

Claims

1. A system for circulating a fluid in a non-resistive manner to elevated height comprising:

- 5 at least one source container (1, 17, 35, 54),
 at least one closed container (2, 21, 29, 29, 48, 58, 63), and
 at least one elevated container (3, 34, 44, 53, 68);

wherein the system further comprises:

- at least one group of source pipes (4, 24, 32, 37, 46, 56) for fluid circulation,
10 operatively connected between the at least one source container and at least one
 closed container, and

 at least one group of extract pipes (19, 27, 42, 51, 66) for fluid circulation,
operatively connected between the at least one closed container and the at least one
elevated container,

- 15 wherein each group of pipes comprises at least one output pipe (6) and at
least one input pipe (7),

 wherein the system is provided with

 circulation mechanisms (11, 12, 20, 23, 28, 31, 38, 41, 47, 50, 57, 65),

and

- 20 start stop mechanisms (13, 14, 18, 25, 26, 33, 36, 43, 45, 47, 50, 52,
55, 57, 60, 62, 67),

characterised in that the system achieves non-resistive circulation by
circulating through one group of pipes at a time, wherein the gravitational force of the
fluid column of an output pipe (6) is substantially equal to the gravitational force of
25 the fluid column of an input pipe (7).

2. The system according to claim 1, characterised in further comprising a
plurality of circulation units connected in series.

- 30 3. The system according to claim 1, characterised in further comprising a
plurality of circulation units connected in parallel.

4. The system according to claim 2-3, characterised in further comprising a plurality of serially and parallelly connected circulation units.
5. The system according to claim 2-4, characterised in further that at least one circulation unit is circulation fluid with a different composition.
6. The system according to claim 2-4, characterised in further that at least one circulation unit is circulating fluid in a different location.
- 10 7. The system according to claim 1, characterised in further comprising at least one elevated container located below the maximum elevation limit.
8. The system according to claim 1, characterised in further comprising a plurality of open or closed source containers.
- 15 9. The system according to claim 1, characterised in further comprising a plurality of open or closed elevated buffer containers.
10. The system according to claim 1, characterised in further comprising a plurality of open or closed elevated containers.
- 20 11. The system according to claim 1, characterised in further comprising at least one evacuation device.
- 25 12. The system according to claim 1 characterised in further comprising of sensors for monitoring of contaminants.
13. The system according to claim 14-15, characterised in further comprising means for programmed control of the circulation system.
- 30 14. A method for circulating a fluid in a non-resistive manner to elevated height in a system according to claim 1, comprising:

at least one source container (1, 17, 35, 54),
 at least one closed container (2, 21, 29, 29, 48, 58, 63), and
 at least one elevated container (3, 34, 44, 53, 68);

wherein the system further comprises:

5 at least one group of source pipes (4, 24, 32, 37, 46, 56) for fluid circulation,
 operatively connected between the at least one source container and the at least
 one closed container, and

 at least one group of extract pipes (19, 27, 42, 51, 66) for fluid circulation,
 operatively connected between the at least one source container and the at least
 10 one elevated container,

the method comprising the steps of circulating through one group of pipes at a time:

- a) close a valve (14, 25, 33, 43, 52, 67) for the extract pipes,
- b) open a valve (13, 18, 26, 36, 45, 55) for the source pipes,
- c) activate a circulation mechanism (11, 20, 28, 38, 57) to circulate fluid in
- 15 a non-resistive manner through the source pipes,
- d) close the valve (13, 18, 26, 36, 45, 55) for the source pipes,
- e) open the valve (14, 25, 33, 43, 52, 67) for the extract pipes,
- f) activate a circulation mechanism (12, 23, 31, 41, 50, 65) to circulate
- 20 fluid in a non-resistive manner through the extract pipes.