Deficiencies:

- **09213 - Gas instruments**
  
  Description:
  
  A permanently installed system of gas detection and audible and visual alarms should be provided for other enclosed spaces in the cargo area where vapor may accumulate including hold spaces and interbarrier spaces for independent tanks other than type [13.6.7]. For spaces listed in 13.6.7, alarms should be activated for flammable products when the vapour concentration reaches 30% of the lower flammable limit [13.3.10].

  When testing the fixed gas detection for the cargo tank hold spaces, crewmember supplied 50% LEL propane test gas directly to the catalytic gas sensor and the digital LEL readout stabilized at 24% LEL. Crewmembers then tried carrying out tests from different hold space sampling lines and internal gas cabinet sampling line with no successful LEL readings on the display.

- **15105 - Resources and personnel**
  
  Description:
  
  The company should establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant rules and regulations and with any additional requirements which may be established by the company.

  While carrying out tests of the cargo tank high pressure alarms, the crew did not use the appropriate hand pump [Yokogawa BT200] as required by ship's established SMS [Ship work order/requisition form No:3011893 dated 20-10-2019]. While testing, the crew seemed unfamiliar with how to use the test equipment and instead used a bottle with compressed nitrogen to carry out local tests.
The company should establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant rules and regulations and with any additional requirements which may be established by the company.

The vessel documented deck water spray system testing and servicing on 07 Oct 2019 and 31 Oct 2019. While testing during the COC examination, PSCOs observed inadequate coverage on over 50% of the water spray system including the number 2/3/4 cargo tank domes, port/starboard manifolds, forward of the compressor room and over the cargo booster pumps and vaporizer.

When questioned about the ship's procedures for carrying out tests of the fixed gas detection, the ship's crew informed the PSCOs that there were no written procedures for carrying out tests. When asked to test the fixed gas detection, the crew was not following any written procedures.

On ships carrying flammable or toxic products or both, a water-spray system for cooling, fire prevention and crew protection should be installed to cover: exposed cargo tank domes and any exposed parts of cargo tanks; exposed on-deck storage vessels for flammable or toxic products; [and,] cargo liquid and vapour discharge and loading manifolds and the area of their control valves and any other areas where essential control valves are situated and which should be at least equal to the area of the drip trays provided.

During COC examination, PSCOs observed inadequate coverage on over 50% of the water spray system including the number 2/3/4 cargo tank domes, port/starboard manifolds, fwd of the compressor room and over the cargo booster pumps and cargo vaporizer.