CLAIMS

1. ~~1.~~ Subsea pumping system for use in a remote location such as a subsea hydrocarbon production facility, comprising
-a source for high pressure fluid; ~~and~~
a reciprocating or oscillating fluid driven pump (12, 32, 66, 92); and
a sequential valve (17, 27, 102, 104, 106, 108, 110) able to transform a steady fluid pressure to a pulsating fluid pressure in a motive fluid for excitation of the fluid driven pump, the sequential valve being fitted in a branch pipeline (26, 70, 87) between the source for high pressure fluid and the fluid driven pump (12, 32, 66, 92),
~~characterized in that~~ wherein the high pressure fluid, ~~is~~ used as a motive fluid for the pump (12, 32, 66, 92), is a fluid produced from a well ~~(claim 2 and 3)~~ in a pipeline (25, 62, 82). ~~that the pump (12, 32, 66, 92) is an reciprocating pump and that it comprises means for creating pressure pulses in the motive fluid, and where the source for the high pressure fluid is in the form of a pipeline (25, 62, 82) and a branch pipeline (26, 70, 87), wherein the branch pipeline (26, 70, 87) leads to the means (17, 27, 102, 104, 106, 108, 110) for creating pressure pulses.~~

2. The subsea~~Subsea~~ pumping system according to claim 1, wherein ~~characterized in that~~ the source for the motive fluid is a compressor using produced gas.

3. The subsea~~Subsea~~ pumping system according to claim 1, wherein ~~characterized in that~~ the source for the motive fluid is a liquid pump using produced liquids, i.e. oil or water.

4. The subsea~~Subsea~~ pumping system according to claim 1, wherein ~~characterized in that~~ the source for the motive fluid is an injection fluid provided by a pump located at topside facility.

5. The subsea~~Subsea~~ pumping system according to claim 1, wherein ~~characterized in that~~ the reciprocating pump is a diaphragm pump.

6. The subsea~~Subsea~~ pumping system according to claim 1, wherein ~~characterized in that~~ the reciprocating pump is a hose diaphragm pump.

7. The subsea~~Subsea~~ pumping system according to claim 1, wherein~~characterized in that~~ the reciprocating pump is a piston pump.

~~8. Subsea pumping system according to claim 1, characterized in that the means for creating pressure pulses comprises at least one valve arranged between the source and the pump.~~

~~9~~8. The subsea~~Subsea~~ pumping system according to claim 1~~8~~, wherein ~~characterized in that~~ the sequential valve ~~pulse means~~ comprises an inlet valve and an outlet valve that is synchronized to provide the pulses.

~~10~~9. The subsea~~Subsea~~ pumping system according to claim 1~~8~~, wherein ~~characterized in that~~ the sequential valve ~~pulse means~~ comprises a rotating sequencing valve.

~~11~~10. The subsea~~Subsea~~ pumping system according to claim ~~10~~9, wherein ~~characterized in that~~ the rotating sequencing valve has a rotational axis parallel or transverse to a pipeline axis for the pipeline wherein the valve is arranged.

~~12~~11. The subsea~~Subsea~~ pumping system according to claim 1, ~~characterized in that it comprises~~further comprising at least one separator.

~~13. Method for operating a subsea reciprocating pump, comprising the steps of~~

- ~~separating out one fluid phases from the well stream,~~
- ~~increasing the pressure of said one fluid phase, and~~
- ~~extracting some of the pressurized fluid to use as the motive fluid for the reciprocating pump.~~

~~14. Method according to claim 13 where the pressurized fluid is fed to the reciprocating pump through a sequential valve.~~

~~15. Method according to claim 13 having means to regulate the pressure differential.~~