

WHAT IS CLAIMED IS:

1. A method for extracting methane from crude oil comprising:
 - a) receiving crude oil into a first vessel in an amount sufficient to create a head space;
 - b) adjusting temperature and/or pressure of the vessel to produce separation of dissolved gases;
 - c) transferring the gases separated in step b) into a second vessel;
 - d) introducing water, optionally a thermodynamic promoter, and optionally a kinetic promoter into the second vessel;
 - e) adjusting the pressure and/or temperature to form a gas clathrate pellet; and
 - f) optionally transferring the sII gas clathrate hydrate to a storage vessel having one or more of the following characteristics:
 - i) neutrally or near-neutrally buoyant,
 - ii) strong enough to effectively contain the sII gas clathrate hydrate without substantial leaking or rupturing, and
 - iii) flexible to effectively resist substantial formation of a void volume.
2. The method according to claim 1, further comprising the step of:
 - g) transferring the processed crude oil from the first vessel to a container, pipeline, ship, or refinery for further processing.
3. The process according to claim 1 further comprising the steps of:
 - h) removing any unprocessed gas from the second vessel;
 - i) optionally transferring the unprocessed gas to a reservoir for sequestration and to maintain reservoir pressure; and
 - j) optionally processing the unprocessed gas for commercial purposes.
4. The method according to claim 3, wherein the unprocessed gas is carbon dioxide.
5. The method according to claim 3 wherein the unprocessed gas comprises one or more

selected from the group consisting of ethane, propane, butane and mixtures thereof.

6. The method according to claim 1, wherein the promoter is selected from the group consisting of tetrahydrofuran, cyclopentane, 2,2-dimethylbutane, methylcyclohexane, neohexane, 2-methylcyclohexane, p-nacolone, isoamyl alcohol, tertiary-butyl methyl ether, and mixtures thereof.
7. The method according to claim 1, wherein in step d) the water is selected from the group consisting of fresh water, associated water and sea water and mixtures thereof.
8. A method for recovering methane from crude oil, comprising:
 - a) receiving crude oil into a first vessel in an amount sufficient to create a head space;
 - b) adjusting temperature and/or pressure of the first vessel to produce separation of any dissolved gas in the crude oil;
 - c) transferring the gas separated in b) into a second vessel;
 - d) introducing water, optionally a thermodynamic promoter into the second vessel to form a clathrate slurry and optionally a kinetic promoter into the second vessel;
 - e) removing any non-methane gas that does not form a clathrate;
 - f) optionally transferring the clathrate slurry to a third vessel;
 - g) adjusting the temperature and/or pressure to form a stable sII gas clathrate hydrate pellet; and
 - h) transferring the gas clathrate pellet to a fourth vessel, for storage and accumulation.
9. The method according to claim 8, further comprising the step of:
 - i) transferring the processed crude oil from the first vessel to a container, pipeline, ship, or refinery for further processing.
10. The method according to claim 8 further comprising the step of:
 - j) removing any unprocessed gas from the second vessel.

11. The method according to claim 10 wherein the unprocessed gas is carbon dioxide.
12. The method according to claim 10 wherein the unprocessed gas comprises one or more selected from the group consisting of ethane, propane, butane and mixtures thereof.
13. The method according to claim 8 wherein the promoter is selected from the group consisting of tetrahydrofuran, cyclopentane, 2,2-dimethylbutane, methylcyclohexane, neohexane, 2-methylcyclohexane, p-nacolone, isoamyl alcohol, tertiary-butyl methyl ether, and mixtures thereof.
14. A method for recovering methane at an oil refinery, comprising:
 - a) receiving volatile gases separated during a refinery process into a first vessel;
 - b) introducing water, optionally a thermodynamic promoter, and optionally a kinetic promoter ~~such as a surfactant or amino acid~~ into the second vessel;
 - c) adjusting temperature and/or pressure of the first vessel to produce formation of a clathrate slurry;
 - d) optionally removing any unprocessed gases;
 - e) optionally transferring the slurry to a second vessel;
 - f) adjusting the temperature and/or pressure to form a stable sII gas clathrate hydrate pellet; and
 - g) optionally transferring the sII gas clathrate hydrate to a storage vessel having one or more of the following characteristics:
 - i) neutrally or near-neutrally buoyant,
 - ii) strong enough to effectively contain the sII gas clathrate hydrate without substantial leaking or rupturing, and
 - iii) flexible to effectively resist substantial formation of void volume.
15. The method according to claim 14 wherein the unprocessed gas is carbon dioxide.
16. The method according to claim 14 wherein the unprocessed gas one or more selected from the group consisting of ethane, propane, butane and mixtures thereof.

17. The method according to claims 14 wherein the promoter is selected from the group consisting of tetrahydrofuran, cyclopentane, 2,2-dimethylbutane, methylcyclohexane, neohexane, 2-methylcyclohexane, p-nacolone, isoamyl alcohol, tertiary-butyl methyl ether, and mixtures thereof.
18. The method according to claim 14 wherein the storage vessel containing the stable sII methane clathrate hydrate is transported to a site for further processing into liquefied natural gas.
19. A method for extracting methane from a reservoir of natural gas hydrates currently existing in nature comprising:
 - a) receiving methane that has been dissociated from an existing natural gas hydrate reservoir into a first vessel;
 - b) introducing water, optionally a thermodynamic promoter into a second vessel to form a clathrate slurry and optionally a kinetic promoter into the second vessel;
 - c) adjusting the temperature and/or pressure to form a stable sII gas clathrate hydrate pellet; d) removing any non-methane gas that does not form a stable sII gas clathrate hydrate pellet;
 - d) optionally transferring the a stable sII gas clathrate hydrate pellet to a second vessel;
 - e) optionally transferring the stable sII gas clathrate hydrate pellet to a storage vessel having one or more of the following characteristics:
 - a) neutrally or near-neutrally buoyant,
 - b) strong enough to effectively contain the stable sII gas clathrate hydrate pellet without substantial leaking or rupturing, and
 - c) flexible to effectively resist substantial formation of void volume; and
 - f) directing heat generated from production of the stable sII gas clathrate hydrate pellet to a natural gas hydrate reservoir.
20. The method of claim 14 further comprising:
 - h) transferring the storage vessels to a storage facility.