CLAIMS (CLEAN VERSION)

1. A spread moored vessel (1) for production and storage of hydrocarbons, the vessel (1) comprising

- a laterally extending main deck (D),
- a mooring arrangement (M) for mooring the vessel (1) to a seabed when the vessel is floating in a body of water (W) and
- a longitudinal hull (2),

wherein the ratio between a maximum length (L_{wl}) and a maximum breadth (B_{wl}) of the longitudinal hull (2), at the vessel's (1) maximum draught, is between 1.1 and 1.5 and

wherein the longitudinal length of the vessel (1) is separated into a cargo zone (CZ) comprising at least one cargo tank (100a) and at least one non-cargo zone (NCS),

characterized in that the longitudinal hull (2) comprises

- a motion suppressing element (6) protruding out from the longitudinal hull (2), below the vessel's (1) maximum draught, for suppression of heave, pitch and roll,
- a bow (3) having a lateral cross section in the shape of a rounded triangle,
- a midbody (2a,2b) and
- a stern (4),

wherein the lateral cross section of the midbody (2a,2b) and the stern (4) at the vessel's maximum draught has a rectangular shape.

2. The vessel (1) according to claim 1, **characterized in that** the ratio between the maximum length (L_{wl}) and the maximum breadth (B_{wl}) of the longitudinal hull (2), at the vessel's (1) maximum draught, is between 1.2 and 1.4.

3. The vessel (1) according to claim 1 or 2, **characterized in that** the motion suppressing element (6) protrudes out from the bow (3), the midbody (2a,2b) and the stern (4), below the vessel's (1) maximum draught.

4. The vessel (1) according to any of the preceding claims, **characterized in that** the motion suppressing element (6) protrudes laterally from the hull (2) along at least 70 % of the hull's (2) lateral extending circumference.

5. The vessel (1) according to any of the preceding claims**, characterized in that** the motion suppressing element (6) protrudes laterally from a lowermost part of the hull (2).

6. The vessel (1) according to any of the preceding claims**, characterized in that** the lateral protrusion length of the motion suppressing element (6) is between 5 % and 30 % of the hull's (2) maximum breadth (B_{wl}) at the vessel's (1) maximum draught.

7. The vessel (1) according to any of the preceding claims, **characterized in that** the midbody (2a,2b) comprises a port side portion (2a) and a starboard side portion (2b), where at least 30 % of the longitudinal length of the midbody (2a,2b) are flat and oriented parallel to a center plane (CP) of the hull (2), the center plane (CP) being the plane intersecting the hull (2) midway between the port and starboard side portions (2a,2b) and aligned perpendicular to the laterally extending main deck (D).

8. The vessel (1) according to any of the preceding claims, **characterized in that** the transition region between the bow (3) and the midbody (2a,2b) forms abrupt change of angle (BA) at the vessel's maximum draught, relative to the center plane (CP), the center plane (CP) being the plane intersecting the hull (2) midway between the port and starboard side portions (2a,2b) and aligned perpendicular to the laterally extending main deck (D).

9. The vessel (1) according to claim 8, **characterized in that** the angle (BA) is at least 20 degrees.

10. The vessel (1) according to any of the preceding claims, **characterized in that** the longitudinal length of the bow (3) at the vessel's maximum draught is at least 25 % of the maximum length (L_{wl}) of the hull (2).

11. The vessel (1) according to any of the preceding claims**, characterized in that** the mooring arrangement (M) comprising a plurality of mooring lines (M), wherein

at least one mooring line (Mb) is moorable from a location at or near the center of the bow (3) relative to the hull's (2) breadth,

at least one mooring line (Msp) is moorable from a location adjacent the stern (4) at the port hull side and

at least one mooring line (Msb) is moorable from a location adjacent the stern (4) at the starboard hull side.

12. The vessel (1) according to claim 11, **characterized in that** the motion suppressing element (6) displays recesses (7) at the lateral locations of the plurality of mooring lines (M) when the vessel (1) is moored to the seabed.

13. The vessel (1) according to any of the preceding claims, **characterized in that** the longitudinal hull (2) further displays at least one slop tank (100b) situated adjacent to the at least one cargo tank (100a).

14. The vessel (1) according to claim 13, **characterized in that** the at least one slop tank (100b) is arranged in or adjacent to the center plane (CP) of the hull (2), the center plane (CP) being the plane intersecting the hull (2) midway between a port side portion (2a) and a starboard side portion (2b) constituting the midbody (2a,2b) and aligned perpendicular to the laterally extending main deck (D).

15. The vessel (1) according to any of the preceding claims, **characterized in that** at least one of the at least one non-cargo zone (NCZ) is located within the bow (3).

16. The vessel (1) according to any of the preceding claims, **characterized in that** the longitudinal hull (2) comprises at least two walls having a space therebetween, into which at least one ballast tank (101) is located.

17. The vessel (1) according to any of the preceding claims, **characterized in that** the vessel (1) is configured to allow hang off of a multiple riser arrangement at at least one of the midbody (2a,2b), the bow (3) and the stern (4).

18. The vessel (1) according to any of the preceding claims, **characterized in that** a plurality of riser guide pipes (8) are arranged along at least part of the lateral circumference of the longitudinal hull (2), where each of the plurality of riser guide pipes (8) is configured to allow at least one riser to be guided therethrough.

19. The vessel (1) according to any of the preceding claims, **characterized in that** the projected lateral surface area of the hull (2) at the vertical position of the main deck (D) is larger than the projected lateral surface area of the hull (2) at the vertical position of the vessel's maximum draught.

20. The vessel (1) according to any of the preceding claims, **characterized in that** the projected lateral surface area of the hull (2) at the vertical position of the main deck (D) is at least 10 % larger than the projected lateral surface area of the hull (2) at the vertical position of the vessel's maximum draught.

21. The vessel (1) according to claim 19 or 20, **characterized in that** the onset of increase of the projected lateral surface area of the hull (2) from the vertical position of the vessel's maximum draught to the vertical position of the main deck (D) commences at or above the vessel's (1) maximum draught.

22. The vessel (1) according to claim 20 or 21, **characterized in that** the increase of the projected lateral surface area of the hull (2) from the vertical position of the vessel's maximum draught to the vertical position of the main deck (D) is constant.

23. The vessel (1) according to any of the preceding claims, **characterized in that** the ratio between

the maximum length (L_{wl}) of the longitudinal hull (2) and

a maximum depth (D_{wl}) of the longitudinal hull (2) defined as a distance from the vertical position of the main deck (D) to the lowermost part of the hull (2)

is between 2 and 6.