Vapour Emission Control Plan at KNOC Yeosu Terminal

1. Loading Specification
   1) Cargo Grade : (API : , Temp : F)
   2) Q'ty :
   3) Date range :
   4) Ship's Name :

2. Vessel's Preparation

   1) Prior to berthing
      ① Keeping proper positive pressure : Less than 200mmWG(Low pressure)
      - Vessel's tank pressure should be released to its minimum(Low pressure) at sea **(When depressing tank pressure, ship's vapour line manifold and forward IGS End Line should be used to release tank pressure for blowing out scale and condensated water inside of vapour line)**
      - Terminal Regulation : Less than 200mmWG(Low pressure)
      - Oxygen content : Less than 8% by volume

      ② Following devices are to be in good order and operational condition
      - Vapour monitoring systems including vapor pressure gauges
      - Pressure safety devices such as p/v, breather valves and p/v breaker
      - Vent valves such as IG branch valves and associated valves

      ③ Ready for use of vapor return line
      - ANSI type 16"(To prepare reducer if needed)
      - Free up port & stb'dside VOC manifold flanges
      - Clean up scales or any articles inside of vessel vapour line
      - Remove condensated water inside the pipes by draining at Manifold

   2) After Berthing
      ① Blowing out ship's VOC Manifold to check any foreign body inside inert gas pipeline in presence of terminal loading master before connecting terminal VOC Loading Arm(16" × 1 line)
      ② Terminal loading master will check all drain points on deck IGS line, vapour line manifold and forward IGS End flange to confirm no scale and water left inside.
      ③ If the results of inspection is not satisfactory, Terminal manager will have the ship de-berthed immediately.

3) Items to be discussed while ship/shore Safety Meeting

① Assurance of max. loading/flow rate per an hour ⇒ 53,000bph

② Normal working vapour pressure on board ⇒ 200~900mmH2O
(In consideration of present vessel's setting limits)

③ Shore setting pressure based on above ②

④ To keep closed loading overall
(If vessel can maintain closed loading even in gauging and sampling)

⑤ Open/Check manifold drain every 2 hrs and gathering drainage.

⑥ Check Hydro Carbon Gas concentration every 1 hr at Vapor Manifold (if needed)

3. Notice to Vessel's Master

1) Vessel should be fully cooperate to protect Terminal DSU(Dock Safety Unit) through above Item 2. "Vessel's Preparation" 1)~3).

2) In case of any delays, costs, expenses and consequential loss that we and/or any third party may suffer by ship's foreign body, such as moisture, scales, soots, among ship's gas inside IG Deck Pipeline, We will issue our protest holding you responsible for all attendant problems.

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Master of " M/T " Terminal Representative