CLAIMS

1. A method for cleaning a storage tank using a plurality of devices comprising steps of:-

positioning a first device at a first position of the storage tank;

controlling the first device to move on a bottom of the storage tank to remove an impurity at the bottom of the storage tank by water jetting;

attaching a second device to a second position of the storage tank;

controlling the second device to move on an inner side wall of the storage tank to remove the impurity on the inner side wall of the storage tank by water jetting after the first device has removed the impurity at the bottom of the storage tank; and

controlling the first device to remove the impurity which has fallen onto the bottom of the storage tank caused by removal of the impurity on the inner side wall of the storage tank by the second device.

2. The method according to claim 1, wherein the first position is on a surface approximate an edge of the storage tank.

3. The method according to claim 2, wherein the surface includes the bottom or the inner side wall.

4. The method according to claim 1, wherein the second position is on the inner side wall.

5. The method according to claim 1, wherein the second device comprises at least one magnet to allow the second device to climb the inner side wall by magnetic force.

6. The method according to claim 5, wherein the second device comprises a water jet operable to wash the inner side wall to remove the impurity.

7. The method according to claim 6, wherein the method further comprises a step of controlling the second device to remove stain caused by a mist from the water jet, after the second device removes the impurity on the inner side wall.

8. The method according to claim 6, wherein the second device is operated pneumatically.

9. The method according to claim 5, wherein the method further comprises steps of arranging a pump on the second device; and controlling the pump to pump water for water jetting the impurity on the inner side wall.

10. The method according to claim 9, wherein the pump includes an ultra-high pressure (UHP) pump.

11. The method according to claim 1, wherein at least one of a third device and a fourth device is arranged on a top of the storage tank.

12. The method according to claim 11, wherein the method further comprises a step of sprinkling water inside the storage tank using the at least one of the third device and the fourth device.

13. The method according to claim 11, wherein the method further comprises a step of sprinkling a chemical inside the storage tank using the at least one of the third device and the fourth device to reduce viscosity of the impurity.

14. The method according to claim 13, wherein the at least one of the third device and the fourth device includes a nozzle operable to sprinkle the chemical onto the inner side wall so that the chemical flows down to the bottom of the storage tank.

15. The method according to claim 14, wherein the nozzle is operable to turn in a predetermined angle at a predetermined timing.

16. The method according to claim 13, wherein the method further comprises a step of circulating the chemical at the bottom of the storage tank back to the at least one of the third device and the fourth device.

17. The method according to claim 16, wherein the method further comprises a step of arranging at least one filtration tank outside the storage tank in order to trap at least a part of the impurity which is pumped out together with the chemical during the circulation.

18. The method according to claim 17, wherein the method further comprises a step of introducing the first device into the storage tank to remove a remaining impurity at the bottom, after the filtration tank traps the at least a part of the impurity.

19. The method according to claim 18, wherein the method further comprises a step of introducing the second device into the storage tank to remove the remaining impurity on the inner side wall.

20. The method according to claim 1, wherein the first device is introduced into the storage tank using a lever through a manhole in a side wall of the storage tank.

21. The method according to claim 1, wherein at least one of the plurality of devices is operated by a remote controller.

22. A system for cleaning a storage tank using a plurality of devices comprising:

a first device, positioned at a first position of the storage tank, arranged to move on a bottom of the storage tank to remove an impurity at the bottom of the storage tank by water jetting; and

a second device, attached to a second position of the storage tank, arranged to move on an inner side wall to remove the impurity on the inner side wall of the storage tank by water jetting;

wherein the first device is arranged to remove the impurity which has fallen onto the bottom of the storage tank caused by removal of the impurity on the inner side wall of the storage tank by the second device.