

Claims

1. A method for large scale, air cooled floating liquefaction, storage and offloading of natural gas, the method comprising:
 - a) Gas gathering from onshore sources and treating the gas on shore by removal of mercury, removal of acid gas, dehydration and removal of C6+ hydrocarbons,
 - b) onshore compression and cooling of the treated gas;
 - c) piping of the compressed gas from onshore to an offshore pipeline end manifold;
 - d) piping of gas from the pipeline end manifold to an offshore ship shaped, external turret moored vessel;
 - e) reception of the gas on the vessel via a swivel mounted on the turret;
 - f) distribution of the gas to three parallel liquefaction trains on the vessel;
 - g) gas liquefaction by methane refrigerant and subsequent flash;
 - h) cooling the gas from compressors by heat exchange with water;
 - i) heating the cooling water to 80°C or higher downstream process heat exchangers;
 - j) cooling of the cooling water by heat exchange with air in air coolers:
 - k) air coolers mounted on at least three mechanically independent cantilevers, in total extending at least 50% of the vessel length;
 - l) recycling the cooled cooling water to process heat exchangers;
 - m) gas turbine air intakes for liquefaction and utilities located on the opposite side of the air cooler cantilevers;
 - n) sending LNG that is not completely stabilized to storage tanks;
 - o) storing produced LNG in multiple smaller membrane tanks onboard the vessel;
 - p) flashing LNG in the storage tanks;
 - q) gas offloading to LNG tank vessels while the liquefaction processes are in full production.

2. The method according to claim 1, wherein the gas offloading is done by means of offloading arms located on the side of the ship shaped, external turret moored vessel being opposite of the cantilever air coolers.
3. The method according to claim 1, wherein the gas offloading is done by means of parallel offloading.
4. The method of claim 1, wherein the gas is gathered from onshore pipeline networks.
5. The method of claim 1, wherein flash gas from the LNG storage tanks is used as fuel gas onboard the vessel.
6. The method of claim 1, wherein the water content in the gas received onboard the vessel is monitored, and that the incoming gas is dehydrated before introduction into step f) if the water content of the gas is above a pre-set level.