed EM return signal, and generating, based on the subsets of saturation data, a radargram including a two-dimensional mapping of water saturation within the portion of the subsurface formation.

Probable Assignee: SAUDI ARABIAN OIL CO



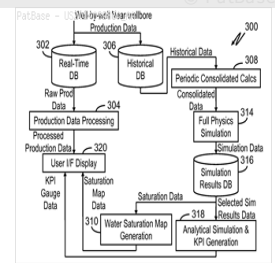
59) Family number: 55718174 (US2014039860A)

MONITORING AND DIAGNOSING WATER FLOODED RESERVOIRS USING PRODUCTION DATA

Abstract: Source: US2014039860A The present disclosure describes systems and methods for monitoring and diagnosing reservoirs. At least some illustrative embodiments include a method that includes collecting measured near-wellbore data representative of conditions at or near wells within the reservoir (e.g., oil and gas wells), storing the measured near-wellbore data in one or more databases and graphically presenting to a user simulated interwell data generated by a reservoir simulation based at least in part on the measured near-wellbore data. The method further includes graphically overlaying at least some of the measured near-wellbore data over the simulated interwell data and graphically presenting to the user one or more production indicators calculated based at least in part on the simulated interwell data.

Probable Assignee: LANDMARK GRAPHICS CORP

Earliest Publication Date: 20140206



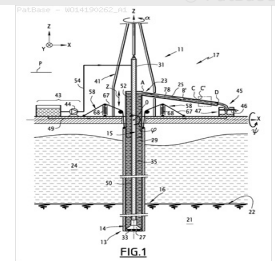
60) Family number: 57877760 (WO14190262A1)

METHOD FOR MONITORING THE DRILLING OF A WELL USING A FLOATING DRILLING RIG AND ASSOCIATED MONITORING SYSTEM

Abstract: Method of monitoring the drilling of a well (13) using an installation (11) comprising a drilling rig (17) floating on the sea (24) and subject to swell, a riser (50) connected to a well head (16), a slip-joint (52), and a drilling tool (15), the swell causing a heave movement, a pitch movement and a roll movement of the drilling rig, the method comprising the steps of: -obtaining an injection flow rate of a drilling fluid, -measuring a flow of a drilling mud recovered from the well in a discharge pipe (25) connected to a diverter (23) of the slip-joint at a discharge measurement point (C), -selecting a comparison point (C') located between the diverter and the discharge measurement point, -obtaining a slope value (0) representative of an angle of the discharge pipe with respect to a horizontal plane (P), and measuring a heave value of the drilling rig, -modeling a flow of the drilling mud along the discharge pipe using the slope value and one or several derivatives of the heave value versus time, -calculating a first flow rate of the drilling mud at the comparison point using the injection flow rate, and a second flow rate of the drilling mud at the comparison point using the measured discharge flow rate, and -performing a comparison between the first drilling mud flow rate and the second drilling mud flow rate to monitor the drilling.

Probable Assignee: GEOSERVICES EQUIPEMENTS

Earliest Publication Date: 20141126



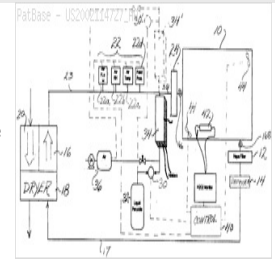
61) Family number: 30960011 (US2002114727A)

HIGH CAPACITY FLASH VAPOR GENERATION SYSTEMS

Abstract: Source: US2002114727A A flash vaporizer (34) provides a constant flow of vaporized hydrogen peroxide or other antimicrobial compounds for rapidly sterilizing large enclosures (10), such as rooms or buildings. The vaporizer includes a heated block (50) which defines an interior bore or bores (70, 72, 74). The flowpath created by the bore or bores increases in cross sectional area as the hydrogen peroxide passes through the block to accommodate the increase in volume during the conversion from liquid to gas. The vapor is injected into dry air in a duct that circulates it to the large enclosure.

Probable Assignee: AMERICAN STERILIZER CO

Earliest Publication Date: 20020822



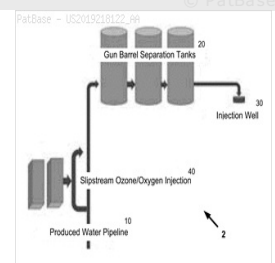
62) Family number: 75125503 (US2019218122A)

DYNAMIC PRODUCED WATER TREATMENT APPARATUS AND SYSTEM

Abstract: Source: US2019218122A An automated produced water treatment system that injects ozone or an ozone-oxygen mixture upstream of produced water separators, with the dose rate changing dynamically as the produced water quality changes, as determined by continuous monitoring of the produced water quality by a plurality of sensors that detect water quality parameters in real time. The system may operate as a "slipstream" injection system, that draws a portion of produced water from the produced water pipeline and injects ozone or an ozone-oxygen mixture back into the pipeline with disrupting or slowing normal operations. Disinfectants or other additives may also be injected. The treatment system may be wholly or partially contained in mobile containers or trailers, for on-the-fly use in existing produced water treatment facilities.

Probable Assignee: HYDROZONIX LLC

Earliest Publication Date: 20190718



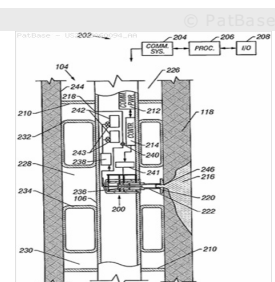
63) Family number: 29077975 (US2002060094A)

METHOD FOR FAST AND EXTENSIVE FORMATION EVALUATION USING MINIMUM SYSTEM VOLUME

Abstract: Source: US2002060094A A minimum volume apparatus and method is provided including a tool for obtaining at least one parameter of interest of a subterranean formation in-situ, the tool comprising a carrier member, a selectively extendable member mounted on the carrier for isolating a portion of annulus, a port exposable to formation fluid in the isolated annulus space, a piston integrally disposed within the extendable member for urging the fluid into the port, and a sensor operatively associated with the port for detecting at least one parameter of interest of the fluid.

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 20020131



COMPOSITIONS AND METHODS OF IMPROVING HYDRAULIC FRACTURE NETWORK

Abstract: Source: US2016177693A A diverter fluid includes an aqueous carrier fluid, and a plurality of water-swellaable polymer particles having a size of 0.01 to 100,000 micrometers. A method of hydraulically fracturing a subterranean formation penetrated by a reservoir includes injecting a fracturing fluid into the formation at a pressure sufficient to create or enlarge a fracture, injecting a diverter fluid into the formation, and injecting a fracturing fluid into the formation, wherein the flow of the fracturing fluid is impeded by the diverting agent and a surface fracture area of the fracture is increased. A method of controlling the downhole placement of a diverting agent is also disclosed, including injecting a diverter fluid including the diverting agent and an aqueous carrier fluid selected so that the polymer particles are fully swelled after contacting the aqueous carrier fluid for an amount of time sufficient to achieve a desired downhole placement.

Probable Assignee: BAKER HUGHES INC

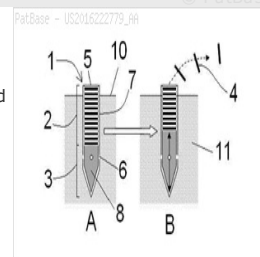
Earliest Publication Date: 20160623

A SYSTEM AND A METHOD FOR DETERMINING INFLOW DISTRIBUTION IN AN OPENHOLE COMPLETED WELL

Abstract: Source: US2016222779A The invention relates to a system and a method for determining flow patterns of fluid in a production well. Especially, the invention relates to a method of determining flow patterns between and into oil production wells drilled in the Earth when flow is improved by water flooding. The system comprises a canister (1) said canister being located in said formation at a subterranean location within or proximate the wellbore, the canister being provided with an exit opening (5), a traceable component (4) being placed in the canister and able to pass through the exit opening and a release mechanism capable of releasing the traceable component when triggered by a triggering mechanism such that the traceable component enters the fluid flowing through the well through the exit opening and is present in the fluid flow in the wellbore. The method comprising the steps of providing a canister in said formation at a subterranean location within or proximate the wellbore said canister holding a traceable component and being provided with an exit opening and monitoring the fluid flow from the wellbore at a location remote from said canister for the presence of traceable component.

Probable Assignee: MAERSK OLIE OG GAS A S

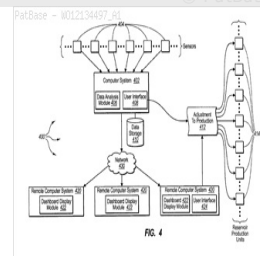
Earliest Publication Date: 20150326

**METHOD FOR DYNAMICALLY ASSESSING PETROLEUM RESERVOIR COMPETENCY AND INCREASING PRODUCTION AND RECOVERY THROUGH ASYMMETRIC ANALYSIS OF PERFORMANCE METRICS**

Abstract: Methods for accurately assessing the condition of a petroleum reservoir and designing and implementing a plan of action to increase production and recovery of petroleum from the reservoir. Information is gathered using a unique set of metrics and information gathering techniques and analyzed in a targeted fashion by properly weighting the data in the context of the particular reservoir and goals of the producer. A reservoir rating is generated using asymmetric analysis of metrics and then used to formulate a plan of action. Production architecture (e.g., number, location and manner of constructing oil and injector wells) is then constructed according to the plan of action. Reservoir performance can be continuously monitored and used to verify production and recovery goals and/or provide triggers or alarms to alter production equipment.

Probable Assignee: QRI GROUP LLC

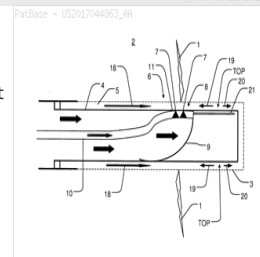
Earliest Publication Date: 20121004

**METHOD OF SEALING A FRACTURE IN A WELLBORE AND SEALING SYSTEM**

Abstract: Source: US2017044863A In a method of sealing a fracture (1) in a formation (2) surrounding a wellbore provided with a non-cemented perforated liner (4), a placement tool (6) is introduced into the liner and so positioned that a sealing fluid outlet (7) of the placement tool is located at the fracture (1). A placement section (8) including the sealing fluid outlet is pressed against the liner. A placement fluid is caused to flow into the fracture and controlled to obtain a desired fluid flow in an annular space (5) between the liner and the formation that is directed in downstream direction at a position upstream the fracture and that is directed in upstream direction at a position downstream the fracture. When said desired flow is obtained, sealing fluid is ejected from the sealing fluid outlet. A sealing system is furthermore disclosed.

Probable Assignee: MAERSK OLIE OG GAS A S

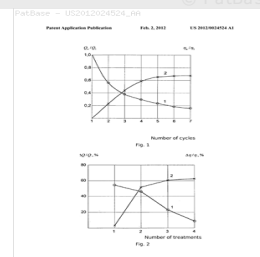
Earliest Publication Date: 20150909

**METHOD FOR MONITORING OIL FIELD DEVELOPMENT**

Abstract: Source: US2012024524A The invention relates to the oil industry, in particular to methods for monitoring the development of oil fields. In order to increase the monitoring efficiency of the oil field development by the fuller recording of parameters that characterize a deposit to be developed, for hydraulically unrelated areas with equal values of desirability functions, the method involves additionally measuring the stability of a water-oil emulsion in each well, calculating the mean value of the water-oil emulsion within each area and advising the use of methods for increasing oil recovery at the areas according to the incrementation of the water-oil emulsion value.

Probable Assignee: FEDOROV YURY VIKTOROVICH

Earliest Publication Date: 20100527



[illegible]

FIG. 1

Earliest Publication Date: 20130502

Probable Assignee: SUNCOR ENERGY INC

Earliest Publication Date: 20180824

[illegible]

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 19981127

Probable Assignee: YASKAWA ELECTRIC CORP

Earliest Publication Date: 20080430

Abstract: Source: US6873267B The invention provides apparatus and methods for monitoring and controlling hydrocarbon production wells and/or injection wells from a remote location. The apparatus for monitoring and controlling one or more hydrocarbon production wells or injection wells from a remote location comprises one or more surface control and data acquisition systems; one or more sensors disposed in communication with the one or more control and data acquisition systems; one or more downhole flow control devices disposed in communication with the one or more control and data acquisition systems; and one or more remote controllers disposed in communication with the one or more control and data acquisition systems. Preferably, the remote controller comprises a computer having an internet access disposed in communication with the one or more control and data acquisition systems through a communication device comprising an internet web site server. The method for monitoring and controlling a downhole hydrocarbon production well or an injection well comprises: transmitting data collected by a downhole sensor module to a control and data acquisition system; evaluating downhole operating conditions and optimizing downhole operating parameters utilizing an optimization software program disposed in communication with the control and data acquisition system; and transmitting signals between the control and data acquisition system system and a remote controller utilizing a satellite communication system, the remote controller comprising a computer and an internet browser control access adapted to display operating conditions and parameters and to accept instructions to change operating parameters.

Probable Assignee: WEATHERFORD TECHNOLOGY HOLDINGS LLC

Earliest Publication Date: 20010405

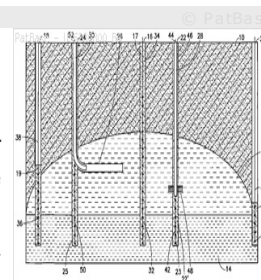
74) Family number: 15290968 (US6230800B)

METHODS AND APPARATUS FOR LONG TERM MONITORING OF A HYDROCARBON RESERVOIR

Abstract: Source: US6230800B The methods and apparatus of the invention include installing sensors in one or more of the many hole sections which are abandoned before the holes are sealed with cement. According to the invention, a sensor array is attached to the cement delivery device which is used to seal a hole which would otherwise be abandoned. The preferred apparatus for cement delivery is a "coiled tubing". Preferably, the sensor array is passed through the center of the tubing so that it is protected from damage or snagging while being delivered to its deployment position. The coiled tubing may be withdrawn or left in place after the cement is delivered into the hole. When the cement cures, the sensor array is centered in the cement plug which seals the reservoir. According to the invention, the sensor array may be placed in any well which is to be abandoned. Such wells include exploration wells, appraisal wells, delineation wells, collapsed wells, oil wells which develop high levels of gas or water production, and gas wells which develop high levels of water production. In addition, the sensor array may be deployed in an unused portion of a production or injection well. For example, the sensor array may be located in a logging pocket. Similarly, the sensor array may be located in the pilot hole of a horizontal well.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20010201



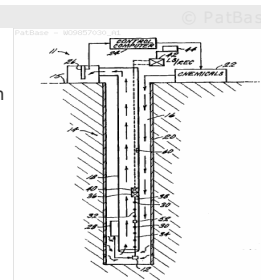
75) Family number: 33497234 (WO9857030A1)

CONTROL AND MONITORING SYSTEM FOR CHEMICAL TREATMENT OF AN OILFIELD WELL

Abstract: A control and monitoring system for chemical system for chemical treatment of an oilfield well is presented. In accordance with the present invention, a chemical injection monitoring and control system includes the placement of one or more sensors downhole in a producing zone for measuring the chemical properties of the produced fluid as well as for measuring other downhole parameters of interest. These sensors are preferably fiber optic based and provide a high temperature, reliable, and relatively inexpensive indicator of the desired chemical parameter. Surface and/or downhole controllers receive input from the several downhole sensors; and in response thereto, control the injection of chemicals into a wellbore and/or surface treatment system. By the sensors communicating with both the surface and/or downhole controllers, the effectiveness of the downhole or surface treatment system is monitored in real-time and based on the sensed information, the controllers will initiate some change in the manner, amount, or type of the chemical being injected.

Probable Assignee: BAKER HUGHES INC

Earliest Publication Date: 19981217



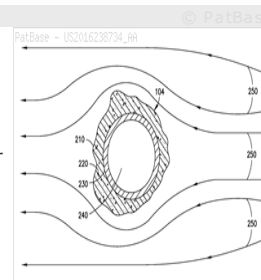
76) Family number: 58929564 (US2016238734A)

TOOLS FOR USE IN OBSERVATION WELLS

Abstract: Source: US2016238734A A permanent monitoring tool is provided and disposed in a wellbore. Measurements are made at different times using the permanent monitoring tool on a region of a formation penetrated by the wellbore. One or more properties of the formation are inferred at one or more depths of investigation within the region using the measurements. Any changes in the one or more inferred formation properties are determined and one or more reservoir management decisions are made based on the determined changes. The well may be an observation well, an injector well, or a production well. The permanent monitoring tool may be a magnetic resonance tool or an electromagnetic tool. The measurements may be stacked to improve the signal-to-noise ratio of the signal. Different depths of investigation may be selected using antenna arrays of different lengths. The inferred properties may be saturation or resistivity. Conductive or non-conductive casing may be used.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20150409



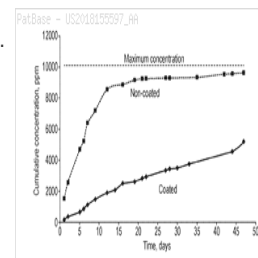
77) Family number: 59781463 (US2018155597A)

CONTROLLED RELEASE SYSTEM FOR THE RELEASE OF OIL FIELD CHEMICALS AND USE OF THE SYSTEM FOR RESERVOIR TREATMENT AND MONITORING

Abstract: Source: US2018155597A Compositions having a core and a coating that covers at least part of the core, where the core comprises a mixture of at least one oil field chemical and at least one core matrix polymer are described. The composition provides a slower release of an oil field chemical into an eluent compared to the release provide by the core. The compositions provide for the controlled release of tracer over long periods of time than is provided by the release from the core. Methods of making the compositions and systems containing the compositions are described. Methods of tracing the movement of fluid in a hydrocarbon reservoir using the compositions and methods of releasing biocides and other well treatment agents into reservoir fluids over time are also described.

Probable Assignee: JOHNSON MATTHEY PLC

Earliest Publication Date: 20161103



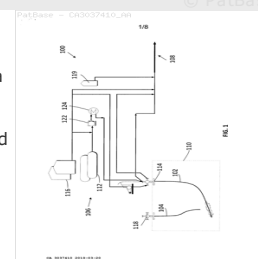
78) Family number: 74598839 (CA3037410A)

INTEGRATED SURVEILLANCE SYSTEM FOR CYCLIC SOLVENT DOMINATED PROCESSES

Abstract: Source: CA3037410A Systems and methods for monitoring the composition of a produced fluid recovered in a bitumen recovery facility in real-time to predict a phase profile of the produced fluid in real-time are described herein. The systems include at least one flow rate sensor, density sensor, temperature sensor and pressure sensor positioned between a bottom hole of a wellbore and an end of a production stream, and one or more processors operatively coupled to each of the sensors. The one or more processors, collectively, are configured to determine a water-cut of the produced fluid in real-time, determine a solvent content of hydrocarbons of the produced fluid in real-time based on the water-cut, a hydrocarbon density correlation and a bitumen density correlation, and predict a phase profile of the produced fluid in real-time based on the temperature and pressure of the produced fluid. The systems are also configured to initiate actions for mitigating potential flow assurance disruptions based on the predicted phase profile of the produced fluid.

Probable Assignee: IMP OIL RESOURCES LTD

Earliest Publication Date: 20190527



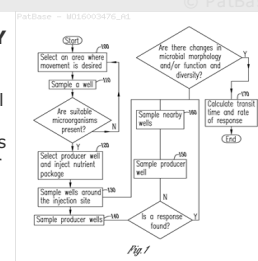
79) Family number: 61323003 (WO16003476A1)

METHOD OF MONITORING THE FLOW OF NATURAL OR INJECTED WATER DURING OIL FIELD RECOVERY PROCESSES USING AN ORGANIC TRACER

Abstract: A method of monitoring fluid flow in an oil reservoir includes the step of delivering a nutrient package to an oil reservoir. The nutrient package stimulates the growth of resident microbes/organisms which changes the morphology and function of the microbes. A sample is taken from produced fluids from wells in the reservoir and possible connections thereof and analyzed. Based on the analysis, determinations are made regarding the movement of fluids in the reservoir by observing changes in the range, concentration, and cell morphology of the microbes after nutrient stimulation by comparing pre-treatment versus post treatment measurements.

Probable Assignee: TITAN OIL RECOVERY INC

Earliest Publication Date: 20160107



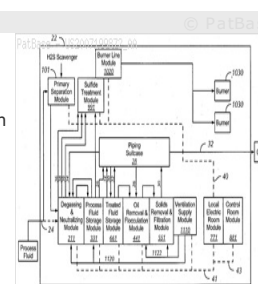
80) Family number: 35853985 (US2007199872A)

HYDROGEN SULFIDE TREATMENT SYSTEM

Abstract: Source: US2007199872A The present invention provides a system for treating a process fluid. The system includes a modular arrangement that includes ten modules for; reducing the amount of dissolved and entrained hydrogen sulfide gas in the process fluid; monitoring the pH of the process fluid; storing the process fluid; reducing an amount of oil from the process fluid; and flocculating the process fluid; measuring the amount of oil in the process fluid; providing ventilation supply air to at least one of the modules; removing hydrogen sulfide gas from a sour gas; delivering gases to a burner system; and controlling the processes of the system.

Probable Assignee: M I LLC

Earliest Publication Date: 20070830



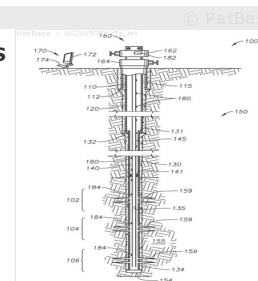
81) Family number: 56778896 (US2015354351A)

APPARATUS AND METHOD FOR MONITORING FLUID FLOW IN A WELLBORE USING ACOUSTIC SIGNALS

Abstract: Source: US2015354351A An electro-acoustic system for downhole telemetry employs a series of communications nodes spaced along a string of casing within a wellbore. The nodes allow wireless communication between transceivers residing within the nodes and a receiver at the surface. The transceivers provide node-to-node communication up a wellbore at high data transmission rates for data indicative of fluid flow within the wellbore. A method of monitoring the flow of fluid within a wellbore uses a plurality of data transmission nodes situated along the casing string sending signals to a receiver at the surface. The signals are then analyzed.

Probable Assignee: EXXON MOBIL CORP

Earliest Publication Date: 20140626



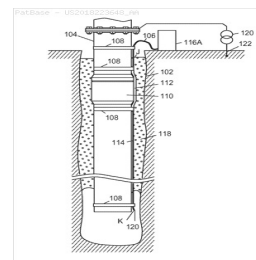
82) Family number: 65329351 (US2018223648A)

DISTRIBUTED MAGNETOMOTIVE FORCE SENSIN

Abstract: Source: US2018223648A A disclosed formation monitoring system includes a casing that defines an annular space within a borehole. A distributed magnetomotive force sensor is positioned in the annular space and configured to communicate with the surface via a fiber-optic cable. A computer coupled to the fiber-optic cable receives said measurements and responsively derives the location of any fluid fronts in the vicinity such as a an approaching flood front to enable corrective action before breakthrough. A disclosed formation monitoring method includes: injecting a first fluid into a reservoir formation; producing a second fluid from the reservoir formation via a casing in a borehole; collecting magnetic field measurements with a distributed magnetomotive force sensor in an annular space between said casing and said borehole, communicating measurements to a surface interface via one or more fiber-optic cables; and operating on said measurements to locate a front between the first and second fluids.

Probable Assignee: HALLIBURTON CO

Earliest Publication Date: 20170331



83) Family number: 62989339 (US2016215612A)

REAL-TIME WELL SURVEILLANCE USING A WIRELESS NETWORK AND AN IN-WEELLBORE TOOL

Abstract: Source: US2016215612A A method of transmitting data in a wellbore uses a signal receiver that is run into the wellbore on a working string. The signal receiver receives wireless signals from receiver communications nodes placed along the wellbore. The data from those signals is then sent up the wellbore, either by directing the signals directly up the working string, or by spooling the string to the surface and uploading the data. Sensors and associated communications nodes are placed within the wellbore to collect data. The communications nodes may be the signal receiver nodes; alternatively, the communications nodes may send data from the sensors up the wellbore through acoustic signals to a receiver communications node. In the latter instance, intermediate communications nodes having electro-acoustic transducers are used as part of a novel telemetry system.

Probable Assignee: EXXON MOBIL CORP

Earliest Publication Date: 20160728

