CHITLIG ENERGY

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Description of the Product

- Hydrocarbon recovery at Aerobic Conditions (HCAC) from Shale through a US Patented chemical reaction.
- We have solved one of the fundamental decomposition mechanisms of shale.
- The rest was to develop the art of intervention in the most natural way.
- In nature, this process takes a long time.
- We have accelerated this process.

Team Members & Brief Bios

- Founder, General Director
- B.Sc. Department of Physics, Middle East Technical University (1969)
- Expert in Sustainable Energy Sources

- Founder, R&D Director
- B.Sc., Department of Chemistry, Middle East Technical University (1974)
- M.Sc., Department of Chemistry, Middle East Technical University (1976)
- Ph.D., Oceanography, University of Liverpool, the UK (1981)
- Expert in Oceanography & Environmental Engineering

Who is Chitlig?

UNITED STATES
PATENT AND TRADEMARK OFFICE

uspto

US 10,266,404 B2

METHOD FOR OBTAINING COMBUSTIBLE GASES FROM ROCKS FOR ENERGY PRODUCTION

Ahmet Cemal Saydam, Ankara (TR); and Amir Hadji Ali Ghandi, Ankara (TR)
Assigned to CHITLIG ENERJI URETIM VE PAZARLAMA A.S., Ankara (TR)
Filed by CHITLIG ENERJI URETIM VE PAZARLAMA A.S., Ankara (TR)
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- Chitlig is an R&D company.
- We have a U.S.-patented shale gas recovery method.
- We are seeking companies in the upstream industries in the United States.
- This is our first foray into the oil & gas industry.

Our vision

Chitlig's vision is increasing the recovery of hydrocarbon resources from low-permeability formations via an environmentally-friendly natural process.

Our mission

CHITLIG's mission is to

- introduce our radical HCAC approach in the shale gas industry, and
- transfer this environmentally benign technology to operators for further development in the field.

Effective partnership with firms interested in our patented approach is the key to accomplishing this mission.

What we want to achieve

- We want to prove HCAC's ability to increase production in the field.
- HCAC relies on the chemical reaction which creates hydrocarbon gases in the shale sediment in contrast to hydraulic fracturing that allows the extraction of gas trapped in the shale.
- HCAC method is extremely environment friendly and has zero groundwater impact.
- In fact the water fraction can be used as a natural fertilizer thanks to the pure natural acid reactant.

The process

Shale + Acidic Reactant ⟶ HCAC

Applying vacuum shifts the reaction towards right in other words more HCAC generation.

- Instead of chemicals we pump our natural acidic reactant and initiate a decomposition mechanism that results in formation of methane, ethane, propane, butane, hexane and their isomers.
- Basically HCAC just mimicking mother nature process and receives results in minutes.

Successful Lab Examples

- We have obtained hydrocarbon gases at the lab by using various shale rocks under OXIC conditions.
- Each shale sample results in formation of various rates of C_1-C_6 hydrocarbons.
- This variation is due to diverse flora and fauna during past geological times, just like the variations of the API of crude oil.

Short-term plan

We are looking for partnership to perform;

- Laboratory testing with various shale samples under reservoir conditions.
- Scale up the process in order to enhance HCAC method.
- Finally field application for being ready to the market.

Long-term plan

- Use this technology for new and existing wells at the end of their economic life to enhance gas recovery.
- Eliminate environmental concerns raised by the current technology.
- Use flowback liquid in agricultural and other much more valuable applications!

How will it work? Is it working now?

Chitin

- The second most abundant biopolymer on earth.
- Also part of the shale layers.
- Removal of acetyl groups generates HCs.
- Remaining amine group as well as dissolved minerals are the base of fertilizer solution.

Our Market

- Upstream shale gas sector. Hydraulic & Acid fracking applications.
- Open field shale mine application.
- Bituminous sand mine application.

SWOT Analysis

Strengths

- HCAC is a revolutionary gas extraction technique under aerobic conditions.

Weaknesses

- Not yet been tested in field, under reservoir conditions.

Opportunities

- Environmentally benign process that allows HCAC recovery with additional benefits for the agricultural sector and beyond.

Threats

- Prejudice against the new HCAC approach due to old doctrine that "methane forms under anoxic conditions."

Action Steps

- Schedule meetings with interested companies
- Demonstrate HCAC at their facilities.
- Demonstrate HCAC at their well sites.